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(71) Applicant: **CUREVAC AG** [DE/DE]; Paul-Ehrlich-Str. 15, 72076 Tübingen (DE).

(72) Inventors: **FOTIN-MLECZEK, Mariola**; Chemnitzer Weg 10, 71065 Sindelfingen (DE). **HOERR, Ingmar**; Hasenbergstr. 99, 70176 Stuttgart (DE).

(74) Agent: **VON STOSCH, Andreas** et al.; GRAF VON STOSCH, PATENTANWALTSGESELLSCHAFT MBH, Prinzregentenstr. 22, 80538 Munich (DE).

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(54) Title: RNA ENCODING AN ANTIBODY

(57) Abstract: The present invention relates to a RNA encoding an antibody or a fragment or variant thereof and a composition, in particular a passive vaccine, comprising such an RNA. The present invention further relates to the use of such an RNA or of such a composition for treatment of tumours and cancer diseases, cardiovascular diseases, infectious diseases, autoimmune diseases, virus diseases and monogenetic diseases, e.g. also in gene therapy. The present invention also relates to a combination of at least two modified RNA's, in particular wherein one RNA encodes a heavy chain variable region of an antibody and another RNA encodes the corresponding light chain variable region of said antibody.

WO 2017/186928 A1

RNA encoding an antibody

The present application claims the priority of international patent application PCT/EP2016/059711 filed on April 29, 2016, which is incorporated herein by reference in its entirety.

The present invention relates to a RNA encoding an antibody or a fragment or variant thereof and a composition, in particular a passive vaccine, comprising such an RNA. The present invention further relates to the use of such an RNA or of such a composition for treatment of tumours and cancer diseases, cardiovascular diseases, infectious diseases, autoimmune diseases, virus diseases and monogenetic diseases, e.g. also in gene therapy. The present invention also relates to a combination of at least two modified RNA's, in particular wherein one RNA encodes a heavy chain or a heavy chain variable region of an antibody and another RNA encodes the corresponding light chain or light chain variable region of said antibody.

The occurrence of tumours and cancer diseases is, alongside cardiovascular and infectious diseases, one of the most frequent causes of death in modern societies and is associated with usually considerable costs during the therapy and subsequent rehabilitation measures. The treatment of tumours and cancer diseases depends greatly, for example, on the nature of the tumour which occurs and at present conventionally is undertaken by using radio- or chemotherapy, in addition to invasive interventions. However, these therapies represent an exceptional burden on the immune system, and in some cases can be employed to only a limited extent. Furthermore, these therapy forms usually require long pauses between the individual treatments for regeneration of the immune system. In recent years, alongside these "conventional methods", molecular biology programmes in particular have emerged as promising for the treatment or for assisting these therapies.

An example of these molecular biology methods comprises the use of antibodies or immunoglobulins as essential effectors of the immune system. Antibodies or immunoglobulins can be generated either *in vitro* by using known molecular biology methods or by the immune system of the organism itself to be treated. The immune system of higher vertebrates thus has two separate functions of the immune system: the innate immune system, which reacts non-

specifically to pathogens (e.g. by macrophage-mediated phagocytosis) and the adaptive immune system, which reacts specifically to pathogens by means of specialized effector cells (e.g. B and T cells). The antibodies or immunoglobulins which are secreted by plasma cells during an immune response are part of this adaptive immune system. Together with the complement system, they form the humoral branch of the immune response.

Alongside their essential importance for the immune system in higher vertebrates, precisely because of their high affinity and specificity for a particular antigen antibodies are an outstanding means both in biochemical and molecular biology research and in diagnostics and medical uses. Thus, antibodies are capable of binding specifically to their target structures (e.g. antigens, which substantially comprise proteins, peptides, in some cases lipids, carbohydrates etc.) and of thereby blocking (inhibiting) or, where appropriate, labelling these. They can moreover activate the immune system by means of their Fc part, so that the labelled cells are destroyed. Over 100 therapeutic antibodies are currently to be found in clinical studies. Antibodies which can be employed in cancer therapy play by far the most important role in this context. Most of the antibodies prepared for this at present are monoclonal antibodies which originate originally, for example, from the mouse. In order to prevent an immune reaction against such monoclonal antibodies, at present chiefly humanized or human antibodies are employed for therapy (cf. David Male; "Immunologie auf einen Blick [Immunology at a Glance]", 1st German edition, 2005, Elsevier-Urban & Fischer Verlag; Charles A. Janeway, Paul Travers, Mark Walport and Mark Shlomchik, Immunobiology, 5th edition, 2001, Garland Publishing; Dissertation by Christian Klein, Monoklonale Antikörper und rekombinante Antikörperfragmente gegen sekundäre Arzneipflanzenmetabolite [Monoclonal Antibodies and Recombinant Antibody Fragments Against Secondary Medicinal Plant Metabolites], 2004; Andreas Schmiedl and Stefan Dübel, Rekombinante Antikörper & Phagen-Display [Recombinant Antibody & Phage Display], 2004, Molekulare Biotechnologie [Molecular Biotechnology] (Wiley-VCH)).

Antibodies are typically immunoglobulins or can be derived from immunoglobulins. Immunoglobulins can in turn be differentiated into five main classes of immunoglobulins on the basis of their heavy chain, the IgM (μ), IgD (δ), IgG (γ), IgA (α) and IgE (ε) antibodies, IgG antibodies making up the largest proportion. Immunoglobulins can moreover be differentiated into the isotypes κ and λ on the basis of their light chains.

For example, IgG antibodies are typically built up two identical light and two heavy protein chains which are bonded to one another via disulfide bridges. As shown in Figure 1, the light chain comprises the N-terminal variable domain V_L (also referred to as “light chain variable region”) and the C-terminal constant domain C_L (also referred to as “light chain constant region”). The heavy

chain of an IgG antibody can be divided into an N-terminal variable domain V_H (also referred to as "heavy chain variable region") and three constant domains C_H1, C_H2 and C_H3 (all three constant domains together are also referred to as "heavy chain constant region"). While the amino acid sequence is largely the same in the region of the constant domains, wide differences in sequence are typically found within the variable domains.

The antibody repertoire of a human comprises about at least 10^{11} different antibody specificities. In higher vertebrates, the formation of antibodies takes place naturally in the immune system by somatic recombination. In this context, an organism is indeed theoretically capable of generating an antibody of appropriate specificity against any antigen. However, if each of these antibodies were to be coded by an endogenous gene, they would burst the human genome. Instead, in humans antibody genes are composed of a large number of individual gene segments. The part of the antibody gene which codes for the variable region of a light chain is formed from a V gene segment and a J gene segment. In this context, numerous different V and J segments are available, which can be combined with one another virtually as desired. In this context, the variable region of a heavy chain is composed of three different gene segments. In addition to the V and J segments, additional D segments are also found here. The V_H, D_H and J_H segments can likewise be combined with one another virtually as desired to form the variable region of the heavy chain (cf. Fig. 2). The mechanism by which the various gene segments are combined to form complete antibody genes is called immunoglobulin rearrangement or somatic recombination. It takes place exclusively in B lymphocytes at certain times of cell development.

In addition to pure gene rearrangement, further mechanisms for increasing the antibody diversity also exist. Two mechanisms which are accompanied by somatic recombination are first to be mentioned in this context: The junctional diversity in this context describes controlled imprecise joining together of the rearranged gene segments, as a result of which random removal and insertion of nucleotides occurs at the cleavage sites. A further combinatorial diversity results from the possibility of combining a particular rearranged light chain with a particular rearranged heavy chain. Finally, the diversity of antibodies is also additionally increased after successful rearrangement and later activation of B cells, in that an affinity maturation of antibodies occurs due to an increased rate of mutation in the region of the variable regions of activated B cells (somatic hypermutation).

In addition to the formation of antibodies which takes place naturally by the immune system of the particular organism, antibodies can also be generated by molecular biology methods. However, in order to utilize the system elaborated for specification of antibody formation and specification thereof for particular antigens or nucleic acids, the formation of antibodies is at present typically

induced in selected organisms by injection of a particular antigen, and the antibody is then isolated from the organism for further use. In this context, the B lymphocytes of the organism are conventionally purified selectively and fused with an immortal myeloma cell to form a hybridoma cell. Those cells which secrete the corresponding antigen-specific antibodies are then determined by selection methods.

In addition to use of hybridoma cells, recombinant preparation of these antibodies with the desired specificity is also possible after isolation and sequencing. Cells which provide the required posttranslational modifications are typically used for this. On the basis of the immune reaction with formation of human anti-mouse antibodies in the human organism in the case of native antibodies produced in the mouse (or in other hosts), chimeric, humanized or human antibodies are preferably prepared here.

After expression, these antibodies, optionally prepared by recombinant methods, can be employed as agents both in biochemical and molecular biology research, and in diagnostics and for medical uses.

In medical uses, however, in many cases antibodies can be employed directly only with difficulty, since these usually have only a very short half-life *in vivo* and therefore, possibly, cannot reach their target antigen or their target nucleic acid at all. This requires either high active compound concentrations of the desired antibody, or alternative methods which are suitable for providing large amounts of antibodies *in vivo*.

Such methods include, e.g. molecular medicine methods of gene therapy and genetic vaccination which, when used generally in the therapy and prevention of diseases, have considerable effects on medical practice. Both methods are based on the introduction of nucleic acids into cells or into tissue of the patient and on subsequent processing by the cells or, respectively, tissue of the information coded by the nucleic acids introduced, i.e. expression of the desired polypeptides, e.g. antibodies, in the cells or respectively, the tissue.

The conventional procedure of methods of gene therapy and of genetic vaccination is based on the use of DNA to sluice the required genetic information into the cell. Various methods for introducing DNA into cells have been developed in this connection, such as, for example, calcium phosphate transfection, polyprene transfection, protoplast fusion, electroporation, microinjection, lipofection and the use of gene canons, lipofection in particular having emerged as a suitable method.

A further method which has been proposed in particular in the case of genetic vaccination methods is the use of DNA viruses as DNA vehicles. Such viruses have the advantage that because of their infectious properties a very high transfection rate can be achieved. The viruses used are genetically modified, so that no functional infectious particles are formed in the transfected cell. The use of DNA viruses as DNA vehicles, however, has been criticized in recent years because of the risk of recombination of non-active viruses to give active viruses.

The use of DNA as an agent in gene therapy and genetic vaccination or for passive immunization (by passive vaccines), e.g. by using coding sequences for antibodies, may, however, also be less advantageous from some points of view. DNA is degraded only relatively slowly in the bloodstream, so that when (foreign) DNA is used as the coding sequence for a desired protein, a formation of anti-DNA antibodies may occur, which has been confirmed in an animal model in the mouse (Gilkeson *et al.*, J. Clin. Invest. 1995, 95: 1398-1402). The possible persistence of (foreign) DNA in the organism can thus lead to a hyperactivation of the immune system, which as is known results in splenomegaly in mice (Montheith *et al.*, Anticancer Drug Res. 1997, 12(5): 421-432). Furthermore, (foreign) DNA can interact with the host genome, and in particular cause mutations by integration into the host genome. Thus, for example, the (foreign) DNA introduced may be inserted into an intact gene, which represents a mutation which can impede or even completely switch off the function of the endogenous gene. On the one hand enzyme systems which are vital for the cell may be destroyed by such integration events, and on the other hand there is also the danger of a transformation of the cell modified in this way into a degenerated state if a gene which is decisive for regulation of cell growth is modified by the integration of the foreign DNA. With the methods to date of gene therapy and genetic vaccination and also of passive immunization, a risk of development of cancer therefore cannot necessarily be ruled out when (foreign) DNA is used. In this context, passive immunization (by so-called "passive vaccines") is to be strictly differentiated from so-called active immunization. In active immunization, an antigen ("active vaccine") is typically administered, after which the organism forms antibodies against this antigen. Active immunization thus creates a permanent immunization of the organism against the particular antigen, which can be associated with the disadvantages described above. In passive immunization, in contrast, only an antiserum or the purified antibody itself ("passive vaccine") is administered to the organism. The coding sequence for the antibody can likewise be administered, as described above, as a so-called passive vaccine for passive immunization.

Summarizing, in the prior art there is an increased demand for and a considerable interest in agents which are suitable for employing antibodies effectively *in vivo*, in particular for providing increased active compound amounts of antibodies *in vivo*, without the risks hitherto associated with the use of DNA.

It is thus an object of the present invention to provide an RNA encoding an antibody or a fragment thereof. In particular, it is an object to provide a system for expressing an antibody. It is a further object of the invention to provide such a system, which allows treatment and/or prophylaxis of a variety of diseases with antibodies in a safe and effective manner. It is thus a particular object of the present invention to provide a composition, in particular a passive vaccine, for treatment or prophylaxis of a variety of diseases, such as cancer, cardiovascular diseases, infectious diseases, autoimmune diseases, virus diseases and monogenetic diseases.

The object underlying the present invention is solved by the claimed subject matter.

The present application is filed together with a sequence listing in electronic format. The sequence listing is provided as a file entitled CU01P215WO1_Sequence listing.txt, created on April 26, 2017, which is 50,982 KB in size. The information contained in the electronic format of the sequence listing is incorporated herein by reference in its entirety.

For the sake of clarity and readability the following definitions are provided. Any technical feature mentioned for these definitions may be read on each and every embodiment of the invention. Additional definitions and explanations may be specifically provided in the context of these embodiments.

Adaptive immune response: The adaptive immune response is typically understood to be an antigen-specific response of the immune system. Antigen specificity allows for the generation of responses that are tailored, for example, to specific pathogens or pathogen-infected cells. The ability to mount these tailored responses is usually maintained in the body by "memory cells". Should a pathogen infect the body more than once, these specific memory cells are used to quickly eliminate it. In this context, the first step of an adaptive immune response is the activation of naïve antigen-specific T cells or different immune cells able to induce an antigen-specific immune response by antigen-presenting cells. This occurs in the lymphoid tissues and organs through which naïve T cells are constantly passing. The three cell types that may serve as antigen-presenting cells are dendritic cells, macrophages, and B cells. Each of these cells has a distinct function in eliciting immune responses. Dendritic cells may take up antigens by phagocytosis and macropinocytosis and may become stimulated by contact with e.g. a foreign antigen to migrate to the local lymphoid tissue, where they differentiate into mature dendritic cells. Macrophages ingest particulate antigens such as bacteria and are induced by infectious agents or other appropriate stimuli to express MHC molecules. The unique ability of B cells to bind and internalize soluble protein antigens via their receptors may also be important to induce T cells.

MHC-molecules are, typically, responsible for presentation of an antigen to T-cells. Therein, presenting the antigen on MHC molecules leads to activation of T cells, which induces their proliferation and differentiation into armed effector T cells. The most important function of effector T cells is the killing of infected cells by CD8+ cytotoxic T cells and the activation of macrophages by Th1 cells, which together make up cell-mediated immunity, and the activation of B cells by both Th2 and Th1 cells to produce different classes of antibody, thus driving the humoral immune response. T cells recognize an antigen by their T cell receptors which do not recognize and bind the antigen directly, but instead recognize short peptide fragments e.g. of pathogen-derived protein antigens, e.g. so-called epitopes, which are bound to MHC molecules on the surfaces of other cells.

Adaptive immune system: The adaptive immune system is essentially dedicated to eliminate or prevent pathogenic growth. It typically regulates the adaptive immune response by providing the vertebrate immune system with the ability to recognize and remember specific pathogens (to generate immunity), and to mount stronger attacks each time the pathogen is encountered. The system is highly adaptable because of somatic hypermutation (a process of accelerated somatic mutations), and V(D)J recombination (an irreversible genetic recombination of antigen receptor gene segments). This mechanism allows a small number of genes to generate a vast number of different antigen receptors, which are then uniquely expressed on each individual lymphocyte. Because the gene rearrangement leads to an irreversible change in the DNA of each cell, all of the progeny (offspring) of such a cell will then inherit genes encoding the same receptor specificity, including the Memory B cells and Memory T cells that are the keys to long-lived specific immunity.

Adjuvant/adjuvant component: An adjuvant or an adjuvant component in the broadest sense is typically a pharmacological and/or immunological agent that may modify, e.g. enhance, the effect of other agents, such as a drug or vaccine. It is to be interpreted in a broad sense and refers to a broad spectrum of substances. Typically, these substances are able to increase the immunogenicity of antigens. For example, adjuvants may be recognized by the innate immune systems and, e.g., may elicit an innate immune response. "Adjuvants" typically do not elicit an adaptive immune response. Insofar, "adjuvants" do not qualify as antigens. Their mode of action is distinct from the effects triggered by antigens resulting in an adaptive immune response.

Antibody: As used herein, the term "antibody" encompasses various forms of antibodies, preferably monoclonal antibodies, including but not being limited to whole antibodies, antibodies of any (recombinant or naturally occurring) antibody format, human antibodies, chimeric antibodies, humanized antibodies and genetically engineered antibodies (variant or mutant

antibodies) as long as the characteristic properties of an antibody are retained. Namely, an antibody recognizes a unique molecule of an antigen via its variable region. In particular, the antibody mediates this function by binding to the antigen. In particular, the term "antibody" refers to both, glycosylated and non-glycosylated immunoglobulins of any isotype or subclass (preferably IgG). An antibody may also be derived from an immunoglobulin, however, an antibody typically comprises an antigen-binding region (of an immunoglobulin) that is in particular able to compete with the "intact" immunoglobulin antibody for specific binding, unless otherwise specified. Preferred examples of antibodies include monoclonal antibodies, bispecific antibodies, minibodies, domain antibodies, synthetic antibodies, antibody mimetics, chimeric antibodies, humanized antibodies, human antibodies, antibody fusions, antibody conjugates, single chain antibodies, antibody derivatives, and antibody analogues. Unless otherwise indicated, the term "antibody" includes, in addition to antibodies comprising two full-length heavy chains and two full-length light chains, derivatives, variants, and antibodies of any formats, which do not comprise two full-length heavy chains and two full-length light chains. In some instances an "antibody" may thus include fewer chains, for example a single chain only. Especially preferred are human or humanized monoclonal antibodies and/or recombinant antibodies, especially as recombinant human monoclonal antibodies. Particularly preferred are human IgG-type antibodies.

Human antibody: The term "human antibody", as used herein, is intended to include antibodies having variable and constant regions derived from human (germ line) immunoglobulin sequences. In other words, the term "human antibodies" refers to antibodies which have human sequences, that is to say in the constant regions (if present) and in the variable regions. Human antibodies are well-known in the state of the art (van Dijk, M. A., and van de Winkel, J. G., *Curr. Opin. Chem. Biol.* 5 (2001) 368-374). Human antibodies can also be produced in transgenic animals (e.g., mice) that are capable, upon immunization, of producing a full repertoire or a selection of human antibodies in the absence of endogenous immunoglobulin production. Transfer of the human germ-line immunoglobulin gene array in such germ-line mutant mice will result in the production of human antibodies upon antigen challenge (see, e.g., Jakobovits, A., et al., *Proc. Natl. Acad. Sci. USA* 90 (1993) 2551-2555; Jakobovits, A., et al., *Nature* 362 (1993) 255-258; Bruggemann, M., et al., *Year Immunol.* 7 (1993) 3340). Human antibodies can also be produced in phage display libraries (Hoogenboom, H. R., and Winter, G., *J. Mol. Biol.* 227 (1992) 381-388; Marks, J. D., et al., *J. Mol. Biol.* 222 (1991) 581-597). The techniques of Cole et al. and Boerner et al. are also available for the preparation of human monoclonal antibodies (Cole et al., *Monoclonal Antibodies and Cancer Therapy*, Alan R. Liss, p. 77 (1985); and Boerner, P., et al., *J. Immunol.* 147 (1991) 86-95). In particular, the term "human antibody" as used herein also comprises antibodies of recombinant antibody formats as long as the variable regions (including the hypervariable regions) have human (germ line) immunoglobulin sequences.

Antigen: In the context of the present invention, the term "antigen" typically refers to a substance, which is capable of being recognized by the immune system, preferably by the adaptive immune system, and which is capable of eliciting an antigen-specific immune response, e.g. by formation of antibodies and/or antigen-specific T cells as part of an adaptive immune response. Typically, an antigen may be or may comprise a peptide or protein, which may be presented by the MHC to T-cells. In the sense of the present invention an antigen may be the product of translation of a provided nucleic acid molecule, preferably an RNA comprising at least one coding sequence as defined herein. In this context, also fragments, variants and derivatives of an antigen, such as a peptide or a protein, comprising at least one epitope are understood as antigens.

Artificial nucleic acid molecule: An artificial nucleic acid molecule may typically be understood to be a nucleic acid molecule, e.g. a DNA or an RNA, that does not occur naturally. In other words, an artificial nucleic acid molecule may be understood as a non-natural nucleic acid molecule. Such nucleic acid molecule may be non-natural due to its individual sequence (which does not occur naturally) and/or due to other modifications, e.g. structural modifications of nucleotides, which do not occur naturally. An artificial nucleic acid molecule may be a DNA molecule, an RNA molecule or a hybrid-molecule comprising DNA and RNA portions. Typically, artificial nucleic acid molecules may be designed and/or generated by genetic engineering methods to correspond to a desired artificial sequence of nucleotides (heterologous sequence). In this context an artificial sequence is usually a sequence that may not occur naturally, i.e. it differs from the wild type sequence by at least one nucleotide. The term "wild type" may be understood as a sequence occurring in nature. Further, the term "artificial nucleic acid molecule" is not restricted to mean "one single molecule" but is, typically, understood to comprise an ensemble of identical molecules. Accordingly, it may relate to a plurality of identical molecules contained in an aliquot.

Bicistronic RNA, multicistronic RNA: A bicistronic or multicistronic RNA is typically an RNA, preferably an mRNA, that typically may have two (bicistronic) or more (multicistronic) open reading frames (ORF). An open reading frame in this context is a sequence of codons that is translatable into a peptide or protein.

Carrier / polymeric carrier: A carrier in the context of the invention may typically be a compound that facilitates transport and/or complexation of another compound (cargo). A polymeric carrier is typically a carrier that is formed of a polymer. A carrier may be associated to its cargo by covalent or non-covalent interaction. A carrier may transport nucleic acids, e.g. RNA or DNA, to the target cells. The carrier may – for some embodiments – be a cationic component.

Cationic component: The term "cationic component" typically refers to a charged molecule, which is positively charged (cation) at a pH value typically from 1 to 9, preferably at a pH value of or below 9 (e.g. from 5 to 9), of or below 8 (e.g. from 5 to 8), of or below 7 (e.g. from 5 to 7), most preferably at a physiological pH, e.g. from 7.3 to 7.4. Accordingly, a cationic component may be any positively charged compound or polymer, preferably a cationic peptide or protein, which is positively charged under physiological conditions, particularly under physiological conditions *in vivo*. A "cationic peptide or protein" may contain at least one positively charged amino acid, or more than one positively charged amino acid, e.g. selected from Arg, His, Lys or Orn. Accordingly, "polycationic" components are also within the scope exhibiting more than one positive charge under the conditions given.

5'-cap: A 5'-cap is an entity, typically a modified nucleotide entity, which generally "caps" the 5'-end of a mature mRNA. A 5'-cap may typically be formed by a modified nucleotide, particularly by a derivative of a guanine nucleotide. Preferably, the 5'-cap is linked to the 5'-terminus via a 5'-5'-triphosphate linkage. A 5'-cap may be methylated, e.g. m7GpppN, wherein N is the terminal 5' nucleotide of the nucleic acid carrying the 5'-cap, typically the 5'-end of an RNA. Further examples of 5'cap structures include glyceryl, inverted deoxy abasic residue (moiety), 4',5' methylene nucleotide, 1-(beta-D-erythrofuranosyl) nucleotide, 4'-thio nucleotide, carbocyclic nucleotide, 1,5-anhydrohexitol nucleotide, L-nucleotides, alpha-nucleotide, modified base nucleotide, threo-pentofuranosyl nucleotide, acyclic 3',4'-seco nucleotide, acyclic 3,4-dihydroxybutyl nucleotide, acyclic 3,5 dihydroxypentyl nucleotide, 3'-3'-inverted nucleotide moiety, 3'-3'-inverted abasic moiety, 3'-2'-inverted nucleotide moiety, 3'-2'-inverted abasic moiety, 1,4-butanediol phosphate, 3'-phosphoramidate, hexylphosphate, aminohexyl phosphate, 3'-phosphate, 3'phosphorothioate, phosphorodithioate, or bridging or non-bridging methylphosphonate moiety.

Cellular immunity/cellular immune response: Cellular immunity relates typically to the activation of macrophages, natural killer cells (NK), antigen-specific cytotoxic T-lymphocytes, and the release of various cytokines in response to an antigen. In more general terms, cellular immunity is not based on antibodies, but on the activation of cells of the immune system. Typically, a cellular immune response may be characterized e.g. by activating antigen-specific cytotoxic T-lymphocytes that are able to induce apoptosis in cells, e.g. specific immune cells like dendritic cells or other cells, displaying epitopes of foreign antigens on their surface. Such cells may be virus-infected or infected with intracellular bacteria, or cancer cells displaying antibodies. Further characteristics may be activation of macrophages and natural killer cells, enabling them to destroy pathogens and stimulation of cells to secrete a variety of cytokines that influence the function of other cells involved in adaptive immune responses and innate immune responses.

DNA: DNA is the usual abbreviation for deoxy-ribonucleic acid. It is a nucleic acid molecule, i.e. a polymer consisting of nucleotides. These nucleotides are usually deoxy-adenosine-monophosphate, deoxy-thymidine-monophosphate, deoxy-guanosine-monophosphate and deoxy-cytidine-monophosphate monomers which are – by themselves – composed of a sugar moiety (deoxyribose), a base moiety and a phosphate moiety, and polymerise by a characteristic backbone structure. The backbone structure is, typically, formed by phosphodiester bonds between the sugar moiety of the nucleotide, i.e. deoxyribose, of a first and a phosphate moiety of a second, adjacent monomer. The specific order of the monomers, i.e. the order of the bases linked to the sugar/phosphate-backbone, is called the DNA sequence. DNA may be single stranded or double stranded. In the double stranded form, the nucleotides of the first strand typically hybridize with the nucleotides of the second strand, e.g. by A/T-base-pairing and G/C-base-pairing.

Epitope: In the context of the present invention, the term 'epitope' typically refers to a fragment of an antigen or a variant of an antigen, wherein said fragment is presented by an MHC complex. Such a fragment comprising or consisting of an epitope as used herein may typically comprise from about 5 to about 20 amino acids. An epitope may also be referred to herein as 'antigen determinant'. Epitopes can be distinguished in T cell epitopes and B cell epitopes. T cell epitopes or parts of the proteins in the context of the present invention may comprise fragments preferably having a length of about 6 to about 20 or even more amino acids, e.g. fragments as processed and presented by MHC class I molecules, preferably having a length of about 8 to about 10 amino acids, e.g. 8, 9, or 10, (or even 11, or 12 amino acids), or fragments as processed and presented by MHC class II molecules, preferably having a length of about 13 or more amino acids, e.g. 13, 14, 15, 16, 17, 18, 19, 20 or even more amino acids, wherein these fragments may be selected from any part of the amino acid sequence. These fragments are typically recognized by T cells in form of a complex consisting of the peptide fragment and an MHC molecule, i.e. the fragments are typically not recognized in their native form. B cell epitopes are typically fragments located on the outer surface of (native) protein or peptide antigens as defined herein, preferably having 5 to 15 amino acids, more preferably having 5 to 12 amino acids, even more preferably having 6 to 9 amino acids, which may be recognized by antibodies, i.e. in their native form. Such epitopes of proteins or peptides may furthermore be selected from any of the herein mentioned variants of such proteins or peptides. In this context, antigenic determinants can be conformational or discontinuous epitopes, which are composed of segments of the proteins or peptides as defined herein that are discontinuous in the amino acid sequence of the proteins or peptides as defined herein but are brought together in the three-dimensional structure or continuous or linear epitopes, which are composed of a single polypeptide chain.

Fragment of a sequence: A fragment of a sequence may typically be a shorter portion of a full-length sequence of e.g. a nucleic acid molecule or an amino acid sequence. Accordingly, a fragment, typically, consists of a sequence that is identical to the corresponding stretch within the full-length sequence. A preferred fragment of a sequence in the context of the present invention, consists of a continuous stretch of entities, such as nucleotides or amino acids corresponding to a continuous stretch of entities in the molecule the fragment is derived from, which represents at least 20%, preferably at least 30%, more preferably at least 40%, more preferably at least 50%, even more preferably at least 60%, even more preferably at least 70%, and most preferably at least 80% of the total (i.e. full-length) molecule from which the fragment is derived.

G/C modified: A G/C-modified nucleic acid may typically be a nucleic acid, preferably an artificial nucleic acid molecule as defined herein, based on a modified wild-type sequence comprising a preferably increased number of guanosine and/or cytosine nucleotides as compared to the wild-type sequence. Such an increased number may be generated by substitution of codons containing adenosine or thymidine nucleotides by codons containing guanosine or cytosine nucleotides. If the enriched G/C content occurs in a coding region of DNA or RNA, it makes use of the degeneracy of the genetic code. Accordingly, the codon substitutions preferably do not alter the encoded amino acid residues, but exclusively increase the G/C content of the nucleic acid molecule. As used herein, the term 'G/C modification' comprises, in particular, the modifications of the number of guanosine and/or cytosine nucleotides in the RNA according to the invention, such as GC optimization of sequences, adaptation of sequences to human codon usage, codon optimization or C-optimization of sequences.

Gene therapy: Gene therapy may typically be understood to mean a treatment of a patient's body or isolated elements of a patient's body, for example isolated tissues/cells, by nucleic acids encoding a peptide or protein. It typically may comprise at least one of the steps of a) administration of a nucleic acid, preferably an RNA as defined herein, directly to the patient – by whatever administration route – or *in vitro* to isolated cells/tissues of the patient, which results in transfection of the patient's cells either *in vivo*/*ex vivo* or *in vitro*; b) transcription and/or translation of the introduced nucleic acid molecule; and optionally c) re-administration of isolated, transfected cells to the patient, if the nucleic acid has not been administered directly to the patient.

Genetic vaccination: Genetic vaccination may typically be understood to be vaccination by administration of a nucleic acid molecule encoding an antigen or an immunogen or fragments thereof. The nucleic acid molecule may be administered to a subject's body or to isolated cells of a subject. Upon transfection of certain cells of the body or upon transfection of the isolated cells, the antigen or immunogen may be expressed by those cells and subsequently presented to the

immune system, eliciting an adaptive, i.e. antigen-specific immune response. Accordingly, genetic vaccination typically comprises at least one of the steps of a) administration of a nucleic acid, preferably an artificial nucleic acid molecule as defined herein, to a subject, preferably a patient, or to isolated cells of a subject, preferably a patient, which usually results in transfection of the subject's cells either *in vivo* or *in vitro*; b) transcription and/or translation of the introduced nucleic acid molecule; and optionally c) re-administration of isolated, transfected cells to the subject, preferably the patient, if the nucleic acid has not been administered directly to the patient.

Heterologous sequence: Two sequences are typically understood to be 'heterologous' if they are not derivable from the same gene. I.e., although heterologous sequences may be derivable from the same organism, they naturally (in nature) do not occur in the same nucleic acid molecule, such as in the same mRNA.

Humoral immunity/humoral immune response: Humoral immunity refers typically to antibody production and optionally to accessory processes accompanying antibody production. A humoral immune response may be typically characterized, e.g., by Th2 activation and cytokine production, germinal center formation and isotype switching, affinity maturation and memory cell generation. Humoral immunity also typically may refer to the effector functions of antibodies, which include pathogen and toxin neutralization, classical complement activation, and opsonin promotion of phagocytosis and pathogen elimination.

Immunogen: In the context of the present invention, an immunogen may be typically understood to be a compound that is able to stimulate an immune response. Preferably, an immunogen is a peptide, polypeptide, or protein. In a particularly preferred embodiment, an immunogen in the sense of the present invention is the product of translation of a provided nucleic acid molecule, preferably an artificial nucleic acid molecule as defined herein. Typically, an immunogen elicits at least an adaptive immune response.

Immunostimulatory composition: In the context of the invention, an immunostimulatory composition may be typically understood to be a composition containing at least one component which is able to induce an immune response or from which a component, which is able to induce an immune response, is derivable. Such immune response may be preferably an innate immune response or a combination of an adaptive and an innate immune response. Preferably, an immunostimulatory composition in the context of the invention contains at least one artificial nucleic acid molecule, more preferably an RNA, for example an mRNA molecule. The immunostimulatory component, such as the mRNA may be complexed with a suitable carrier. Thus, the immunostimulatory composition may comprise an mRNA/carrier-complex. Furthermore,

the immunostimulatory composition may comprise an adjuvant and/or a suitable vehicle for the immunostimulatory component, such as the mRNA.

Immune response: An immune response may typically be a specific reaction of the adaptive immune system to a particular antigen (so called specific or adaptive immune response) or an unspecific reaction of the innate immune system (so called unspecific or innate immune response), or a combination thereof.

Immune system: The immune system may protect organisms from infection. If a pathogen succeeds in passing a physical barrier of an organism and enters this organism, the innate immune system provides an immediate, but non-specific response. If pathogens evade this innate response, vertebrates possess a second layer of protection, the adaptive immune system. Here, the immune system adapts its response during an infection to improve its recognition of the pathogen. This improved response is then retained after the pathogen has been eliminated, in the form of an immunological memory, and allows the adaptive immune system to mount faster and stronger attacks each time this pathogen is encountered. According to this, the immune system comprises the innate and the adaptive immune system. Each of these two parts typically contains so called humoral and cellular components.

Immunostimulatory RNA: An immunostimulatory RNA (isRNA) in the context of the invention may typically be an RNA that is able to induce an innate immune response. It usually does not have an open reading frame and thus does not provide a peptide-antigen or immunogen but elicits an immune response e.g. by binding to a specific kind of Toll-like-receptor (TLR) or other suitable receptors. However, of course also mRNAs having an open reading frame and coding for a peptide/protein may induce an innate immune response and, thus, may be immunostimulatory RNAs.

Innate immune system: The innate immune system, also known as non-specific (or unspecific) immune system, typically comprises the cells and mechanisms that defend the host from infection by other organisms in a non-specific manner. This means that the cells of the innate system may recognize and respond to pathogens in a generic way, but unlike the adaptive immune system, it does not confer long-lasting or protective immunity to the host. The innate immune system may be, e.g., activated by ligands of Toll-like receptors (TLRs) or other auxiliary substances such as lipopolysaccharides, TNF-alpha, CD40 ligand, or cytokines, monokines, lymphokines, interleukins or chemokines, IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, IL-17, IL-18, IL-19, IL-20, IL-21, IL-22, IL-23, IL-24, IL-25, IL-26, IL-27, IL-28, IL-29, IL-30, IL-31, IL-32, IL-33, IFN-alpha, IFN-beta, IFN-gamma, GM-CSF, G-CSF, M-CSF,

LT-beta, TNF-alpha, growth factors, and hGH, a ligand of human Toll-like receptor TLR1, TLR2, TLR3, TLR4, TLR5, TLR6, TLR7, TLR8, TLR9, TLR10, a ligand of murine Toll-like receptor TLR1, TLR2, TLR3, TLR4, TLR5, TLR6, TLR7, TLR8, TLR9, TLR10, TLR11, TLR12 or TLR13, a ligand of a NOD-like receptor, a ligand of a RIG-I like receptor, an immunostimulatory nucleic acid, an immunostimulatory RNA (isRNA), a CpG-DNA, an antibacterial agent, or an anti-viral agent. The pharmaceutical composition according to the present invention may comprise one or more such substances. Typically, a response of the innate immune system includes recruiting immune cells to sites of infection, through the production of chemical factors, including specialized chemical mediators, called cytokines; activation of the complement cascade; identification and removal of foreign substances present in organs, tissues, the blood and lymph, by specialized white blood cells; activation of the adaptive immune system; and/or acting as a physical and chemical barrier to infectious agents.

Cloning site: A cloning site is typically understood to be a segment of a nucleic acid molecule, which is suitable for insertion of a nucleic acid sequence, e.g., a nucleic acid sequence comprising an open reading frame. Insertion may be performed by any molecular biological method known to the one skilled in the art, e.g. by restriction and ligation. A cloning site typically comprises one or more restriction enzyme recognition sites (restriction sites). These one or more restrictions sites may be recognized by restriction enzymes which cleave the DNA at these sites. A cloning site which comprises more than one restriction site may also be termed a multiple cloning site (MCS) or a polylinker.

Nucleic acid molecule: A nucleic acid molecule is a molecule comprising, preferably consisting of nucleic acid components. The term nucleic acid molecule preferably refers to DNA or RNA molecules. It is preferably used synonymous with the term "polynucleotide". Preferably, a nucleic acid molecule is a polymer comprising or consisting of nucleotide monomers, which are covalently linked to each other by phosphodiester-bonds of a sugar/phosphate-backbone. The term "nucleic acid molecule" also encompasses modified nucleic acid molecules, such as base-modified, sugar-modified or backbone-modified etc. DNA or RNA molecules.

Open reading frame: An open reading frame (ORF) in the context of the invention may typically be a sequence of several nucleotide triplets, which may be translated into a peptide or protein. An open reading frame preferably contains a start codon, i.e. a combination of three subsequent nucleotides coding usually for the amino acid methionine (ATG), at its 5'-end and a subsequent region, which usually exhibits a length which is a multiple of 3 nucleotides. An ORF is preferably terminated by a stop-codon (e.g., TAA, TAG, TGA). Typically, this is the only stop-codon of the open reading frame. Thus, an open reading frame in the context of the present invention is

preferably a nucleotide sequence, consisting of a number of nucleotides that may be divided by three, which starts with a start codon (e.g. ATG) and which preferably terminates with a stop codon (e.g., TAA, TGA, or TAG). The open reading frame may be isolated or it may be incorporated in a longer nucleic acid sequence, for example in a vector or an mRNA. An open reading frame may also be termed "(protein) coding region" or, preferably, "coding sequence".

Peptide: A peptide or polypeptide is typically a polymer of amino acid monomers, linked by peptide bonds. It typically contains less than 50 monomer units. Nevertheless, the term peptide is not a disclaimer for molecules having more than 50 monomer units. Long peptides are also called polypeptides, typically having between 50 and 600 monomeric units.

Pharmaceutically effective amount: A pharmaceutically effective amount in the context of the invention is typically understood to be an amount that is sufficient to induce a pharmaceutical effect, such as an immune response, altering a pathological level of an expressed peptide or protein, or substituting a lacking gene product, e.g., in case of a pathological situation.

Protein: A protein typically comprises one or more peptides or polypeptides. A protein is typically folded into 3-dimensional form, which may be required for the protein to exert its biological function.

Poly(A) sequence: A poly(A) sequence, also called poly(A) tail or 3'-poly(A) tail, is typically understood to be a sequence of adenosine nucleotides, e.g., of up to about 400 adenosine nucleotides, e.g. from about 5 to about 400, preferably from about 10 to about 200, more preferably from about 10 to about 100, even more preferably from about 40 to about 80, most preferably from about 50 to about 70 adenosine nucleotides. A poly(A) sequence is typically located at the 3'end of an mRNA. In the context of the present invention, a poly(A) sequence may be located within an mRNA or any other nucleic acid molecule, such as, e.g., in a vector, for example, in a vector serving as template for the generation of an RNA, preferably an mRNA, e.g., by transcription of the vector.

Polyadenylation: Polyadenylation is typically understood to be the addition of a poly(A) sequence to a nucleic acid molecule, such as an RNA molecule, e.g. to a premature mRNA. Polyadenylation may be induced by a so-called polyadenylation signal. This signal is preferably located within a stretch of nucleotides at the 3'-end of a nucleic acid molecule, such as an RNA molecule, to be polyadenylated. A polyadenylation signal typically comprises a hexamer consisting of adenine and uracil/thymine nucleotides, preferably the hexamer sequence AAUAAA. Other sequences, preferably hexamer sequences, are also conceivable. Polyadenylation typically occurs during

processing of a pre-mRNA (also called premature-mRNA). Typically, RNA maturation (from pre-mRNA to mature mRNA) comprises the step of polyadenylation.

Restriction site: A restriction site, also termed restriction enzyme recognition site, is a nucleotide sequence recognized by a restriction enzyme. A restriction site is typically a short, preferably palindromic nucleotide sequence, e.g. a sequence comprising 4 to 8 nucleotides. A restriction site is preferably specifically recognized by a restriction enzyme. The restriction enzyme typically cleaves a nucleotide sequence comprising a restriction site at this site. In a double-stranded nucleotide sequence, such as a double-stranded DNA sequence, the restriction enzyme typically cuts both strands of the nucleotide sequence.

RNA, mRNA: RNA is the usual abbreviation for ribonucleic-acid. It is a nucleic acid molecule, i.e. a polymer consisting of nucleotides. These nucleotides are usually adenosine-monophosphate, uridine-monophosphate, guanosine-monophosphate and cytidine-monophosphate monomers which are connected to each other along a so-called backbone. The backbone is formed by phosphodiester bonds between the sugar, i.e. ribose, of a first and a phosphate moiety of a second, adjacent monomer. The specific succession of the monomers is called the RNA-sequence. Usually RNA may be obtainable by transcription of a DNA-sequence, e.g., inside a cell. In eukaryotic cells, transcription is typically performed inside the nucleus or the mitochondria. In vivo, transcription of DNA usually results in the so-called premature RNA which has to be processed into so-called messenger-RNA, usually abbreviated as mRNA. Processing of the premature RNA, e.g. in eukaryotic organisms, comprises a variety of different posttranscriptional-modifications such as splicing, 5'-capping, polyadenylation, export from the nucleus or the mitochondria and the like. The sum of these processes is also called maturation of RNA. The mature messenger RNA usually provides the nucleotide sequence that may be translated into an amino-acid sequence of a particular peptide or protein. Typically, a mature mRNA comprises a 5'-cap, a 5'-UTR, an open reading frame, a 3'-UTR and a poly(A) sequence. Aside from messenger RNA, several non-coding types of RNA exist which may be involved in regulation of transcription and/or translation.

Sequence of a nucleic acid molecule: The sequence of a nucleic acid molecule is typically understood to be the particular and individual order, i.e. the succession of its nucleotides. The sequence of a protein or peptide is typically understood to be the order, i.e. the succession of its amino acids.

Sequence identity: Two or more sequences are identical if they exhibit the same length and order of nucleotides or amino acids. The percentage of identity typically describes the extent to which

two sequences are identical, i.e. it typically describes the percentage of nucleotides that correspond in their sequence position with identical nucleotides of a reference-sequence. For determination of the degree of identity, the sequences to be compared are considered to exhibit the same length, i.e. the length of the longest sequence of the sequences to be compared. This means that a first sequence consisting of 8 nucleotides is 80% identical to a second sequence consisting of 10 nucleotides comprising the first sequence. In other words, in the context of the present invention, identity of sequences preferably relates to the percentage of nucleotides of a sequence which have the same position in two or more sequences having the same length. Gaps are usually regarded as non-identical positions, irrespective of their actual position in an alignment.

Stabilized nucleic acid molecule: A stabilized nucleic acid molecule is a nucleic acid molecule, preferably a DNA or RNA molecule that is modified such, that it is more stable to disintegration or degradation, e.g., by environmental factors or enzymatic digest, such as by an exo- or endonuclease degradation, than the nucleic acid molecule without the modification. Preferably, a stabilized nucleic acid molecule in the context of the present invention is stabilized in a cell, such as a prokaryotic or eukaryotic cell, preferably in a mammalian cell, such as a human cell. The stabilization effect may also be exerted outside of cells, e.g. in a buffer solution etc., for example, in a manufacturing process for a pharmaceutical composition comprising the stabilized nucleic acid molecule.

Transfection: The term "transfection" refers to the introduction of nucleic acid molecules, such as DNA or RNA (e.g. mRNA) molecules, into cells, preferably into eukaryotic cells. In the context of the present invention, the term "transfection" encompasses any method known to the skilled person for introducing nucleic acid molecules into cells, preferably into eukaryotic cells, such as into mammalian cells. Such methods encompass, for example, electroporation, lipofection, e.g. based on cationic lipids and/or liposomes, calcium phosphate precipitation, nanoparticle based transfection, virus based transfection, or transfection based on cationic polymers, such as DEAE-dextran or polyethylenimine etc. Preferably, the introduction is non-viral.

Vaccine: A vaccine is typically understood to be a prophylactic or therapeutic material providing at least one antigen, preferably an immunogen. The antigen or immunogen may be derived from any material that is suitable for vaccination. For example, the antigen or immunogen may be derived from a pathogen, such as from bacteria or virus particles etc., or from a tumor or cancerous tissue. The antigen or immunogen stimulates the body's adaptive immune system to provide an adaptive immune response.

Vector: The term "vector" refers to a nucleic acid molecule, preferably to an artificial nucleic acid molecule. A vector in the context of the present invention is suitable for incorporating or harboring a desired nucleic acid sequence, such as a nucleic acid sequence comprising an open reading frame. Such vectors may be storage vectors, expression vectors, cloning vectors, transfer vectors etc. A storage vector is a vector, which allows the convenient storage of a nucleic acid molecule, for example, of an mRNA molecule. Thus, the vector may comprise a sequence corresponding, e.g., to a desired mRNA sequence or a part thereof, such as a sequence corresponding to the coding sequence and the 3'-UTR of an mRNA. An expression vector may be used for production of expression products such as RNA, e.g. mRNA, or peptides, polypeptides or proteins. For example, an expression vector may comprise sequences needed for transcription of a sequence stretch of the vector, such as a promoter sequence, e.g. an RNA polymerase promoter sequence. A cloning vector is typically a vector that contains a cloning site, which may be used to incorporate nucleic acid sequences into the vector. A cloning vector may be, e.g., a plasmid vector or a bacteriophage vector. A transfer vector may be a vector, which is suitable for transferring nucleic acid molecules into cells or organisms, for example, viral vectors. A vector in the context of the present invention may be, e.g., an RNA vector or a DNA vector. Preferably, a vector is a DNA molecule. Preferably, a vector in the sense of the present application comprises a cloning site, a selection marker, such as an antibiotic resistance factor, and a sequence suitable for multiplication of the vector, such as an origin of replication. Preferably, a vector in the context of the present application is a plasmid vector.

Vehicle: A vehicle is typically understood to be a material that is suitable for storing, transporting, and/or administering a compound, such as a pharmaceutically active compound. For example, it may be a physiologically acceptable liquid, which is suitable for storing, transporting, and/or administering a pharmaceutically active compound.

3'-untranslated region (3'-UTR): Generally, the term "3'-UTR" refers to a part of the artificial nucleic acid molecule, which is located 3' (i.e. "downstream") of an open reading frame and which is not translated into protein. Typically, a 3'-UTR is the part of an mRNA which is located between the protein coding region (open reading frame (ORF) or coding sequence (CDS)) and the poly(A) sequence of the mRNA. In the context of the invention, the term 3'-UTR may also comprise elements, which are not encoded in the template, from which an RNA is transcribed, but which are added after transcription during maturation, e.g. a poly(A) sequence. A 3'-UTR of the mRNA is not translated into an amino acid sequence. The 3'-UTR sequence is generally encoded by the gene, which is transcribed into the respective mRNA during the gene expression process. The genomic sequence is first transcribed into pre-mature mRNA, which comprises optional introns. The pre-mature mRNA is then further processed into mature mRNA in a maturation process. This

maturation process comprises the steps of 5'capping, splicing the pre-mature mRNA to excise optional introns and modifications of the 3'-end, such as polyadenylation of the 3'-end of the pre-mature mRNA and optional endo-/ or exonuclease cleavages etc. In the context of the present invention, a 3'-UTR corresponds to the sequence of a mature mRNA, which is located between the stop codon of the protein coding region, preferably immediately 3' to the stop codon of the protein coding region, and the poly(A) sequence of the mRNA. The term "corresponds to" means that the 3'-UTR sequence may be an RNA sequence, such as in the mRNA sequence used for defining the 3'-UTR sequence, or a DNA sequence, which corresponds to such RNA sequence. In the context of the present invention, the term "a 3'-UTR of a gene", such as "a 3'-UTR of a ribosomal protein gene", is the sequence, which corresponds to the 3'-UTR of the mature mRNA derived from this gene, i.e. the mRNA obtained by transcription of the gene and maturation of the pre-mature mRNA. The term "3'-UTR of a gene" encompasses the DNA sequence and the RNA sequence (both sense and antisense strand and both mature and immature) of the 3'-UTR.

5'-untranslated region (5'-UTR): A 5'-UTR is typically understood to be a particular section of messenger RNA (mRNA). It is located 5' of the open reading frame of the mRNA. Typically, the 5'-UTR starts with the transcriptional start site and ends one nucleotide before the start codon of the open reading frame. The 5'-UTR may comprise elements for controlling gene expression, also called regulatory elements. Such regulatory elements may be, for example, ribosomal binding sites. The 5'-UTR may be post-transcriptionally modified, for example by addition of a 5'-CAP. In the context of the present invention, a 5'-UTR corresponds to the sequence of a mature mRNA, which is located between the 5'-CAP and the start codon. Preferably, the 5'-UTR corresponds to the sequence, which extends from a nucleotide located 3' to the 5'-CAP, preferably from the nucleotide located immediately 3' to the 5'-CAP, to a nucleotide located 5' to the start codon of the protein coding region, preferably to the nucleotide located immediately 5' to the start codon of the protein coding region. The nucleotide located immediately 3' to the 5'-CAP of a mature mRNA typically corresponds to the transcriptional start site. The term "corresponds to" means that the 5'-UTR sequence may be an RNA sequence, such as in the mRNA sequence used for defining the 5'-UTR sequence, or a DNA sequence, which corresponds to such RNA sequence. In the context of the present invention, the term "a 5'-UTR of a gene" is the sequence, which corresponds to the 5'-UTR of the mature mRNA derived from this gene, i.e. the mRNA obtained by transcription of the gene and maturation of the pre-mature mRNA. The term "5'-UTR of a gene" encompasses the DNA sequence and the RNA sequence of the 5'-UTR. By the inventive embodiments such a 5′-UTR may be provided 5′-terminal to the coding sequence. Its length is typically less than 500, 400, 300, 250 or less than 200 nucleotides. In other embodiments its length may be in the range of at least 10, 20, 30 or 40, preferably up to 100 or 150, nucleotides.

5'Terminal Oligopyrimidine Tract (TOP): The 5'terminal oligopyrimidine tract (TOP) is typically a stretch of pyrimidine nucleotides located in the 5' terminal region of a nucleic acid molecule, such as the 5' terminal region of certain mRNA molecules or the 5' terminal region of a functional entity, e.g. the transcribed region, of certain genes. The sequence starts with a cytidine, which usually corresponds to the transcriptional start site, and is followed by a stretch of usually about 3 to 30 pyrimidine nucleotides. For example, the TOP may comprise 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 or even more nucleotides. The pyrimidine stretch and thus the 5' TOP ends one nucleotide 5' to the first purine nucleotide located downstream of the TOP. Messenger RNA that contains a 5'terminal oligopyrimidine tract is often referred to as TOP mRNA. Accordingly, genes that provide such messenger RNAs are referred to as TOP genes. TOP sequences have, for example, been found in genes and mRNAs encoding peptide elongation factors and ribosomal proteins.

TOP motif: In the context of the present invention, a TOP motif is a nucleic acid sequence which corresponds to a 5'TOP as defined above. Thus, a TOP motif in the context of the present invention is preferably a stretch of pyrimidine nucleotides having a length of 3-30 nucleotides. Preferably, the TOP-motif consists of at least 3 pyrimidine nucleotides, preferably at least 4 pyrimidine nucleotides, preferably at least 5 pyrimidine nucleotides, more preferably at least 6 nucleotides, more preferably at least 7 nucleotides, most preferably at least 8 pyrimidine nucleotides, wherein the stretch of pyrimidine nucleotides preferably starts at its 5'end with a cytosine nucleotide. In TOP genes and TOP mRNAs, the TOP-motif preferably starts at its 5'end with the transcriptional start site and ends one nucleotide 5' to the first purin residue in said gene or mRNA. A TOP motif in the sense of the present invention is preferably located at the 5'end of a sequence, which represents a 5'UTR, or at the 5'end of a sequence, which codes for a 5'UTR. Thus, preferably, a stretch of 3 or more pyrimidine nucleotides is called "TOP motif" in the sense of the present invention if this stretch is located at the 5'end of a respective sequence, such as the artificial nucleic acid molecule, the 5'UTR element of the artificial nucleic acid molecule, or the nucleic acid sequence which is derived from the 5'UTR of a TOP gene as described herein. In other words, a stretch of 3 or more pyrimidine nucleotides, which is not located at the 5'-end of a 5'UTR or a 5'UTR element but anywhere within a 5'UTR or a 5'UTR element, is preferably not referred to as "TOP motif".

TOP gene: TOP genes are typically characterised by the presence of a 5' terminal oligopyrimidine tract. Furthermore, most TOP genes are characterized by a growth-associated translational regulation. However, also TOP genes with a tissue specific translational regulation are known. As defined above, the 5'UTR of a TOP gene corresponds to the sequence of a 5'UTR of a mature mRNA derived from a TOP gene, which preferably extends from the nucleotide

located 3' to the 5'-CAP to the nucleotide located 5' to the start codon. A 5'UTR of a TOP gene typically does not comprise any start codons, preferably no upstream AUGs (uAUGs) or upstream open reading frames (uORFs). Therein, upstream AUGs and upstream open reading frames are typically understood to be AUGs and open reading frames that occur 5' of the start codon (AUG) of the open reading frame that should be translated. The 5'UTRs of TOP genes are generally rather short. The lengths of 5'UTRs of TOP genes may vary between 20 nucleotides up to 500 nucleotides, and are typically less than about 200 nucleotides, preferably less than about 150 nucleotides, more preferably less than about 100 nucleotides. Exemplary 5'UTRs of TOP genes in the sense of the present invention are the nucleic acid sequences extending from the nucleotide at position 5 to the nucleotide located immediately 5' to the start codon (e.g. the ATG) in the sequences according to SEQ ID NOs: 1-1363 of the patent application WO2013/143700, whose disclosure is incorporated herewith by reference. In this context, a particularly preferred fragment of a 5'UTR of a TOP gene is a 5'UTR of a TOP gene lacking the 5'TOP motif. The terms "5'UTR of a TOP gene" or "5'-TOP UTR" preferably refer to the 5'UTR of a naturally occurring TOP gene.

RNA encoding an antibody or a fragment thereof

In a first aspect, the present invention provides an RNA comprising at least one coding sequence encoding an antibody, or a fragment or variant of an antibody.

As used herein, the term "antibody" refers to antibodies of any antibody format. Typically, an antibody recognizes (and binds to) an antigen. To this end, an antibody usually comprises at least one antigen-binding site, which is also referred to as "paratope" and which recognizes (and binds to) an epitope on the antigen. A paratope typically comprises a set of complementary determining regions (CDRs) and usually contains parts of the light chain and parts of the heavy chain of the antibody. For example, a paratope of native IgG comprises three CDRs of the heavy chain (CDRH1, CDRH2 and CDRH3) and three CDRs of the light chain (CDRL1, CDRL2, and CDRL3). The CDRs of an antibody are arranged in the antibody's variable region: CDRH1, CDRH2 and CDRH3 in the heavy chain variable region (V_H) and CDRL1, CDRL2, and CDRL3 in the light chain variable region (V_L). In addition, an antibody may comprise a constant region (on heavy and light chain: C_H and C_L, respectively). In native IgG the heavy chain constant region comprises three domains (CH1, CH2 and CH3), whereas the light chain constant region comprises one domain only (see also Figure 1). Accordingly, an antibody is typically an immunoglobulin or is derived from an immunoglobulin. An antibody may fulfil different functions by recognizing (and binding to) an antigen, such as neutralization, agglutination, precipitation and/or complement activation. Neutralizing antibodies typically block parts of the surface of a bacterial cell or virion to render its

attack ineffective. In agglutination antibodies "glue together" (foreign) cells into clumps that are attractive targets for phagocytosis. In precipitation antibodies "glue together" serum-soluble antigens, forcing them to precipitate out of solution in clumps that are attractive targets for phagocytosis. In complement activation antibodies that are latched onto a (foreign) cell encourage complement to attack it with a membrane attack complex, thereby leading to lysis of the (foreign) cell or to encouragement of inflammation by chemotactically attracting inflammatory cells.

In the context of the present invention, an "RNA comprising at least one coding sequence encoding an antibody, or a fragment or variant of an antibody" includes any RNA which encodes an antibody or a fragment or variant of an antibody. More generally, the RNA of the present invention contains at least one coding region, wherein the at least one coding region codes for at least one antibody or a fragment or variant of an antibody. If more than one coding region is contained in the RNA molecule of the invention, the second, third etc. coding region may code for other peptides/proteins and/or may code for antibodies or fragments or variants thereof as well, which may be the same or distinct from the first antibody coding region. In a preferred embodiment, the inventive RNA contains at least two coding regions, all of them coding for identical or distinct antibodies or fragments or variants thereof. For example, distinct fragments of an antibody may be encoded by different coding regions on the same RNA molecule. In still another embodiment of the present invention, an inventive RNA may code for more than one antibody or a fragment or variant of an antibody within the same coding region. In summary, the inventive RNA may be mono-, bi- or multicistronic.

The RNA according to the invention can be single-stranded or double-stranded, linear or circular, or in particular in the form of mRNA. The RNA according to the invention is particularly preferably in the form of single-stranded RNA, even more preferably in the form of mRNA.

The RNA according to the invention preferably has a length of from 50 to 15,000 nucleotides, more preferably a length of from 50 to 10,000 nucleotides, even more preferably a length of from 500 to 10,000 nucleotides and most preferably a length of from 500 to 7,000, 500 to 5,000 or 700 to 3,000 nucleotides.

In the context of the present invention, the antibodies coded by the RNA according to the invention can be chosen from all antibodies, e.g. from all antibodies which are generated by recombinant methods or are naturally occurring and are known to a person skilled in the art from the prior art, in particular antibodies which are (can be) employed for therapeutic purposes or for diagnostic or for research purposes or have been found with particular diseases, e.g. cancer diseases, infectious diseases etc.

In the context of the present invention, antibodies or fragments or variants thereof, which are encoded by the RNA according to the invention, typically include all antibodies or fragments or variants thereof which are known to a person skilled in the art, e.g. naturally occurring antibodies or antibodies generated in a host organism by immunization, antibodies or fragments or variants thereof prepared by recombinant methods which have been isolated and identified from naturally occurring antibodies or antibodies generated in a host organism by (conventional) immunization or have been generated with the aid of molecular biology methods, as well as chimeric antibodies or fragments or variants thereof, human antibodies or fragments or variants thereof, humanized antibodies or fragments or variants thereof, bispecific antibodies or fragments or variants thereof, and intrabodies or fragments or variants thereof, i.e. antibodies expressed in cells and possibly localized in particular cell compartments.

RNA molecules according to the invention can also be prepared on the basis of polyclonal antibodies or fragments or variants thereof or, as an antibody-coding RNA cocktail, can have a polyclonal character. In the context of this invention, polyclonal antibodies are typically mixtures of antibodies against a specific antigen or immunogen or epitope of a protein which have been generated by immunization of a host organism, for example mammals, i.e. animals, including cattle, pigs, dogs, cats, donkeys, monkeys, including rodents, e.g. mice, hamsters, rabbits etc., and man. Polyclonal antibodies conventionally recognize different epitopes or regions of the same specific antigen, each of these epitopes in turn being capable of generating a clone of B lymphocytes which produces an antibody against this epitope. From such polyclonal antibodies or from the antibody sera obtained from the host organism, the individual antibodies specific against the particular epitopes can be obtained by individualization to monoclonal antibodies. The present invention accordingly also provides RNA which codes for a monoclonal antibody, or a fragment or variant thereof, obtained by individualization of polyclonal antibodies.

Monoclonal antibodies in the context of this invention are therefore typically antibodies which are specific for a particular antigen or epitope (of a protein), i.e. bind this antigen or epitope (of a protein) with a high affinity, and conventionally are expressed by a hybridoma cell. For the preparation of such monoclonal antibodies, the corresponding antigen or immunogen or epitope of a protein is typically injected at least once, but typically several times, into a host organism as described here, as a result of which the immune system of the host organism, in the presence of suitable adjuvants, is preferably stimulated to antibody production via activation of correspondingly specific B cells. The B lymphocytes are then conventionally selectively purified from the spleen or other organs or fluids suitable for this from an animal immunized in this manner, and are fused with an immortal myeloma cell to give the so-called hybridoma cell. After selection

methods and cloning of the hybridomas or hybridoma cells formed, those clones which secernate, i.e. express and secrete, antibodies of the desired specificity can be determined. These clones can be isolated and sequenced with known molecular biology methods. The data obtained from such a sequencing can serve further in a nucleic acid synthesis for generation of synthetic DNA sequences or for screening a cDNA library and isolation of the cDNA fragments and generation of a DNA or nucleic acid template for *in vitro* or *in vivo* synthesis of the RNA according to the invention which codes for an antibody. Where appropriate, the RNA contained in the hybridomas can also be isolated, for example by fractionation, and subsequently the RNA molecules according to the invention which code for the hybridoman antibody can be purified by methods known to the person skilled in the art.

Nevertheless, RNA molecules which code for non-human monoclonal or polyclonal antibody or fragments or variants thereof, e.g. murine monoclonal antibodies or monoclonal antibodies from other, as described here, non-human host organisms or hybridoma cells are of only limited suitability for therapeutic use in humans, since in the human organism itself they conventionally cause an immune reaction with formation of human anti-antibodies directed against these non-human host antibodies. As a result, such non-human monoclonal or polyclonal antibodies as a rule can be administered to a person only a single time. To by-pass this problem, RNA molecules which code for chimeric, humanized and human antibodies can also be provided according to the invention.

Chimeric antibodies in the context of the present invention are preferably antibodies in which the constant domains of an antibody as described here have been replaced by human sequences. Preferably, chimeric antibodies are formed from monoclonal or polyclonal antibodies as described here.

Humanized antibodies in the context of the present invention are antibodies in which the constant and variable regions described above of the non-human monoclonal or polyclonal antibodies, with the exception of the hypervariable regions, have been replaced by human sequences.

RNA molecules which code for human antibodies, i.e. antibodies which have human sequences, that is to say in the constant regions (if present) and in the variable regions, including the hypervariable regions, or fragments or variants thereof can furthermore be used in the context of the present invention. Such RNA molecules which code for human antibodies can be isolated from human tissue or originate from immunized host organisms as described here, e.g. mice, which are then transgenic for the human IgG gene locus.

Preferably, the at least one coding sequence of the RNA according to the invention encodes an antibody, preferably as defined herein, or a fragment or variant thereof, wherein the antibody is preferably selected from the group consisting of AAB-003; Abagovomab; Abciximab; Abituzumab; Abrilumab; Actoxumab; Adalimumab; Aducanumab; Afasevikumab; Aflibercept; Afutuzuab; Afutuzumab; Alacizumab_pegol; Alemtuzumab; Alirocumab; ALX-0061; Amatuximab; Anetumab_ravtansine; Anifrolumab; Anrukinzumab; Apolizumab; Apomab; Aquaporumab; Arcitumomab_99tc; Ascrinvacumab; Aselizuab; Atezolizumab; Atinumab; Atlizuab; Aurograb; Avelumab; Bapineuzumab; Basiliximab; Bavituximab; Begelomab; Benralizumab; Betalutin; Bevacituzuab; Bevacizumab_154-aspartic_acid; Bevacizumab_154-substitution; Bevacizumab_180-serine; Bevacizumab_180-substitution; Bevacizumab_beta; Bevacizumab; Bevacizumab-rhuMAb-VEGF; Bezlotoxumab; Bimagrumab; Bimekizumab; Bleselumab; Blinatumomab; Blinatumumab; Blontuvetmab; Blosozumab; Bococizumab; Brentuximab_vedotin; Briakinumab; Brodalumab; Brolucizumab; Brontictuzumab; BTT-1023; Burosumab; Canakinumab; Cantuzumab; Cantuzumab_mertansine; Cantuzumab_ravtansine; Caplacizumab; Carlumab; Cergutuzumab_amunaleukin; Certolizumab_pegol; Cetuximab; Citatuzumab_bogatox; Cixutumumab; Clazakizumab; Clivatuzumab_tetraxetan; Codrituzumab; Coltuximab_ravtansine; Conatumumab_CV; Conatumumab; Concizumab; Crenezumab; Crotedumab; Dacetuzumab; Dacliximab; Daclizumab; Dalotuzumab; Dapirolizumab_pegol; Daratumumab; Dectrekumab; Demcizumab; Denintuzumab_mafodotin; Denosumab; Depatuxizumab; Depatuxizumab_mafodotin; Dinutuximab_beta; Dinutuximab; Diridavumab; Domagrozumab; Drozituab; Drozitumab; Duligotumab; Duligotuzumab; Dupilumab; Durvalumab; Dusigitumab; Ecromeximab; Eculizumab; Efalizumab; Efungumab; Eldelumab; Elgemtumab; Elotuzumab; Emactuzumab; Emibetuzumab; Emicizumab; Enavatuzumab; Enfortumab; Enfortumab_vedotin; Enoblituzumab; Enokizumab; Enoticumab; Ensituximab; Entolimod; Epratuzumab; Eptacog_beta; Erlizuab; Etaracizumab; Etrolizuab; Etrolizumab; Evinacumab; Evolocumab; Exbivirumab; Farletuzumab; Fasinumab; Fezakinumab; FG-3019; Fibatuzumab; Ficlatuzumab; Figitumumab; Firivumab; Flanvotumab; Fletikumab; Fontolizumab; Foralumab; Foravirumab; Fresolimumab; Fulranumab; Futuximab; Galcanezumab; Galiximab; Ganitumab; Gantenerumab; Gemtuzumab; Gemtuzumab_ozogamicin; Gevokizumab; Girentuximab; Glembatumumab; Goilixiab; Guselkumab; HuMab-001; HuMab-005; HuMab-006; HuMab-019; HuMab-021; HuMab-025; HuMab-027; HuMab-032; HuMab-033; HuMab-035; HuMab-036; HuMab-041; HuMab-044; HuMab-049; HuMab-050; HuMab-054; HuMab-055; HuMab-059; HuMab-060; HuMab-067; HuMab-072; HuMab-084; HuMab-091; HuMab-093; HuMab-098; HuMab-100; HuMab-106; HuMab_10F8; HuMab-111; HuMab-123; HuMab-124; HuMab-125; HuMab-127; HuMab-129; HuMab-132; HuMab-143; HuMab-150; HuMab-152; HuMab-153; HuMab-159; HuMab-160; HuMab-162; HuMab-163; HuMab-166; HuMab-167; HuMab-169; HuMab-7D8; huMAb-anti-MSP10.1; huMAb-anti-MSP10.2; HUMAB-Clone_18; HUMAB-

Clone_22; HuMab-L612; HuMab_LC5002-002; HuMab_LC5002-003; HuMab_LC5002-005; HuMab_LC5002-007; HuMab_LC5002-018; Ibalizumab; Ibritumomab_tiuxetan; Icrucumab; Idarucizumab; Igatuzuab; IGF-IR_HUMAB-1A; IGF-IR_HUMAB-23; IGF-IR_HUMAB-8; ImAb1; Imalumab; Imgatuzumab; Inclacumab; Indatuximab_ravtansine; Indusatumab_vedotin; Inebilizumab; Insulin_peglispro; Interferon_beta-1b; Intetumumab; Iodine_(124I)_Girentuximab; Iodine_(131I)_Derlotuxiab_biotin; Iodine_(131I)_Derlotuximab_biotin; Ipilimumab; Iratumumab; Isatuximab; Itolizumab; Ixekizumab; Labetuzumab_govitecan; Lambrolizumab; Lampalizumab; Lanadelumab; Landogrozumab; Laprituximab_emtansine; Lealesoab; Lebrikizumab; Lenercept_chain1; Lenzilumab; Lerdelimumab; Lexatumumab; Libivirumab; Lifastuzumab; Lifastuzumab_vedotin; Ligelizumab; Lilotomab; Lintuzumab; Lirilumab; Lodelcizumab; Lokivetmab; Lorvotuzumab_mertansine; Lpathomab; Lucatumumab; Lulizumab_pegol; Lumiliximab; Lumretuzumab; Lutetium_(177Lu)_lilotomab_satetraxetan; Margetuximab; Marzeptacog_alfa; Matuzumab; Mavrilimumab; MDX-1303; Mepolizumab; Metelimumab; Milatuzumab; Mirvetuximab; Modotuximab; Mogamulizumab; Monalizumab; Motavizumab; Moxetumomab_pasudotox; Muromonab-CD3; Namilumab; Naptumomab_estafenatox; Narnatumab; Natalizumab; Navicixizumab; Navivumab; Ndimab-varB; Necitumumab; Neliximab; Nemolizumab; Nesvacumab; Neuradiab; Nimotuzumab; Nivolumab; Obiltoxaximab; Obinutuzumab; Ocaratuzumab; Ocrelizumab; Ofatumumab; Olaratumab; Olizuab; Olokizumab; Omalizumab; Onartuzumab; Ontuxizumab; Opicinumab; Oportuzumab_monatox; Oreptacog_alfa; Orticumab; Otelixizumab; Otlertuzumab; Oxelumab; Ozanezumab; Ozoralizumab; Palivizumab; Pamrevlumab; Panitumumab; Pankoab; PankoMab; Panobacumab; Parsatuzumab; Pascolizumab; Pasotuxizumab; Pateclizumab; Patritumab; Pembrolizumab; Perakizumab; Pertuzuab; Pertuzumab; Pexelizumab_h5g1.1-scFv; Pexelizumab; PF-05082566; PF-05082568; Pidilizumab; Pinatuzumab_vedotin; Placulumab; Plozalizumab; Pogalizumab; Polatuzumab_vedotin; Ponezumab; Pritoxaximab; Pritumumab; Quilizumab; Racotumomab; Radretumab; Rafivirumab; Ralpancizumab; Ramucirumab; Ranibiziuab; Ranibizumab; Refanezumab; REGN2810; rhuMab_HER2(9CI); rhuMab_HER2; rhuMAb-VEGF; Rilotumumab; Rinucumab; Risankizumab; Rituximab; Rivabazumab_pegol; Robatumumab; Roledumab; Romosozumab; Rontalizuab; Rontalizumab; Rovalpituzumab_tesirine; Rovelizumab; Ruplizumab; Sacituzumab_govitecan; Samalizumab; Sarilumab; Satumomab_pendetide; Secukinumab; Seribantumab; Setoxaximab; Sifalimumab; Siltuximab; Simtuzumab; Sirukumab; Sofituzumab_vedotin; Solanezumab; Solitomab; Sonepcizumab; Stamulumab; Suptavumab; Suvizumab; Tabalumab; Tacatuzuab; Tadocizumab; Talizumab; Tamtuvetmab; Tanezumab; Tarextumab; Tefibazumab; Tenatumomab; Teneliximab; Teplizumab; Teprotumumab; Tesidolumab; Tezepelumab; ThioMAb-chMA79b-HC(A118C); ThioMab-hu10A8.v1-HC(A118C); ThioMab-hu10A8.v1-HC(V205C); ThioMab-hu10A8.v1-LC(A118C); ThioMab-hu10A8.v1-LC(V205C); ThioMAb-huMA79b.v17-HC(A118C); ThioMAb-huMA79b.v18-HC(A118C);

ThioMAb-huMA79b.v28-HC(A118C); ThioMAb-huMA79b.v28-LC(V205C); Ticiliuab; Tigatuzumab; Tildrakizumab; Tisotumab_vedotin; Tocilizumab; Tosatoxumab; Tositumomab; Tovetumab; Tralokinumab; Trastuzuab; Trastuzumab_emtansine; Trastuzumab; TRC-105; Tregalizumab; Tremelimumab; Trevogrumab; Tucotuzumab_celmoleukin; Ublituximab; Ulocuplumab; Urelumab; Urtoxazumab; Ustekinumab; Vadastuximab_talirine; Vandortuzumab_vedotin; Vantictumab; Vanucizumab; Varlilumab; Vatelizumab; Vedolizumab; Veltuzumab; Vesencumab; Visilizumab; Volociximab; Vorsetuzumab; Vorsetuzumab_mafodotin; Yttrium_(90Y)_clivatuzumab_tetraxetan; Yttrium_Y_90_epratuzumab_tetraxetan; Yttrium_Y_90_epratuzumab; Zalutumumab; Zanolimumab; Zatuximab; Andecaliximab; Aprutumab; Azintuxizumab; Brazikumab; Cabiralizumab; Camrelizumab; Cosfroviximab; Crizanlizumab; Dezamizumab; Duvortuxizumab; Elezanumab; Emapalumab; Eptinezumab; Erenumab; Fremanezumab; Frunevetmab; Gatipotuzumab; Gedivumab; Gemetuzumab; Gilvetmab; Ifabotuzumab; Lacnotuzumab; Larcaviximab; Lendalizumab; Lesofavumab; Letolizumab; Losatuxizumab; Lupartumab; Lutikizumab; Oleclumab; Porgaviximab; Prezalumab; Ranevetmab; Remtolumab; Rosmantuzumab; Rozanolixizumab; Sapelizumab; Selicrelumab; Suvratoxumab; Tavolixizumab; Telisotuzumab; Telisotuzumab_vedotin; Timigutuzumab; Timolumab; Tomuzotuximab; Trastuzumab_duocarmazine; Varisacumab; Vunakizumab; Xentuzumab; anti-rabies_SO57; anti-rabies_SOJB; anti-rabies_SOJA; anti-rabies; anti-RSV_5ITB; anti-alpha-toxin_4U6V; anti-IsdB_5D1Q; anti-IsdB_5D1X; anti-IsdB_5D1Z; anti-HIV_b12; anti-HIV_2G12; anti-HIV_4E10; anti-HIV_VRC01; anti-HIV_PG9; anti-HIV_VRC07; anti-HIV_3BNC117; anti-HIV_10-1074; anti-HIV_PGT121; anti-HIV_PGDM1400; anti-HIV_N6; anti-HIV_10E8; anti-HIV_12A12; anti-HIV_12A21; anti-HIV_35022; anti-HIV_3BC176; anti-HIV_3BNC55; anti-HIV_3BNC60; anti-HIV_447-52D; anti-HIV_5H/I1-BMV-D5; anti-HIV_8ANC195; anti-HIV_CAP256-VRC26.01; anti-HIV_CAP256-VRC26.02; anti-HIV_CAP256-VRC26.03; anti-HIV_CAP256-VRC26.04; anti-HIV_CAP256-VRC26.05; anti-HIV_CAP256-VRC26.06; anti-HIV_CAP256-VRC26.07; anti-HIV_CAP256-VRC26.08; anti-HIV_CAP256-VRC26.09; anti-HIV_CAP256-VRC26.10; anti-HIV_CAP256-VRC26.11; anti-HIV_CAP256-VRC26.12; anti-HIV_CAP256-VRC26.I1; anti-HIV_CAP256-VRC26.I2; anti-HIV_CAP256-VRC26.UCA; anti-HIV_CH01; anti-HIV_CH02; anti-HIV_CH03; anti-HIV_CH04; anti-HIV_CH103; anti-HIV_M66.6; anti-HIV_NIH45-46; anti-HIV_PG16; anti-HIV_PGT122; anti-HIV_PGT123; anti-HIV_PGT125; anti-HIV_PGT126; anti-HIV_PGT127; anti-HIV_PGT128; anti-HIV_PGT130; anti-HIV_PGT131; anti-HIV_PGT135; anti-HIV_PGT136; anti-HIV_PGT137; anti-HIV_PGT141; anti-HIV_PGT142; anti-HIV_PGT143; anti-HIV_PGT144; anti-HIV_PGT145; anti-HIV_PGT151; anti-HIV_PGT152; anti-HIV_VRC-CH30; anti-HIV_VRC-CH31; anti-HIV_VRC-CH32; anti-HIV_VRC-CH33; anti-HIV_VRC-CH34; anti-HIV_VRC-PG04; anti-HIV_VRC-PG04b; anti-HIV_VRC-PG20; anti-HIV_VRC02; anti-HIV_VRC03; anti-HIV_VRC23; anti-HIV_5CCK; anti-HIV_5AWN; anti-HIV_3QEG; anti-HIV_1N0X; anti-HIV_3QEH; anti-HIV_2B1H; anti-HIV_3TNM; anti-HIV_3UJJ;

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HIV_048-174266; anti-HIV_048-172847; anti-HIV_048-172845; anti-HIV_048-172363; anti-HIV_048-171609; anti-HIV_048-170705; anti-HIV_048-168381; anti-HIV_048-166619; anti-HIV_048-162036; anti-HIV_048-160042; anti-HIV_048-159676; anti-HIV_048-159500; anti-HIV_048-159421; anti-HIV_048-159333; anti-HIV_048-158932; anti-HIV_048-155811; anti-HIV_048-155464; anti-HIV_048-155392; anti-HIV_048-155389; anti-HIV_048-154449; anti-HIV_048-153379; anti-HIV_048-153171; anti-HIV_048-152324; anti-HIV_048-146102; anti-HIV_048-145984; anti-HIV_048-145371; anti-HIV_048-144907; anti-HIV_048-142298; anti-HIV_048-142277; anti-HIV_048-141934; anti-HIV_048-141207; anti-HIV_048-140796; anti-HIV_048-139893; anti-HIV_048-138820; anti-HIV_048-135858; anti-HIV_048-134968; anti-HIV_048-134312; anti-HIV_048-132253; anti-HIV_048-130710; anti-HIV_048-128564; anti-HIV_048-126702; anti-HIV_048-124521; anti-HIV_048-122740; anti-HIV_048-119536; anti-HIV_048-116929; anti-HIV_048-116577; anti-HIV_048-116046; anti-HIV_048-115875; anti-HIV_048-115599; anti-HIV_048-113988; anti-HIV_048-112989; anti-HIV_048-112435; anti-HIV_048-111339; anti-HIV_048-111055; anti-HIV_048-111027; anti-HIV_048-109721; anti-HIV_048-109666; anti-HIV_048-109196; anti-HIV_048-109051; anti-HIV_048-108570; anti-HIV_048-108033; anti-HIV_048-107279; anti-HIV_048-106271; anti-HIV_048-106054; anti-HIV_048-104848; anti-HIV_048-104638; anti-HIV_048-104567; anti-HIV_048-102804; anti-HIV_048-101676; anti-HIV_048-097603; anti-HIV_048-097107; anti-HIV_048-096871; anti-HIV_048-096668; anti-HIV_048-095236; anti-HIV_048-094155; anti-HIV_048-093219; anti-HIV_048-092976; anti-HIV_048-090866; anti-HIV_048-090650; anti-HIV_048-089009; anti-HIV_048-088654; anti-HIV_048-086513; anti-HIV_048-086024; anti-HIV_048-085857; anti-HIV_048-084277; anti-HIV_048-084245; anti-HIV_048-082487; anti-HIV_048-081787; anti-HIV_048-081062; anti-HIV_048-079639; anti-HIV_048-079126; anti-HIV_048-073118; anti-HIV_048-070264; anti-HIV_048-069426; anti-HIV_048-068564; anti-HIV_048-068345; anti-HIV_048-067337; anti-HIV_048-067180; anti-HIV_048-063017; anti-HIV_048-061885; anti-HIV_048-061671; anti-HIV_048-060700; anti-HIV_048-060592; anti-HIV_048-060300; anti-HIV_048-059141; anti-HIV_048-057777; anti-HIV_048-056928; anti-HIV_048-056131; anti-HIV_048-055864; anti-HIV_048-055094; anti-HIV_048-054343; anti-HIV_048-054193; anti-HIV_048-052521; anti-HIV_048-049037; anti-HIV_048-048720; anti-HIV_048-048542; anti-HIV_048-047777; anti-HIV_048-046841; anti-HIV_048-046202; anti-HIV_048-046059; anti-HIV_048-043568; anti-HIV_048-042713; anti-HIV_048-042440; anti-HIV_048-040511; anti-HIV_048-039195; anti-HIV_048-036935; anti-HIV_048-034478; anti-HIV_048-031641; anti-HIV_048-029760; anti-HIV_048-027970; anti-HIV_048-027337; anti-HIV_048-027217; anti-HIV_048-026760; anti-HIV_048-024800; anti-HIV_048-024313; anti-HIV_048-021748; anti-HIV_048-020991; anti-HIV_048-020340; anti-HIV_048-019993; anti-HIV_048-019947; anti-HIV_048-017871; anti-HIV_048-015931; anti-HIV_048-015920; anti-HIV_048-013898; anti-HIV_048-013429; anti-HIV_048-012358; anti-HIV_048-011158; anti-HIV_048-010720; anti-

HIV_048-009445; anti-HIV_048-006126; anti-HIV_048-005652; anti-HIV_048-005532; anti-HIV_048-005189; anti-HIV_048-005088; anti-HIV_048-004023; anti-HIV_048-001580; anti-HIV_038-221120; anti-HIV_038-197677; anti-HIV_038-196765; anti-HIV_038-186200; anti-HIV_038-126170; anti-HIV_038-108545; anti-HIV_038-107263; anti-HIV_038-104530; anti-HIV_038-099169; anti-HIV_038-075067; anti-HIV_038-072368; anti-HIV_038-068503; anti-HIV_038-068016; anti-HIV_038-063958; anti-HIV_038-033733; anti-HIV_038-030557; anti-HIV_038-024298; anti-HIV_038-011154; anti-HIV_5CIN; anti-HIV_5CIL; anti-HIV_5CIP; anti-HIV_4JKP; anti-HIV_3TNN; anti-HIV_3BQU; anti-HIV_IgG; anti-HIV_4P9M; anti-HIV_4P9H; anti-HIV_Ig; anti-HIV; anti-influenza; anti-influenza_Apo; anti-influenza-A; anti-OX40.

Preferably, the antibody or the fragment of variant thereof, which is encoded by the at least one coding sequence of the RNA according to the present invention, is selected from the group consisting of antibodies having an amino acid sequence according to any of the amino acid sequences SEQ ID NO: 1-7642, 61212-61214, 61236-61238, 61245-61247, 61269-61271, 61279-61281, 61303-61305, 61312, 61320, 61324, 61332, 61338, 61346, 61349, 61357, 61362, 61370, 61373, 61381, 61384, 61385, 61400, 61401, 61418, 61426, 61429, 61437, 61440, 61441, 61456, 61457, 61469, 61470, 61475, 61476, 61481, 61482, 61487, 61488, 61493, 61494, 61499, 61500, 61515, 61516, 61521, 61522, 61537, 61538, 61543, 61544, 61559, 61560, 61565, 61573, 61576, 61584, 61587, 61588, 61603, 61606, 61609, 61612, 61618, 61619, 61634, 61635, 61639, 61640, 61644, 61645, 61660, 61661, 61667, 61675, 61678, 61686, 61689, 61697, 61700, 61708, 61711, 61719, 61722, 61730 or a fragment or variant of any one of said amino acid sequences.

The at least one coding sequence of the RNA according to the invention preferably comprises a nucleic acid sequence encoding a full-length antibody or a full-length variant of an antibody as defined herein. The term 'full-length antibody' or 'full-length variant of an antibody' as used herein typically refers to an antibody that substantially comprises the entire amino acid sequence of the antibody. For example, the RNA preferably comprises a nucleic acid sequence encoding all chains of the antibody, in particular if the antibody comprises more than one chain (a "multiple-chain antibody").

It is also preferred that the at least one coding sequence of the RNA according to the invention comprises a nucleic acid sequence encoding a fragment of an antibody. In the context of the present invention, a 'fragment' of an antibody or of a variant thereof may comprise a sequence of an antibody or of a variant thereof as defined herein, which is, with regard to its amino acid sequence (or its encoded nucleic acid sequence), N-terminally, C-terminally and/or intrasequentially truncated compared to the amino acid sequence of the full-length antibody or a variant thereof (or its encoded nucleic acid sequence). Such truncation may thus occur either on

the amino acid level or on the nucleic acid level, respectively. A sequence identity with respect to such a fragment as defined herein therefore preferably refers to the entire antibody or a variant thereof as defined herein or to the entire (coding) nucleic acid sequence of such an antibody or of a variant thereof.

Preferably, a fragment or a variant of an antibody is a functional fragment or a functional variant, which comprises at least one functional CDR of the corresponding antibody capable of recognizing (and binding to) an antigen.

Such a fragment has preferably a length of at least 3 amino acids. More preferably, such a fragment has a length of at least 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 or 20 amino acids.

Examples of such antibody fragments are any antibody fragments known to a person skilled in the art, e.g. Fab, Fab', $F(ab')_2$, Fc, Facb, pFc', Fd, und Fv fragments of the abovementioned antibodies etc. A diagram of the structure of such exemplified antibody fragments is shown by way of example in Fig. 4. For example, a Fab (fragment antigen binding) fragment typically comprises the variable and a constant domain of a light and a heavy chain, e.g. the C_H1 and the V_H domain of the heavy chain and the complete light chain. The two chains are bonded to one another via a disulfide bridge. A Fab fragment thus conventionally contains the complete antigen-binding region of the original antibody and usually has the same affinity for the antigen, the immunogen or an epitope of a protein. Antibody fragments, as also described above for antibodies, can be prepared with the aid of molecular biology methods. In this context, the DNA sequences which code for the various domains of the antibody fragment are cloned into a specific expression vector. The RNA which codes for these antibody fragments can then be expressed e.g. in suitable host cells. Suitable host cells in connection with the present invention include, inter alia, *E. coli*, yeasts, transgenic plants or mammalian cells etc. (see below). Moreover, antibody fragments consisting of the minimal binding subunit of antibodies are known as single-chain antibodies (scFvs) and have excellent binding specificity and affinity for their ligands. An scFv fragment (single chain variable fragment) typically comprises the variable domain of the light and of the heavy chain, which are bonded to one another via an artificial polypeptide linker. In the cloning of such scFv fragments, RNAs which code for a V_H and V_L, these being linked to one another by a polypeptide linker, are preferably provided. As a rule, a polypeptide built up from 15-25 glycine, proline and/or serine residues (cf. Fig. 5) or the associated nucleotide sequence is used at the RNA level for the provision of this component.

Preferably, the antibody fragment, which is encoded by the coding sequence of the RNA according to the invention, is an antigen-binding fragment. Such an antigen-binding fragment typically comprises at least one CDR. More preferably, the antibody fragment, which is encoded by the coding sequence of the RNA according to the invention, comprises a heavy chain variable region (V_H) and/or a light chain variable region (V_L). Even more preferably, the antibody fragment, which is encoded by the coding sequence of the RNA according to the invention, comprises a complete (full-length) heavy chain or a complete (full-length) light chain of an antibody.

It is also preferred that the RNA comprises at least one coding sequence encoding a variant of an antibody as defined herein, or a fragment of a variant of an antibody. Preferably, such variants have the same biological function as or, respectively, the specific activity of the corresponding full length antibody or of the corresponding antibody fragment, e.g. the specific binding of particular antigens or nucleic acids. Accordingly, it is preferred, if the hypervariable region(s) are conserved or are modified by merely conservative mutations.

The biological function of antibodies described here which are coded by the RNA according to the invention includes e.g. neutralization of antigens, complement activation or opsonization. In the case of neutralization of antigens, the antibody can bind to an antigen and thereby neutralize this. The antibody is conventionally blocked by the binding of the antigen, and can therefore display its action only against one antigen, or two antigens in the case of bispecific antibodies. scFv antibody fragments are suitable above all for this (neutralization) function of an antibody, since they do not include the functions of the constant domains of an antibody. In the case of complement activation, the complex system of complement proteins which are dependent upon the Fc part of the antibody can be activated via binding of antibodies. End products of the complement cascade typically lead to lysis of cells and to the creation of a phlogistic (inflammatory) milieu. In the case of opsonization, pathogens or foreign particles are rendered accessible to phagocytes by binding by an antibody via the constant domains of the antibody. Alternatively, the opsonized cells, which are recognized as foreign, can be lysed via an antibody-dependent, cell-mediated cytotoxicity (ADCC). In this context, NK cells in particular can perform lytic functions in this manner via activation of their Fc receptors.

In certain embodiments of the present invention, a 'variant' of an antibody or a fragment thereof as defined herein may be encoded by the RNA comprising at least one coding sequence as defined herein, wherein the amino acid sequence encoded by the at least one coding sequence differs in at least one amino acid residue from the antibody's reference amino acid sequence. Exemplified reference amino acid sequences of antibodies are shown below in Table 3.

In this context, the 'change' in at least one amino acid residue may consist, for example, in a mutation of an amino acid residue to another amino acid, a deletion or an insertion. More preferably, the term 'variant' as used in the context of the amino acid sequence encoded by the at least one coding sequence of the RNA according to the invention comprises any homolog, isoform or transcript variant of the antibody or a fragment thereof as defined herein, wherein the homolog, isoform or transcript variant is preferably characterized by a degree of identity or homology, respectively, as defined herein.

Preferably, a variant of an antibody or a fragment thereof may be encoded by the RNA comprising at least one coding sequence as defined herein, wherein at least one amino acid residue of the amino acid sequence encoded by the at least one coding sequence is substituted. Substitutions, wherein amino acids, which originate from the same class, are exchanged for one another, are called conservative substitutions. In particular, these are amino acids having aliphatic side chains, positively or negatively charged side chains, aromatic groups in the side chains or amino acids, the side chains of which can form hydrogen bridges, e.g. side chains which have a hydroxyl function. By conservative constitution, e.g. an amino acid having a polar side chain may be replaced by another amino acid having a corresponding polar side chain, or, for example, an amino acid characterized by a hydrophobic side chain may be substituted by another amino acid having a corresponding hydrophobic side chain (e.g. serine (threonine) by threonine (serine) or leucine (isoleucine) by isoleucine (leucine)). In a preferred embodiment, a variant of an antibody or a fragment thereof may be encoded by the RNA according to the invention, wherein at least one amino acid residue of the amino acid sequence encoded by the at least one coding sequence comprises at least one conservative substitution compared to the respective reference sequence. These amino acid sequences as well as their encoding nucleic acid sequences in particular are comprised by the term 'variant' as defined herein.

Insertions, deletions and/or non-conservative substitutions are also possible, in particular, at those sequence positions, which cause no modification to the three-dimensional structure or do not affect the binding region. Modifications to a three-dimensional structure by insertion(s) or deletion(s) can easily be determined e.g. using CD spectra (circular dichroism spectra) (Urry, 1985, Absorption, Circular Dichroism and ORD of Polypeptides, in: Modern Physical Methods in Biochemistry, Neuberger et al. (ed.), Elsevier, Amsterdam).

In order to determine the percentage, to which two sequences (nucleic acid sequences, e.g. RNA or mRNA sequences as defined herein, or amino acid sequences, preferably the amino acid sequence encoded by the RNA according to the invention) are identical, the sequences can be aligned in order to be subsequently compared to one another. For this purpose, e.g. gaps can be

inserted into the sequence of the first sequence and the component at the corresponding position of the second sequence can be compared. If a position in the first sequence is occupied by the same component as is the case at a corresponding position in the second sequence, the two sequences are identical at this position. The percentage, to which two sequences are identical, is a function of the number of identical positions divided by the total number of positions. The percentage, to which two sequences are identical, can be determined using a mathematical algorithm. A preferred, but not limiting, example of a mathematical algorithm, which can be used is the algorithm of Karlin et al. (1993), PNAS USA, 90:5873-5877 or Altschul et al. (1997), Nucleic Acids Res., 25:3389-3402. Such an algorithm is integrated, for example, in the BLAST program. Sequences, which are identical to the sequences of the present invention to a certain extent, can be identified by this program. Typically, "% sequence identity" is calculated in respect to a reference sequence. Exemplified reference sequences in the context of the present invention are the sequences according to SEQ ID NO: 1- 61734, in particular the protein and RNA sequences shown in Table 3 below.

A fragment of an antibody or a variant thereof encoded by the at least one coding sequence of the RNA according to the invention may typically comprise an amino acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with an amino acid sequence of the respective reference full-length antibody or a fragment thereof.

More preferably, a fragment of an antibody or a variant thereof encoded by the at least one coding sequence of the RNA according to the invention may typically comprise or consist of an amino acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with an amino acid sequence selected from the group consisting of SEQ ID NOs: 1-7642, 61212-61214, 61236-61238, 61245-61247, 61269-61271, 61279-61281, 61303-61305, 61312, 61320, 61324, 61332, 61338, 61346, 61349, 61357, 61362, 61370, 61373, 61381, 61384, 61385, 61400, 61401, 61418, 61426, 61429, 61437, 61440, 61441, 61456, 61457, 61469, 61470, 61475, 61476, 61481, 61482, 61487, 61488, 61493, 61494, 61499, 61500, 61515, 61516, 61521, 61522, 61537, 61538, 61543, 61544, 61559, 61560, 61565, 61573, 61576, 61584, 61587, 61588, 61603, 61606, 61609, 61612, 61618, 61619, 61634, 61635, 61639, 61640, 61644, 61645, 61660, 61661, 61667, 61675,

61678, 61686, 61689, 61697, 61700, 61708, 61711, 61719, 61722, 61730; or a fragment or variant of any one of said amino acid sequences.

Most preferably, a fragment of an antibody or a variant thereof encoded by the at least one coding sequence of the RNA according to the invention typically comprises or consists of an amino acid sequence having a sequence identity of at least 80% with an amino acid sequence selected from the group consisting of SEQ ID NOs: 1-7642, 61212-61214, 61236-61238, 61245-61247, 61269-61271, 61279-61281, 61303-61305, 61312, 61320, 61324, 61332, 61338, 61346, 61349, 61357, 61362, 61370, 61373, 61381, 61384, 61385, 61400, 61401, 61418, 61426, 61429, 61437, 61440, 61441, 61456, 61457, 61469, 61470, 61475, 61476, 61481, 61482, 61487, 61488, 61493, 61494, 61499, 61500, 61515, 61516, 61521, 61522, 61537, 61538, 61543, 61544, 61559, 61560, 61565, 61573, 61576, 61584, 61587, 61588, 61603, 61606, 61609, 61612, 61618, 61619, 61634, 61635, 61639, 61640, 61644, 61645, 61660, 61661, 61667, 61675, 61678, 61686, 61689, 61697, 61700, 61708, 61711, 61719, 61722, 61730; or a fragment or variant of any one of said amino acid sequences.

Without being limited thereto, according to the present invention RNAs which code for antibodies inter alia code for those antibodies which bind antigens or specific nucleic acids. Antigens in the context of the present invention are typically molecules which are recognized as exogenous by the immune system and conventionally cause an immune reaction or immune response with the formation of antibodies directed specifically against them. However, antigens can also include, especially in the case of autoimmune diseases, endogenous molecules or structures which are incorrectly recognized as exogenous by the immune system and thereby trigger an immune reaction. Alternatively formulated, antigens are therefore all molecules which are recognized by an antibody in the context of the present invention. Antigens substantially comprise proteins, peptides or epitopes of these proteins or peptides. In this context, epitopes (also called "antigenic determinants") are typically small regions (molecular sections) lying on the surface of such protein or peptide structures and having a length of from 5 to 15, in rare case also to 25, preferably 6 to 9 amino acids. Antigens can furthermore also include lipids, carbohydrates etc. In the context of the present invention, antigens also include, for example, so-called immunogens, i.e. antigens which lead to an immunity of the organism transfected therewith. Antigens by way of example include, without being limited thereto, surface antigens of cells, tumour antigens etc. For example, according to the present invention antibodies can bind the following antigens (which typically occur in vertebrates), e.g. tumour-specific surface antigens (TSSA), e.g. 5T4, α5β1-integrin, 707-AP, AFP, ART-4, B7H4, BAGE, β-catenin/m, Bcr-abl, MN/C IX-antigen, CA125, CAMEL, CAP-1, CASP-8, CD4, CD19, CD20, CD22, CD25, CDC27/m, CD 30, CD33, CD52, CD56, CD80, CDK4/m, CEA, CT, Cyp-B, DAM, EGFR, ErbB3, ELF2M, EMMPRIN, EpCam, ETV6-AML1,

G250, GAGE, GnT-V, Gp100, HAGE, HER-2/neu, HLA-A*0201-R170I, HPV-E7, HSP70-2M, HAST-2, hTERT (or hTRT), iCE, IGF-1R, IL-2R, IL-5, KIAA0205, LAGE, LDLR/FUT, MAGE, MART-1/Melan-A, MART-2/Ski, MC1R, myosin/m, MUC1, MUM-1, -2, -3, NA88-A, NY-ESO1, PAP, proteinase-3, p190 minor bcr-abl, Pml/RARα, PRAME, PSA, PSM, PSMA, RAGE, RU1 or RU2, SAGE, SART-1 or SART-3, survivin, TEL/AML1, TGFβ, TPI/m, TRP-1, TRP-2, TRP-2/INT2, VEGF and WT1, or sequences, such as e.g. NY-Eso-1 or NY-Eso-B. Tumour antigens can, for example, typically be responsible for metastasing, that is to say dissolving of tumour cells out of their native tissue, transfer into the vascular system (lymph or blood vessel system), exit from the vascular system and colonization in a new tissue. In this context, such tumour antigens which cause modified cell-cell interactions compared with the native state are of interest in particular.

Antibodies encoded by the inventive RNA may also be directed against tumour antigens listed by Table 1 or Table 2. In particular, RNA encoding those antibodies may be used to treat (or, may be used to prepare a medicament to treat, respectively) the cancer diseases given in the last column of Tables 1 and 2.

Table 1: Antigens expressed in cancer diseases

Tumor antigen	Name of tumor antigen	Cancers or cancer diseases related thereto
5T4		colorectal cancer, gastric cancer, ovarian cancer
707-AP	707 alanine proline	melanoma
9D7		renal cell carcinoma
AFP	alpha-fetoprotein	hepatocellular carcinoma, gallbladder cancer, testicular cancer, ovarian cancer, bladder cancer
AlbZIP HPG1		prostate cancer
alpha5beta1-Integrin		
alpha5beta6-Integrin		colon cancer
alpha-methylacyl-coenzyme A racemase		prostate cancer
ART-4	adenocarcinoma antigen recognized by T cells 4	lung cancer, head and neck cancer, leukemia, esophageal cancer, gastric cancer, cervical cancer, ovarian cancer, breast cancer, squamous cell carcinoma
B7H4		ovarian cancer
BAGE-1	B antigen	bladder cancer, head and neck cancer, lung cancer, melanoma, squamous cell carcinoma
BCL-2		leukemia

Tumor antigen	Name of tumor antigen	Cancers or cancer diseases related thereto
BING-4		melanoma
CA 15-3/CA 27-29		breast cancer, ovary cancer, lung cancer, prostate cancer
CA 19-9		gastric cancer, pancreatic cancer, liver cancer, breast cancer, gallbladder cancer, colon cancer, ovary cancer, lung cancer
CA 72-4		ovarian cancer
CA125		ovarian cancer, colorectal cancer, gastric cancer, liver cancer, pancreatic cancer, uterus cancer, cervix carcinoma, colon cancer, breast cancer, lung cancer
calreticulin		bladder cancer
CAMEL	CTL-recognized antigen on melanoma	melanoma
CASP-8	caspase-8	head and neck cancer
cathepsin B		breast cancer
cathepsin L		breast cancer
CD19		B-cell malignancies
CD20		
CD22		
CD25		
CD30		
CD33		
CD4		
CD52		
CD55		
CD56		
CD80		
CEA	carcinoembryonic antigen	gut carcinoma, colorectal cancer, colon cancer, hepatocellular cancer, lung cancer, breast cancer, thyroid cancer, pancreatic cancer, liver cancer cervix cancer, bladder cancer, melanoma
CLCA2	calcium-activated chloride channel-2	lung cancer
CML28		leukemia
Coactosin-like protein		pancreatic cancer
Collagen XXIII		prostate cancer
COX-2		ovarian cancer, breast cancer, colorectal cancer

Tumor antigen	Name of tumor antigen	Cancers or cancer diseases related thereto
CT-9/BRD6	bromodomain testis-specific protein	
Cten	C-terminal tensin-like protein	prostate cancer
cyclin B1		
cyclin D1		ovarian cancer
cyp-B	cyclophilin B	bladder cancer, lung cancer, T-cell leukemia, squamous cell carcinoma,
CYPB1	cytochrom P450 1B1	leukemia
DAM-10/MAGE-B1	differentiation antigen melanoma 10	melanoma, skin tumors, ovarian cancer, lung cancer
DAM-6/MAGE-B2	differentiation antigen melanoma 6	melanoma, skin tumors, ovarian cancer, lung cancer
EGFR/Her1		lung cancer, ovarian cancer, head and neck cancer, colon cancer, pancreatic cancer, breast cancer
EMMPRIN	tumor cell-associated extracellular matrix metalloproteinase inducer/	lung cancer, breast cancer, bladder cancer, ovarian cancer, brain cancer, lymphoma
EpCam	epithelial cell adhesion molecule	ovarian cancer, breast cancer, colon cancer, lung cancer
EphA2	ephrin type-A receptor 2	glioma
EphA3	ephrin type-A receptor 2	melanoma, sarcoma, lung cancer
ErbB3		breast cancer
EZH2	(enhancer of Zeste homolog 2)	endometrium cancer, melanoma, prostate cancer, breast cancer
FGF-5	fibroblast growth factor-5	renal cell carcinoma, breast cancer, prostate cancer
FN	fibronectin	melanoma
Fra-1	Fos-related antigen-1	breast cancer, esophageal cancer, renal cell carcinoma, thyroid cancer
G250/CAIX	glycoprotein 250	leukemia, renal cell carcinoma, head and neck cancer, colon cancer, ovarian cancer, cervical cancer
GAGE-1	G antigen 1	bladder cancer, lung cancer, sarcoma, melanoma, head and neck cancer
GAGE-2	G antigen 2	bladder cancer, lung cancer, sarcoma, melanoma, head and neck cancer
GAGE-3	G antigen 3	bladder cancer, lung cancer, sarcoma, melanoma, head and neck cancer
GAGE-4	G antigen 4	bladder cancer, lung cancer, sarcoma, melanoma, head and neck cancer

Tumor antigen	Name of tumor antigen	Cancers or cancer diseases related thereto
GAGE-5	G antigen 5	bladder cancer, lung cancer, sarcoma, melanoma, head and neck cancer
GAGE-6	G antigen 6	bladder cancer, lung cancer, sarcoma, melanoma, head and neck cancer
GAGE-7b	G antigen 7b	bladder cancer, lung cancer, sarcoma, melanoma, head and neck cancer
GAGE-8	G antigen 8	bladder cancer, lung cancer, sarcoma, melanoma, head and neck cancer
GDEP	gene differentially expressed in prostate	prostate cancer
GnT-V	N-acetylglucosaminyltransferase V	glioma, melanoma
gp100	glycoprotein 100 kDa	melanoma
GPC3	glypican 3	hepatocellular carcinoma, melanoma
HAGE	helicase antigen	bladder cancer
HAST-2	human signet ring tumor-2	
hepsin		prostate
Her2/neu/ErbB2	human epidermal receptor-2/neurological	breast cancer, bladder cancer, melanoma, ovarian cancer, pancreas cancer, gastric cancer
HERV-K-MEL		melanoma
HNE	human neutrophil elastase	leukemia
homeobox NKX 3.1		prostate cancer
HOM-TES-14/SCP-1		ovarian cancer
HOM-TES-85		
HPV-E6		cervical cancer
HPV-E7		cervical cancer
HST-2		gastric cancer
hTERT	human telomerase reverse transcriptase	breast cancer, melanoma, lung cancer, ovarian cancer, sarcoma, Non-Hodgkin-lymphoma, acute leukemia
iCE	intestinal carboxyl esterase	renal cell carcinoma
IGF-IR		colorectal cancer
IL-13Ra2	interleukin 13 receptor alpha 2 chain	glioblastoma
IL-2R		colorectal cancer
IL-5		
immature laminin receptor		renal cell carcinoma
kallikrein 2		prostate cancer

Tumor antigen	Name of tumor antigen	Cancers or cancer diseases related thereto
kallikrein 4		prostate cancer
Ki67		prostate cancer, breast cancer, Non-Hodgkin-lymphoma, melanoma
KIAA0205		bladder cancer
KK-LC-1	Kita-kyushu lung cancer antigen 1	lung cancer
KM-HN-1		tongue cancer, hepatocellular carcinomas, melanoma, gastric cancer, esophageal, colon cancer, pancreatic cancer
LAGE-1	L antigen	bladder cancer, head and neck cancer, melanoma
livin		bladder cancer, melanoma
MAGE-A1	melanoma antigen-A1	bladder cancer, head and neck cancer, melanoma, colon cancer, lung cancer, sarcoma, leukemia
MAGE-A10	melanoma antigen-A10	bladder cancer, head and neck cancer, melanoma, colon cancer, lung cancer, sarcoma, leukemia
MAGE-A12	melanoma antigen-A12	bladder cancer, head and neck cancer, melanoma, colon cancer, lung cancer, sarcoma, leukemia, prostate cancer, myeloma, brain tumors
MAGE-A2	melanoma antigen-A2	bladder cancer, head and neck cancer, melanoma, colon cancer, lung cancer, sarcoma, leukemia
MAGE-A3	melanoma antigen-A3	bladder cancer, head and neck cancer, melanoma, colon cancer, lung cancer, sarcoma, leukemia
MAGE-A4	melanoma antigen-A4	bladder cancer, head and neck cancer, melanoma, colon cancer, lung cancer, sarcoma, leukemia
MAGE-A6	melanoma antigen-A6	bladder cancer, head and neck cancer, melanoma, colon cancer, lung cancer, sarcoma, leukemia
MAGE-A9	melanoma-antigen-A9	bladder cancer, head and neck cancer, melanoma, colon cancer, lung cancer, sarcoma, leukemia
MAGE-B1	melanoma-antigen-B1	melanoma
MAGE-B10	melanoma-antigen-B10	melanoma
MAGE-B16	melanoma-antigen-B16	melanoma
MAGE-B17	melanoma-antigen-B17	melanoma
MAGE-B2	melanoma-antigen-B2	melanoma
MAGE-B3	melanoma-antigen-B3	melanoma
MAGE-B4	melanoma-antigen-B4	melanoma
MAGE-B5	melanoma-antigen-B5	melanoma

Tumor antigen	Name of tumor antigen	Cancers or cancer diseases related thereto
MAGE-B6	melanoma-antigen-B6	melanoma
MAGE-C1	melanoma-antigen-C1	bladder cancer, melanoma
MAGE-C2	melanoma-antigen-C2	melanoma
MAGE-C3	melanoma-antigen-C3	melanoma
MAGE-D1	melanoma-antigen-D1	melanoma
MAGE-D2	melanoma-antigen-D2	melanoma
MAGE-D4	melanoma-antigen-D4	melanoma
MAGE-E1	melanoma-antigen-E1	bladder cancer, melanoma
MAGE-E2	melanoma-antigen-E2	melanoma
MAGE-F1	melanoma-antigen-F1	melanoma
MAGE-H1	melanoma-antigen-H1	melanoma
MAGEL2	MAGE-like 2	melanoma
mammaglobin A		breast cancer
MART-1/Melan-A	melanoma antigen recognized by T cells-1/melanoma antigen A	melanoma
MART-2	melanoma antigen recognized by T cells-2	melanoma
matrix protein 22		bladder cancer
MC1R	melanocortin 1 receptor	melanoma
M-CSF	macrophage colony-stimulating factor gene	ovarian cancer
mesothelin		ovarian cancer
MG50/PXDN		breast cancer, glioblastoma, melanoma
MMP 11	M-phase phosphoprotein 11	leukemia
MN/CA IX-antigen		renal cell carcinoma
MRP-3	multidrug resistance-associated protein 3	lung cancer
MUC1	mucin 1	breast cancer
MUC2	mucin 2	breast cancer, ovarian cancer, pancreatic cancer
NA88-A	NA cDNA clone of patient M88	melanoma
N-acetylglucos-aminyltransferase-V		
Neo-PAP	Neo-poly(A) polymerase	
NGEP		prostate cancer
NMP22		bladder cancer

Tumor antigen	Name of tumor antigen	Cancers or cancer diseases related thereto
NPM/ALK	nucleophosmin/anaplastic lymphoma kinase fusion protein	
NSE	neuron-specific enolase	small cell cancer of lung, neuroblastoma, Wilm' tumor, melanoma, thyroid cancer, kidney cancer, testicle cancer, pancreas cancer
NY-ESO-1	New York esophageous 1	bladder cancer, head and neck cancer, melanoma, sarcoma, B-lymphoma, hepatoma, pancreatic cancer, ovarian cancer, breast cancer
NY-ESO-B		
OA1	ocular albinism type 1 protein	melanoma
OFA-iLRP	oncofetal antigen-immature laminin receptor	leukemia
OGT	O-linked N-acetylglucosamine transferase gene	
OS-9		
osteocalcin		prostate cancer
osteopontin		prostate cancer, breast cancer, ovarian cancer
p15	protein 15	
p15		melanoma
p190 minor bcr-abl		
p53		
PAGE-4	prostate GAGE-like protein-4	prostate cancer
PAI-1	plasminogen acitvator inhibitor 1	breast cancer
PAI-2	plasminogen acitvator inhibitor 2	breast cancer
PAP	prostate acic phosphatase	prostate cancer
PART-1		prostate cancer
PATE		prostate cancer
PDEF		prostate cancer
Pim-1-Kinase		
Pinl	Propyl isomerase	prostate cancer
POTE		prostate cancer
PRAME	preferentially expressed antigen of melanoma	melanoma, lung cancer, leukemia, head and neck cancer, renal cell carcinoma, sarcoma
prostein		prostate cancer
proteinase-3		

Tumor antigen	Name of tumor antigen	Cancers or cancer diseases related thereto
PSA	prostate-specific antigen	prostate cancer
PSCA		prostate cancer
PSGR		prostate cancer
PSM		
PSMA	prostate-specific membrane antigen	prostate cancer
RAGE-1	renal antigen	bladder cancer, renal cancer, sarcoma, colon cancer
RHAMM/CD168	receptor for hyaluronic acid mediated motility	leukemia
RU1	renal ubiquitous 1	bladder cancer, melanoma, renal cancer
RU2	renal ubiquitous 1	bladder cancer, melanoma, sarcoma, brain tumor, esophagel cancer, renal cancer, colon cancer, breast cancer
S-100		melanoma
SAGE	sarcoma antigen	
SART-1	squamous antigen rejecting tumor 1	esophageal cancer, head and neck cancer, lung cancer, uterine cancer
SART-2	squamous antigen rejecting tumor 1	head and neck cancer, lung cancer, renal cell carcinoma, melanoma, brain tumor
SART-3	squamous antigen rejecting tumor 1	head and neck cancer, lung cancer, leukemia, melanoma, esophageal cancer
SCC	squamous cell carcinoma antigen	lung cancer
Sp17	sperm protein 17	multiple myeloma
SSX-1	synovial sarcoma X breakpoint 1	hepatocellular cell carcinom, breast cancer
SSX-2/HOM-MEL-40	synovial sarcoma X breakpoint 2	breast cancer
SSX-4	synovial sarcoma X breakpoint 4	bladder cancer, hepatocellular cell carcinoma, breast cancer
STAMP-1		prostate cancer
STEAP	six transmembrane epithelial antigen prostate	prostate cancer
survivin		bladder cancer
survivin-2B	intron 2-retaining survivin	bladder cancer
TA-90		melanoma
TAG-72		prostate carcinoma
TARP		prostate cancer
TGFb	TGFbeta	
TGFbRII	TGFbeta receptor II	

Tumor antigen	Name of tumor antigen	Cancers or cancer diseases related thereto
TGM-4	prostate-specific transglutaminase	prostate cancer
TRAG-3	taxol resistant associated protein 3	breast cancer, leukemia, and melanoma
TRG	testin-related gene	
TRP-1	tyrosine related protein 1	melanoma
TRP-2/6b	TRP-2/novel exon 6b	melanoma, glioblastoma
TRP-2/INT2	TRP-2/intron 2	melanoma, glioblastoma
Trp-p8		prostate cancer
Tyrosinase		melanoma
UPA	urokinase-type plasminogen activator	breast cancer
VEGF	vascular endothelial growth factor	
VEGFR-2/FLK-1	vascular endothelial growth factor receptor-2	
WT1	Wilm' tumor gene	gastric cancer, colon cancer, lung cancer, breast cancer, ovarian cancer, leukemia

Table 2: Mutant antigens expressed in cancer diseases

Mutant antigen	Name of mutant antigen	Cancers or cancer diseases related thereto
alpha-actinin-4/m		lung carcinoma
ARTC1/m		melanoma
bcr/abl	breakpoint cluster region-Abelson fusion protein	CML
beta-Catenin/m	beta-Catenin	melanoma
BRCA1/m		breast cancer
BRCA2/m		breast cancer
CASP-5/m		colorectal cancer, gastric cancer, endometrial carcinoma
CASP-8/m		head and neck cancer, squamous cell carcinoma
CDC27/m	cell-division-cycle 27	
CDK4/m	cyclin-dependent kinase 4	melanoma
CDKN2A/m		melanoma
CML66		CML
COA-1/m		colorectal cancer

Mutant antigen	Name of mutant antigen	Cancers or cancer diseases related thereto
DEK-CAN	fusion protein	AML
EFTUD2/m		melanoma
ELF2/m	Elongation factor 2	lung squamous cell carcinoma
ETV6-AML1	Ets variant gene6/acute myeloid leukemia 1 gene fusion protein	ALL
FN1/m	fibronectin 1	melanoma
GPNMB/m		melanoma
HLA-A*0201-R170I	arginine to isoleucine exchange at residue 170 of the alpha-helix of the alpha2-domain in the HLA-A2 gene	renal cell carcinoma
HLA-A11/m		melanoma
HLA-A2/m		renal cell carcinoma
HSP70-2M	heat shock protein 70-2 mutated	renal cell carcinoma, melanoma, neuroblastoma
KIAA0205/m		bladder tumor
K-Ras/m		pancreatic carcinoma, colorectal carcinoma
LDLR-FUT	LDR-Fucosyltransferase fusion protein	melanoma
MART2/m		melanoma
ME1/m		non-small cell lung carcinoma
MUM-1/m	melanoma ubiquitous mutated 1	melanoma
MUM-2/m	melanoma ubiquitous mutated 2	melanoma
MUM-3/m	melanoma ubiquitous mutated 3	melanoma
Myosin class I/m		melanoma
neo-PAP/m		melanoma
NFYC/m		lung squamous cell carcinoma
N-Ras/m		melanoma
OGT/m		colorectal carcinoma
OS-9/m		melanoma
p53/m		
Pml/RARa	promyelocytic leukemia/retinoic acid receptor alpha	APL, PML
PRDX5/m		melanoma
PTPRK/m	receptor-type protein-tyrosine phosphatase kappa	melanoma
RBAF600/m		melanoma
SIRT2/m		melanoma
SYT-SSX-1	synaptotagmin I/synovial sarcoma X fusion protein	sarcoma

Mutant antigen	Name of mutant antigen	Cancers or cancer diseases related thereto
SYT-SSX-2	synaptotagmin I/synovial sarcoma X fusion protein	sarcoma
TEL-AML1	translocation Ets-family leukemia/acute myeloid leukemia 1 fusion protein	AML
TGFbRII	TGFbeta receptor II	colorectal carcinoma
TPI/m	triosephosphate isomerase	melanoma

In a preferred embodiment according to the invention, antibodies encoded by the inventive RNA are directed against the following (protein) antigens (whereby the RNA molecules may be used for the preparation of a medicament, e.g. a pharmaceutical composition or more preferably a (passive) vaccine in the meaning of the present inventino), are selected from the group consisting of 5T4, 707-AP, 9D7, AFP, AlbZIP HPG1, alpha-5-beta-1-integrin, alpha-5-beta-6-integrin, alpha-actinin-4/m, alpha-methylacyl-coenzyme A racemase, ART-4, ARTC1/m, B7H4, BAGE-1, BCL-2, bcr/abl, beta-catenin/m, BING-4, BRCA1/m, BRCA2/m, CA 15-3/CA 27-29, CA 19-9, CA72-4, CA125, calreticulin, CAMEL, CASP-8/m, cathepsin B, cathepsin L, CD19, CD20, CD22, CD25, CDE30, CD33, CD4, CD52, CD55, CD56, CD80, CDC27/m, CDK4/m, CDKN2A/m, CEA, CLCA2, CML28, CML66, COA-1/m, coactosin-like protein, collage XXIII, COX-2, CT-9/BRD6, Cten, cyclin B1, cyclin D1, cyp-B, CYPB1, DAM-10, DAM-6, DEK-CAN, EFTUD2/m, EGFR, ELF2/m, EMMPRIN, EpCam, EphA2, EphA3, ErbB3, ETV6-AML1, EZH2, FGF-5, FN, Frau-1, G250, GAGE-1, GAGE-2, GAGE-3, GAGE-4, GAGE-5, GAGE-6, GAGE7b, GAGE-8, GDEP, GnT-V, gp100, GPC3, GPNMB/m, HAGE, HAST-2, hepsin, Her2/neu, HERV-K-MEL, HLA-A*0201-R17I, HLA-A11/m, HLA-A2/m, HNE, homeobox NKX3.1, HOM-TES-14/SCP-1, HOM-TES-85, HPV-E6, HPV-E7, HSP70-2M, HST-2, hTERT, iCE, IGF-1R, IL-13Ra2, IL-2R, IL-5, immature laminin receptor, kallikrein-2, kallikrein-4, Ki67, KIAA0205, KIAA0205/m, KK-LC-1, K-Ras/m, LAGE-A1, LDLR-FUT, MAGE-A1, MAGE-A2, MAGE-A3, MAGE-A4, MAGE-A6, MAGE-A9, MAGE-A10, MAGE-A12, MAGE-B1, MAGE-B2, MAGE-B3, MAGE-B4, MAGE-B5, MAGE-B6, MAGE-B10, MAGE-B16, MAGE-B17, MAGE-C1, MAGE-C2, MAGE-C3, MAGE-D1, MAGE-D2, MAGE-D4, MAGE-E1, MAGE-E2, MAGE-F1, MAGE-H1, MAGEL2, mammaglobin A, MART-1/melan-A, MART-2, MART-2/m, matrix protein 22, MC1R, M-CSF, ME1/m, mesothelin, MG50/PXDN, MMP11, MN/CA IX-antigen, MRP-3, MUC-1, MUC-2, MUM-1/m, MUM-2/m, MUM-3/m, myosin class I/m, NA88-A, N-acetylglucosaminyltransferase-V, Neo-PAP, Neo-PAP/m, NFYC/m, NGEP, NMP22, NPM/ALK, N-Ras/m, NSE, NY-ESO-1, NY-ESO-B, OA1, OFA-iLRP, OGT, OGT/m, OS-9, OS-9/m, osteocalcin, osteopontin, p15, p190 minor bcr-abl, p53, p53/m, PAGE-4, PAI-1, PAI-2, PART-1, PATE, PDEF, Pim-1-Kinase, Pin-1, Pml/PARalpha, POTE, PRAME, PRDX5/m, prostein, proteinase-3, PSA, PSCA, PSGR, PSM, PSMA, PTPRK/m, RAGE-1, RBAF600/m, RHAMM/CD168, RU1, RU2, S-100, SAGE, SART-1, SART-2, SART-3, SCC, SIRT2/m, Sp17,

SSX-1, SSX-2/HOM-MEL-40, SSX-4, STAMP-1, STEAP, survivin, survivin-2B, SYT-SSX-1, SYT-SSX-2, TA-90, TAG-72, TARP, TEL-AML1, TGFbeta, TGFbetaRII, TGM-4, TPI/m, TRAG-3, TRG, TRP-1, TRP-2/6b, TRP/INT2, TRP-p8, tyrosinase, UPA, VEGF, VEGFR-2/FLK-1, and WT1.

In a particularly preferred embodiment, the RNA codes for antibodies which are directed against protein antigens selected from the group consisting of MAGE-A1, MAGE-A6, melan-A, GP100, tyrosinase, survivin, CEA, Her-2/neu, WT1, PRAME, EGFRI (epidermal growth factor receptor 1), mucin-1 and SEC61G, hTERT, 5T4, NY-Eso1, and TRP-2, more preferably from sequences of group consisting of MAGE-A1 [accession number M77481], MAGE-A6 [accession number NM_005363], melan-A [accession number NM_005511], GP100 [accession number M77348], tyrosinase [accession number NM_000372], survivin [accession number AF077350], CEA [accession number NM_004363], Her-2/neu [accession number M11730], WT1 [accession number NM_000378], PRAME [accession number NM_006115], EGFRI (epidermal growth factor receptor 1) [accession number AF288738], mucin-1 [accession number NM_002456] and SEC61G [accession number NM_014302], hTERT [accession number NM_198253], 5T4 [accession number NM_006670], NY-Eso1 [accession number NM_001327], and TRP-2 [accession number NM_001922].

Antibodies (and therefore also the RNAs according to the invention on which these antibodies are based) which bind the antigens described here and, possibly, other antigens or nucleic acids can be identified e.g. by means of the method of phage display developed by George P. Smith. In this context, antibodies or antibody fragments are typically expressed on the surface of filamentous phages (Smith, G.P., 1985, "Filamentous fusion phage: novel expression vectors that display cloned antigens on the virion surface", Science 228; 1315-1317). For this there are conventionally 3 to 5 copies of the surface protein gpIII on the proximal end of the phage, with the aid of which the phage infects bacteria cells via the F pilus thereof. In phage display, for example, the DNA for an antibody fragment which codes the antigen-binding variable domain is then cloned in-frame before the gpIII gene. In protein biosynthesis, a fusion protein is formed therefrom, which is expressed on the virus surface without the phage losing its infectiousness. With the aid of the phage display technique, it is possible to generate large antibody libraries, each phage expressing a different antibody fragment on the surface. To this extent, the underlying RNA is therefore also available. A particular antibody fragment can be isolated from such a library by a method called "phage panning". For this, the corresponding antigen is bound to a matrix and incubated with the phage suspension. The phages which present an appropriate antibody fragment interact with the fixed antigen, while the other phages are removed by a washing step. The phages isolated are multiplied, for example, in *E. coli*. The DNA is isolated accordingly and the gene sequence is determined. Expression constructs which contain the cDNA coding for the entire antibody or

antibody fragments can then be developed with the aid of genetic engineering methods. An RNA (mRNA) which codes for the antibody can be generated from this cDNA by means of *in vitro* transcription (see below). Nucleic acids or, respectively, mRNA coding for monoclonal antibodies which are entirely of human origin are obtained in this manner.

In the context of the present invention, RNA according to the invention which codes for antibodies as described above is also suitable for coding so-called intrabodies or for rendering possible an expression of intrabodies. Intrabodies in the context of the present invention can include any of the antibodies or antibody fragments described here. Intrabodies are intracellularly expressed antibodies, i.e. antibodies which are coded by nucleic acids localized in the cell and are expressed there. For this, an RNA according to the invention which encodes the antibodies or antibody fragments as described above is introduced into cells beforehand, for example with the aid of transfection methods according to the invention or other suitable transfection methods and, where appropriate, thereafter transplanted into an organism or being or introduced directly as nucleic acids into an organism or being. In this context (irrespective of whether an an intrabody or a secreted antibody shall be introduce into the cell), the RNA according to the invention (or a corresponding nucleic acid) can be introduced in the naked form or as a complex with suitable carriers (e.g. liposomes) into the organism or the being or can have such modifications (of the RNA) which, where appropriate together with one of the transfection methods mentioned, lead to a better cell uptake, e.g. any of the RNA modifications mentioned here, such as, for example, lipid modifications of the RNA according to the invention. An organism or a being in connection with the present invention typically means mammals, i.e. animals, including cattle, pig, dog, cat, donkey, monkey, rodents, e.g. mouse, hamster, rabbit etc., and humans. Intrabodies can be localized and expressed at certain sites in the cell. For example, intrabodies can be expressed in the cytoplasm, the formation of disulfide bridges usually being decreased under the reducing conditions of the cytoplasm. It has been possible to demonstrate, however, that cytoplasmic intrabodies, and in particular scFv fragments, can be functional. Cytoplasmic expression by the RNA according to the invention opens up the possibility of also inhibiting cytoplasmic proteins. This is not possible with treatment with monoclonal antibodies from the prior art, since these antibodies can reach only secreted and membrane-located (extracellular) proteins due to their secretion from the cell after intracellular expression (which represents the major difference between antibodies and intrabodies). By expression of a signal peptide, intrabodies can be transported into the endoplasmic reticulum (ER) and then secreted as with regular antibodies. In this case, typically only secreted or membrane-located proteins are a target for these antibodies. By additional coding of a C-terminal ER retention signal (for example KDEL) by the RNA according to the invention, the intrabody can remain in the ER (where it may bind to specific antigen located in the ER) and prevent secretion of its antigen and/or transport of its antigen or

its target molecule to the plasma membrane. Depending on the requirement, intrabodies can include full length antibodies or antibody fragments as described above. Intrabodies in the context of the present invention preferably initially include full length antibodies, which are retained in the cell and not secreted from the cell (by whatever technique, e.g. retention signal sequences etc.). However, if e.g. intracellular expression of full length antibodies is technically not possible or not appropriate, antibody fragments as described above can also be employed as intrabodies.

Preferably, the antibody encoded by the at least one coding sequence of the RNA is an antibody as defined herein, which is encoded by a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734.

In a preferred embodiment, the present invention thus provides an RNA comprising at least one coding sequence, wherein the coding sequence comprises a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-

61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any one of said nucleic acid sequences.

In certain embodiments, the RNA according to the invention, preferably the at least one coding sequence of the RNA according to the invention, may comprise or consist of a fragment of a nucleic acid sequence encoding an antibody or a fragment or variant thereof as defined herein. Preferably, the RNA according to the invention, preferably the at least one coding sequence of the RNA according to the invention, comprises or consists of a fragment of a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or of a variant of any one of said nucleic acid sequences.

In this context, a 'fragment of a nucleic acid sequence' is preferably a nucleic acid sequence encoding a fragment of an antibody or of a variant thereof as described herein. More preferably, the expression 'fragment of a nucleic acid sequence' refers to a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least

70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a respective full-length nucleic acid sequence.

In another preferred embodiment, the RNA according to the invention, preferably the at least one coding sequence of the RNA according to the invention, may comprise or consist of a variant of a nucleic acid sequence as defined herein, preferably of a nucleic acid sequence encoding an antibody or a fragment thereof as defined herein. The expression 'variant of a nucleic acid sequence' as used herein in the context of a nucleic acid sequence encoding an antibody or a fragment thereof, typically refers to a nucleic acid sequence, which differs by at least one nucleic acid residue from the respective reference nucleic acid sequence encoding an antibody or a fragment thereof. More preferably, the expression 'variant of a nucleic acid sequence' refers to a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence, from which it is derived.

Preferably, the RNA according to the invention, more preferably the at least one coding sequence of the RNA according to the invention, encodes a variant of an antibody or a fragment thereof, preferably as defined herein.

In a preferred embodiment, the RNA according to the invention, more preferably the at least one coding sequence of the RNA according to the invention, comprises or consists of a variant of a nucleic acid sequence encoding an antibody or a fragment thereof as defined herein, wherein the variant of the nucleic acid sequence encodes an amino acid sequence comprising at least one conservative substitution of an amino acid residue.

In another embodiment, the RNA according to the invention, more preferably the at least one coding sequence of the RNA according to the invention, comprises or consists of a variant of a nucleic acid sequence encoding an antibody or a fragment thereof as defined herein, wherein the nucleic acid sequence of the variant differs from the respective reference nucleic acid sequence in at least one nucleic acid residue, preferably without resulting – due to the degenerated genetic code – in an alteration of the encoded amino acid sequence, i.e. the amino acid sequence encoded by the variant or at least part thereof may preferably not differ from the reference amino acid sequence in one or more mutation(s) within the above meaning.

Furthermore, a 'variant' of a nucleic acid sequence encoding an antibody or a fragment or variant thereof as defined herein, may also comprise DNA sequences, which correspond to RNA sequences as defined herein and may also comprise further RNA sequences, which correspond to DNA sequences as defined herein. Those skilled in the art are familiar with the translation of an RNA sequence into a DNA sequence (or vice versa) or with the creation of the complementary strand sequence (i.e. by substitution of U residues with T residues and/or by constructing the complementary strand with respect to a given sequence).

According to a preferred embodiment, the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence encoding a reference full-length antibody as defined herein, or a variant thereof.

In a further preferred embodiment, the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NO: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688,

61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any one of said nucleic acid sequences.

According to a particularly preferred embodiment, the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 80% with a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment of any one of said nucleic acid sequences.

Table 3 below shows the assignment of amino acid sequences and RNA sequences of exemplified antibodies, which are preferably encoded by the RNA according to the present invention as described herein. In particular, the first column of Table 3 ("Name") identifies (i) the antibody name and (ii) the antibody fragment (or complete antibody) encoded by the respective amino acid or RNA sequences, for example the chain (e.g., heavy chain, light chain, or any alternative/variant thereof) or the variable region. If the respective amino acid or RNA sequences encodes a fragment of a chain only (such as a certain region of an antibody chain), this can be retrieved from the column "Name". In other words, unless otherwise indicated under "name", the sequences provided relate to full length heavy or light chain sequences of the respective antibodies. However, it is also preferred that the coding sequence of the RNA according to the present invention encodes a fragment or a variant of the antibody sequences (e.g. heavy chain or light chain sequences) shown in Table 3 below.

Table 3: RNA and amino acid sequences of exemplified antibodies

Name	Protein SEQ ID NO	RNA SEQ ID NO
AAB-003_gamma1-Chain	1	7643, 15285, 22927, 30569, 38211, 45853, 53495
Abagovomab_HeavyChain	2	7644, 15286, 22928, 30570, 38212, 45854, 53496
Abagovomab_LightChain	3	7645, 15287, 22929, 30571, 38213, 45855, 53497
Abciximab_HeavyChain	4	7646, 15288, 22930, 30572, 38214, 45856, 53498
Abciximab_LightChain	5	7647, 15289, 22931, 30573, 38215, 45857, 53499
Abituzumab_HeavyChain1	6	7648, 15290, 22932, 30574, 38216, 45858, 53500
Abituzumab_LightChain1	7	7649, 15291, 22933, 30575, 38217, 45859, 53501
Abrilumab_HeavyChain1	8	7650, 15292, 22934, 30576, 38218, 45860, 53502
Abrilumab_LightChain1	9	7651, 15293, 22935, 30577, 38219, 45861, 53503
Abrilumab_LightChain1_variant2	10	7652, 15294, 22936, 30578, 38220, 45862, 53504
Actoxumab_HeavyChain1	11	7653, 15295, 22937, 30579, 38221, 45863, 53505
Actoxumab_LightChain1	12	7654, 15296, 22938, 30580, 38222, 45864, 53506
Adalimumab_HeavyChain	13	7655, 15297, 22939, 30581, 38223, 45865, 53507
Adalimumab_LightChain	14	7656, 15298, 22940, 30582, 38224, 45866, 53508
Aducanumab_HeavyChain1	15	7657, 15299, 22941, 30583, 38225, 45867, 53509
Aducanumab_LightChain1	16	7658, 15300, 22942, 30584, 38226, 45868, 53510
Afasevikumab_HeavyChain1	17	7659, 15301, 22943, 30585, 38227, 45869, 53511
Afasevikumab_LightChain1	18	7660, 15302, 22944, 30586, 38228, 45870, 53512
Aflibercept_Fusion_protein1	19	7661, 15303, 22945, 30587, 38229, 45871, 53513
Afutuzuab_HeavyChain1	20	7662, 15304, 22946, 30588, 38230, 45872, 53514
Afutuzuab_LightChain1	21	7663, 15305, 22947, 30589, 38231, 45873, 53515
Afutuzumab_HeavyChain1	22	7664, 15306, 22948, 30590, 38232, 45874, 53516
Afutuzumab_LightChain1	23	7665, 15307, 22949, 30591, 38233, 45875, 53517
Alacizumab_pegol_HeavyChain1	24	7666, 15308, 22950, 30592, 38234, 45876, 53518
Alacizumab_pegol_LightChain1	25	7667, 15309, 22951, 30593, 38235, 45877, 53519
Alemtuzumab_HeavyChain	26	7668, 15310, 22952, 30594, 38236, 45878, 53520
Alemtuzumab_HeavyChain_variant_Ibey_H	27	7669, 15311, 22953, 30595, 38237, 45879, 53521
Alemtuzumab_HeavyChain_variant_Icel_H	28	7670, 15312, 22954, 30596, 38238, 45880, 53522
Alemtuzumab_HeavyChain_variant_8005_H	29	7671, 15313, 22955, 30597, 38239, 45881, 53523
Alemtuzumab_LightChain	30	7672, 15314, 22956, 30598, 38240, 45882, 53524
Alemtuzumab_LightChain_variant_8005_L	31	7673, 15315, 22957, 30599, 38241, 45883, 53525
Alirocumab_HeavyChain1	32	7674, 15316, 22958, 30600, 38242, 45884, 53526

Name	Protein SEQ ID NO	RNA SEQ ID NO
Alirocumab_LightChain1	33	7675, 15317, 22959, 30601, 38243, 45885, 53527
ALX-0061_HeavyChain1	34	7676, 15318, 22960, 30602, 38244, 45886, 53528
Amatuximab_HeavyChain1	35	7677, 15319, 22961, 30603, 38245, 45887, 53529
Amatuximab_LightChain1	36	7678, 15320, 22962, 30604, 38246, 45888, 53530
Anetumab_ravtansine_HeavyChain1	37	7679, 15321, 22963, 30605, 38247, 45889, 53531
Anetumab_ravtansine_LightChain1	38	7680, 15322, 22964, 30606, 38248, 45890, 53532
Anifrolumab_HeavyChain1	39	7681, 15323, 22965, 30607, 38249, 45891, 53533
Anifrolumab_LightChain1	40	7682, 15324, 22966, 30608, 38250, 45892, 53534
Anrukinzumab_HeavyChain1	41	7683, 15325, 22967, 30609, 38251, 45893, 53535
Anrukinzumab_LightChain1	42	7684, 15326, 22968, 30610, 38252, 45894, 53536
Apolizumab_HeavyChain1	43	7685, 15327, 22969, 30611, 38253, 45895, 53537
Apolizumab_LightChain1	44	7686, 15328, 22970, 30612, 38254, 45896, 53538
Apomab_HeavyChain	45	7687, 15329, 22971, 30613, 38255, 45897, 53539
Apomab_LightChain	46	7688, 15330, 22972, 30614, 38256, 45898, 53540
Aquaporumab_LightChain	47	7689, 15331, 22973, 30615, 38257, 45899, 53541
Arcitumomab_99tc_HeavyChain	48	7690, 15332, 22974, 30616, 38258, 45900, 53542
Arcitumomab_99tc_LightChain	49	7691, 15333, 22975, 30617, 38259, 45901, 53543
Ascrinvacumab_HeavyChain1	50	7692, 15334, 22976, 30618, 38260, 45902, 53544
Ascrinvacumab_LightChain1	51	7693, 15335, 22977, 30619, 38261, 45903, 53545
Aselizuab_HeavyChain1	52	7694, 15336, 22978, 30620, 38262, 45904, 53546
Aselizuab_HeavyChain2	53	7695, 15337, 22979, 30621, 38263, 45905, 53547
Aselizuab_LightChain1	54	7696, 15338, 22980, 30622, 38264, 45906, 53548
Atezolizumab_HeavyChain1	55	7697, 15339, 22981, 30623, 38265, 45907, 53549
Atezolizumab_LightChain1	56	7698, 15340, 22982, 30624, 38266, 45908, 53550
Atinumab_HeavyChain1	57	7699, 15341, 22983, 30625, 38267, 45909, 53551
Atinumab_LightChain1	58	7700, 15342, 22984, 30626, 38268, 45910, 53552
Atlizuab_HeavyChain1	59	7701, 15343, 22985, 30627, 38269, 45911, 53553
Atlizuab_LightChain1	60	7702, 15344, 22986, 30628, 38270, 45912, 53554
Aurograb_SingleChain	61	7703, 15345, 22987, 30629, 38271, 45913, 53555
Avelumab_HeavyChain1	62	7704, 15346, 22988, 30630, 38272, 45914, 53556
Avelumab_LightChain1	63	7705, 15347, 22989, 30631, 38273, 45915, 53557
Bapineuzumab_HeavyChain1	64	7706, 15348, 22990, 30632, 38274, 45916, 53558
Bapineuzumab_LightChain1	65	7707, 15349, 22991, 30633, 38275, 45917, 53559

Name	Protein SEQ ID NO	RNA SEQ ID NO
Basiliximab_HeavyChain	66	7708, 15350, 22992, 30634, 38276, 45918, 53560
Basiliximab_LightChain	67	7709, 15351, 22993, 30635, 38277, 45919, 53561
Bavituximab_HeavyChain	68	7710, 15352, 22994, 30636, 38278, 45920, 53562
Bavituximab_LightChain	69	7711, 15353, 22995, 30637, 38279, 45921, 53563
Bavituximab_LightChain_variant_8734_L	70	7712, 15354, 22996, 30638, 38280, 45922, 53564
Begelomab_HeavyChain1	71	7713, 15355, 22997, 30639, 38281, 45923, 53565
Begelomab_LightChain1	72	7714, 15356, 22998, 30640, 38282, 45924, 53566
Benralizumab_HeavyChain1	73	7715, 15357, 22999, 30641, 38283, 45925, 53567
Benralizumab_LightChain1	74	7716, 15358, 23000, 30642, 38284, 45926, 53568
Betalutin_HeavyChain1	75	7717, 15359, 23001, 30643, 38285, 45927, 53569
Betalutin_LightChain1	76	7718, 15360, 23002, 30644, 38286, 45928, 53570
Bevacituzuab_HeavyChain1	77	7719, 15361, 23003, 30645, 38287, 45929, 53571
Bevacituzuab_LightChain1	78	7720, 15362, 23004, 30646, 38288, 45930, 53572
Bevacizumab_154-aspartic_acid_LightChain	79	7721, 15363, 23005, 30647, 38289, 45931, 53573
Bevacizumab_154-substitution_deriv_LightChain	80	7722, 15364, 23006, 30648, 38290, 45932, 53574
Bevacizumab_180-serine_HeavyChain	81	7723, 15365, 23007, 30649, 38291, 45933, 53575
Bevacizumab_180-substitution_deriv_HeavyCahin	82	7724, 15366, 23008, 30650, 38292, 45934, 53576
Bevacizumab_beta_HeavyChain1	83	7725, 15367, 23009, 30651, 38293, 45935, 53577
Bevacizumab_beta_LightChain1	84	7726, 15368, 23010, 30652, 38294, 45936, 53578
Bevacizumab_FcDomain	85	7727, 15369, 23011, 30653, 38295, 45937, 53579
Bevacizumab_HeavyChain	86	7728, 15370, 23012, 30654, 38296, 45938, 53580
Bevacizumab_HeavyChain_variant1	87	7729, 15371, 23013, 30655, 38297, 45939, 53581
Bevacizumab_HeavyChain_V-Region	88	7730, 15372, 23014, 30656, 38298, 45940, 53582
Bevacizumab_LightChain1	89	7731, 15373, 23015, 30657, 38299, 45941, 53583
Bevacizumab_LightChain2	90	7732, 15374, 23016, 30658, 38300, 45942, 53584
Bevacizumab_LightChain	91	7733, 15375, 23017, 30659, 38301, 45943, 53585
Bevacizumab_LightChain_VJ-Region	92	7734, 15376, 23018, 30660, 38302, 45944, 53586
Bevacizumab_LightChain_V-Region	93	7735, 15377, 23019, 30661, 38303, 45945, 53587
Bevacizumab-rhuMAb-VEGF_HeavyChain_gamma1-Chain_VDJ-Region	94	7736, 15378, 23020, 30662, 38304, 45946, 53588
Bevacizumab-rhuMAb-VEGF_LightChain_VJ-Region	95	7737, 15379, 23021, 30663, 38305, 45947, 53589
Bevacizumab_gamma1-Chain	96	7738, 15380, 23022, 30664, 38306, 45948, 53590
Bevacizumab_gamma1-Chain_CH3-Region_mutein	97	7739, 15381, 23023, 30665, 38307, 45949, 53591

Name	Protein SEQ ID NO	RNA SEQ ID NO
Bezlotoxumab_HeavyChain1	98	7740, 15382, 23024, 30666, 38308, 45950, 53592
Bezlotoxumab_LightChain1	99	7741, 15383, 23025, 30667, 38309, 45951, 53593
Bimagrumab_HeavyChain1	100	7742, 15384, 23026, 30668, 38310, 45952, 53594
Bimagrumab_HeavyChain	101	7743, 15385, 23027, 30669, 38311, 45953, 53595
Bimagrumab_LightChain1	102	7744, 15386, 23028, 30670, 38312, 45954, 53596
Bimekizumab_HeavyChain1	103	7745, 15387, 23029, 30671, 38313, 45955, 53597
Bimekizumab_LightChain1	104	7746, 15388, 23030, 30672, 38314, 45956, 53598
Bleselumab_HeavyChain1	105	7747, 15389, 23031, 30673, 38315, 45957, 53599
Bleselumab_LightChain1	106	7748, 15390, 23032, 30674, 38316, 45958, 53600
Blinatumomab_HeavyChain1	107	7749, 15391, 23033, 30675, 38317, 45959, 53601
Blinatumomab_SingleChain	108	7750, 15392, 23034, 30676, 38318, 45960, 53602
Blinatumumab_SingleChain_variable_fragment_fusion_protein_(bite)	109	7751, 15393, 23035, 30677, 38319, 45961, 53603
Blontuvetmab_HeavyChain	110	7752, 15394, 23036, 30678, 38320, 45962, 53604
Blontuvetmab_LightChain	111	7753, 15395, 23037, 30679, 38321, 45963, 53605
Blosozumab_HeavyChain1	112	7754, 15396, 23038, 30680, 38322, 45964, 53606
Blosozumab_LightChain1	113	7755, 15397, 23039, 30681, 38323, 45965, 53607
Bococizumab_HeavyChain1	114	7756, 15398, 23040, 30682, 38324, 45966, 53608
Bococizumab_LightChain1	115	7757, 15399, 23041, 30683, 38325, 45967, 53609
Brentuximab_vedotin_HeavyChain1	116	7758, 15400, 23042, 30684, 38326, 45968, 53610
Brentuximab_vedotin_LightChain1	117	7759, 15401, 23043, 30685, 38327, 45969, 53611
Briakinumab_HeavyChain1	118	7760, 15402, 23044, 30686, 38328, 45970, 53612
Briakinumab_LightChain1	119	7761, 15403, 23045, 30687, 38329, 45971, 53613
Brodalumab_HeavyChain1	120	7762, 15404, 23046, 30688, 38330, 45972, 53614
Brodalumab_LightChain1	121	7763, 15405, 23047, 30689, 38331, 45973, 53615
Brolucizumab_HeavyChain1	122	7764, 15406, 23048, 30690, 38332, 45974, 53616
Brolucizumab_scFv_fragment	123	7765, 15407, 23049, 30691, 38333, 45975, 53617
Brontictuzumab_HeavyChain1	124	7766, 15408, 23050, 30692, 38334, 45976, 53618
Brontictuzumab_LightChain1	125	7767, 15409, 23051, 30693, 38335, 45977, 53619
BTT-1023_HeavyChain1	126	7768, 15410, 23052, 30694, 38336, 45978, 53620
BTT-1023_LightChain1	127	7769, 15411, 23053, 30695, 38337, 45979, 53621
Burosumab_HeavyChain1	128	7770, 15412, 23054, 30696, 38338, 45980, 53622
Burosumab_LightChain1	129	7771, 15413, 23055, 30697, 38339, 45981, 53623

Name	Protein SEQ ID NO	RNA SEQ ID NO
Canakinumab_HeavyChain1	130	7772, 15414, 23056, 30698, 38340, 45982, 53624
Canakinumab_HeavyChain	131	7773, 15415, 23057, 30699, 38341, 45983, 53625
Canakinumab_LightChain1	132	7774, 15416, 23058, 30700, 38342, 45984, 53626
Canakinumab_LightChain	133	7775, 15417, 23059, 30701, 38343, 45985, 53627
Canakinumab_LightChain_variant_8836_L	134	7776, 15418, 23060, 30702, 38344, 45986, 53628
Cantuzumab_HeavyChain1	135	7777, 15419, 23061, 30703, 38345, 45987, 53629
Cantuzumab_HeavyChain	136	7778, 15420, 23062, 30704, 38346, 45988, 53630
Cantuzumab_LightChain1	137	7779, 15421, 23063, 30705, 38347, 45989, 53631
Cantuzumab_mertansine_HeavyChain1	138	7780, 15422, 23064, 30706, 38348, 45990, 53632
Cantuzumab_mertansine_LightChain1	139	7781, 15423, 23065, 30707, 38349, 45991, 53633
Cantuzumab_ravtansine_HeavyChain1	140	7782, 15424, 23066, 30708, 38350, 45992, 53634
Cantuzumab_ravtansine_LightChain1	141	7783, 15425, 23067, 30709, 38351, 45993, 53635
Caplacizumab	142	7784, 15426, 23068, 30710, 38352, 45994, 53636
Caplacizumab_HeavyChain1	143	7785, 15427, 23069, 30711, 38353, 45995, 53637
Caplacizumab_HeavyChain1	144	7786, 15428, 23070, 30712, 38354, 45996, 53638
Carlumab_HeavyChain1	145	7787, 15429, 23071, 30713, 38355, 45997, 53639
Carlumab_LightChain1	146	7788, 15430, 23072, 30714, 38356, 45998, 53640
Cergutuzumab_amunaleukin_HeavyChain1	147	7789, 15431, 23073, 30715, 38357, 45999, 53641
Cergutuzumab_amunaleukin_HeavyChain2	148	7790, 15432, 23074, 30716, 38358, 46000, 53642
Cergutuzumab_amunaleukin_LightChain1	149	7791, 15433, 23075, 30717, 38359, 46001, 53643
Certolizumab_pegol_HeavyChain1	150	7792, 15434, 23076, 30718, 38360, 46002, 53644
Certolizumab_pegol_HeavyChain	151	7793, 15435, 23077, 30719, 38361, 46003, 53645
Certolizumab_pegol_LightChain1	152	7794, 15436, 23078, 30720, 38362, 46004, 53646
Certolizumab_pegol_LightChain	153	7795, 15437, 23079, 30721, 38363, 46005, 53647
Cetuximab_HeavyChain	154	7796, 15438, 23080, 30722, 38364, 46006, 53648
Cetuximab_HeavyChain_variant	155	7797, 15439, 23081, 30723, 38365, 46007, 53649
Cetuximab_LightChain	156	7798, 15440, 23082, 30724, 38366, 46008, 53650
Cetuximab_LightChain_variant	157	7799, 15441, 23083, 30725, 38367, 46009, 53651
Citatuzumab_bogatox_HeavyChain1	158	7800, 15442, 23084, 30726, 38368, 46010, 53652
Citatuzumab_bogatox_LightChain1	159	7801, 15443, 23085, 30727, 38369, 46011, 53653
Cixutumumab_HeavyChain1	160	7802, 15444, 23086, 30728, 38370, 46012, 53654
Cixutumumab_LightChain1	161	7803, 15445, 23087, 30729, 38371, 46013, 53655
Clazakizumab_HeavyChain1	162	7804, 15446, 23088, 30730, 38372, 46014, 53656

Name	Protein SEQ ID NO	RNA SEQ ID NO
Clazakizumab_LightChain1	163	7805, 15447, 23089, 30731, 38373, 46015, 53657
Clivatuzumab_tetraxetan_HeavyChain1	164	7806, 15448, 23090, 30732, 38374, 46016, 53658
Clivatuzumab_tetraxetan_LightChain1	165	7807, 15449, 23091, 30733, 38375, 46017, 53659
Codrituzumab_HeavyChain1	166	7808, 15450, 23092, 30734, 38376, 46018, 53660
Codrituzumab_LightChain1	167	7809, 15451, 23093, 30735, 38377, 46019, 53661
Coltuximab_ravtansine_HeavyChain1	168	7810, 15452, 23094, 30736, 38378, 46020, 53662
Coltuximab_ravtansine_LightChain1	169	7811, 15453, 23095, 30737, 38379, 46021, 53663
Conatumumab_CV_HeavyChain	170	7812, 15454, 23096, 30738, 38380, 46022, 53664
Conatumumab_CV_LightChain	171	7813, 15455, 23097, 30739, 38381, 46023, 53665
Conatumumab_HeavyChain1	172	7814, 15456, 23098, 30740, 38382, 46024, 53666
Conatumumab_HeavyChain	173	7815, 15457, 23099, 30741, 38383, 46025, 53667
Conatumumab_LightChain1	174	7816, 15458, 23100, 30742, 38384, 46026, 53668
Conatumumab_LightChain	175	7817, 15459, 23101, 30743, 38385, 46027, 53669
Concizumab_HeavyChain1	176	7818, 15460, 23102, 30744, 38386, 46028, 53670
Concizumab_LightChain1	177	7819, 15461, 23103, 30745, 38387, 46029, 53671
Crenezumab_HeavyChain1	178	7820, 15462, 23104, 30746, 38388, 46030, 53672
Crenezumab_LightChain1	179	7821, 15463, 23105, 30747, 38389, 46031, 53673
Crotedumab_HeavyChain1	180	7822, 15464, 23106, 30748, 38390, 46032, 53674
Crotedumab_HeavyChain2	181	7823, 15465, 23107, 30749, 38391, 46033, 53675
Crotedumab_LightChain1	182	7824, 15466, 23108, 30750, 38392, 46034, 53676
Crotedumab_LightChain2	183	7825, 15467, 23109, 30751, 38393, 46035, 53677
Dacetuzumab_HeavyChain1	184	7826, 15468, 23110, 30752, 38394, 46036, 53678
Dacetuzumab_LightChain1	185	7827, 15469, 23111, 30753, 38395, 46037, 53679
Dacliximab_LightChain_VJ-Region	186	7828, 15470, 23112, 30754, 38396, 46038, 53680
Dacliximab_gamma2-Chain_VDJ-Region	187	7829, 15471, 23113, 30755, 38397, 46039, 53681
Daclizumab_HeavyChain	188	7830, 15472, 23114, 30756, 38398, 46040, 53682
Daclizumab_LightChain	189	7831, 15473, 23115, 30757, 38399, 46041, 53683
Dalotuzumab_HeavyChain1	190	7832, 15474, 23116, 30758, 38400, 46042, 53684
Dalotuzumab_LightChain1	191	7833, 15475, 23117, 30759, 38401, 46043, 53685
Dapirolizumab_pegol_HeavyChain1	192	7834, 15476, 23118, 30760, 38402, 46044, 53686
Dapirolizumab_pegol_LightChain1	193	7835, 15477, 23119, 30761, 38403, 46045, 53687
Daratumumab_HeavyChain1	194	7836, 15478, 23120, 30762, 38404, 46046, 53688
Daratumumab_LightChain1	195	7837, 15479, 23121, 30763, 38405, 46047, 53689

Name	Protein SEQ ID NO	RNA SEQ ID NO
Dectrekumab_HeavyChain1	196	7838, 15480, 23122, 30764, 38406, 46048, 53690
Dectrekumab_LightChain1	197	7839, 15481, 23123, 30765, 38407, 46049, 53691
Demcizumab_HeavyChain1	198	7840, 15482, 23124, 30766, 38408, 46050, 53692
Demcizumab_LightChain1	199	7841, 15483, 23125, 30767, 38409, 46051, 53693
Denintuzumab_mafodotin_HeavyChain1	200	7842, 15484, 23126, 30768, 38410, 46052, 53694
Denintuzumab_mafodotin_LightChain1	201	7843, 15485, 23127, 30769, 38411, 46053, 53695
Denosumab_HeavyChain	202	7844, 15486, 23128, 30770, 38412, 46054, 53696
Denosumab_LightChain	203	7845, 15487, 23129, 30771, 38413, 46055, 53697
Depatuxizumab_HeavyChain1	204	7846, 15488, 23130, 30772, 38414, 46056, 53698
Depatuxizumab_LightChain1	205	7847, 15489, 23131, 30773, 38415, 46057, 53699
Depatuxizumab_mafodotin_HeavyChain1	206	7848, 15490, 23132, 30774, 38416, 46058, 53700
Depatuxizumab_mafodotin_LightChain1	207	7849, 15491, 23133, 30775, 38417, 46059, 53701
Dinutuximab_beta_HeavyChain1	208	7850, 15492, 23134, 30776, 38418, 46060, 53702
Dinutuximab_beta_LightChain1	209	7851, 15493, 23135, 30777, 38419, 46061, 53703
Dinutuximab_HeavyChain1	210	7852, 15494, 23136, 30778, 38420, 46062, 53704
Dinutuximab_LightChain1	211	7853, 15495, 23137, 30779, 38421, 46063, 53705
Dinutuximab_LightChain	212	7854, 15496, 23138, 30780, 38422, 46064, 53706
Diridavumab_HeavyChain1	213	7855, 15497, 23139, 30781, 38423, 46065, 53707
Diridavumab_LightChain1	214	7856, 15498, 23140, 30782, 38424, 46066, 53708
Domagrozumab_HeavyChain1	215	7857, 15499, 23141, 30783, 38425, 46067, 53709
Domagrozumab_HeavyChain	216	7858, 15500, 23142, 30784, 38426, 46068, 53710
Domagrozumab_LightChain1	217	7859, 15501, 23143, 30785, 38427, 46069, 53711
Drozituab_HeavyChain1	218	7860, 15502, 23144, 30786, 38428, 46070, 53712
Drozituab_LightChain1	219	7861, 15503, 23145, 30787, 38429, 46071, 53713
Drozitumab_HeavyChain1	220	7862, 15504, 23146, 30788, 38430, 46072, 53714
Drozitumab_LightChain1	221	7863, 15505, 23147, 30789, 38431, 46073, 53715
Duligotumab_HeavyChain1	222	7864, 15506, 23148, 30790, 38432, 46074, 53716
Duligotumab_LightChain1	223	7865, 15507, 23149, 30791, 38433, 46075, 53717
Duligotuzumab_HeavyChain1	224	7866, 15508, 23150, 30792, 38434, 46076, 53718
Duligotuzumab_LightChain1	225	7867, 15509, 23151, 30793, 38435, 46077, 53719
Dupilumab_HeavyChain1	226	7868, 15510, 23152, 30794, 38436, 46078, 53720
Dupilumab_LightChain1	227	7869, 15511, 23153, 30795, 38437, 46079, 53721
Durvalumab_HeavyChain1	228	7870, 15512, 23154, 30796, 38438, 46080, 53722

Name	Protein SEQ ID NO	RNA SEQ ID NO
Durvalumab_LightChain1	229	7871, 15513, 23155, 30797, 38439, 46081, 53723
Dusigitumab_HeavyChain1	230	7872, 15514, 23156, 30798, 38440, 46082, 53724
Dusigitumab_LightChain1	231	7873, 15515, 23157, 30799, 38441, 46083, 53725
Ecromeximab_HeavyChain1	232	7874, 15516, 23158, 30800, 38442, 46084, 53726
Ecromeximab_LightChain1	233	7875, 15517, 23159, 30801, 38443, 46085, 53727
Eculizumab_HeavyChain1	234	7876, 15518, 23160, 30802, 38444, 46086, 53728
Eculizumab_LightChain1	235	7877, 15519, 23161, 30803, 38445, 46087, 53729
Efalizumab_HeavyChain	236	7878, 15520, 23162, 30804, 38446, 46088, 53730
Efalizumab_LightChain	237	7879, 15521, 23163, 30805, 38447, 46089, 53731
Efungumab_SingleChain_variable_fragment	238	7880, 15522, 23164, 30806, 38448, 46090, 53732
Eldelumab_HeavyChain1	239	7881, 15523, 23165, 30807, 38449, 46091, 53733
Eldelumab_LightChain1	240	7882, 15524, 23166, 30808, 38450, 46092, 53734
Elgemtumab_HeavyChain1	241	7883, 15525, 23167, 30809, 38451, 46093, 53735
Elgemtumab_LightChain1	242	7884, 15526, 23168, 30810, 38452, 46094, 53736
Elotuzumab_HeavyChain1	243	7885, 15527, 23169, 30811, 38453, 46095, 53737
Elotuzumab_LightChain1	244	7886, 15528, 23170, 30812, 38454, 46096, 53738
Emactuzumab_HeavyChain1	245	7887, 15529, 23171, 30813, 38455, 46097, 53739
Emactuzumab_LightChain1	246	7888, 15530, 23172, 30814, 38456, 46098, 53740
Emibetuzumab_HeavyChain1	247	7889, 15531, 23173, 30815, 38457, 46099, 53741
Emibetuzumab_LightChain1	248	7890, 15532, 23174, 30816, 38458, 46100, 53742
Emicizumab_HeavyChain1	249	7891, 15533, 23175, 30817, 38459, 46101, 53743
Emicizumab_HeavyChain2	250	7892, 15534, 23176, 30818, 38460, 46102, 53744
Emicizumab_LightChain1	251	7893, 15535, 23177, 30819, 38461, 46103, 53745
Enavatuzumab_HeavyChain1	252	7894, 15536, 23178, 30820, 38462, 46104, 53746
Enavatuzumab_LightChain1	253	7895, 15537, 23179, 30821, 38463, 46105, 53747
Enfortumab_HeavyChain	254	7896, 15538, 23180, 30822, 38464, 46106, 53748
Enfortumab_LightChain	255	7897, 15539, 23181, 30823, 38465, 46107, 53749
Enfortumab_vedotin_HeavyChain1	256	7898, 15540, 23182, 30824, 38466, 46108, 53750
Enfortumab_vedotin_LightChain1	257	7899, 15541, 23183, 30825, 38467, 46109, 53751
Enoblituzumab_HeavyChain	258	7900, 15542, 23184, 30826, 38468, 46110, 53752
Enoblituzumab_LightChain	259	7901, 15543, 23185, 30827, 38469, 46111, 53753
Enokizumab_HeavyChain1	260	7902, 15544, 23186, 30828, 38470, 46112, 53754
Enokizumab_LightChain1	261	7903, 15545, 23187, 30829, 38471, 46113, 53755

Name	Protein SEQ ID NO	RNA SEQ ID NO
Enokizumab_LightChain	262	7904, 15546, 23188, 30830, 38472, 46114, 53756
Enoticumab_HeavyChain1	263	7905, 15547, 23189, 30831, 38473, 46115, 53757
Enoticumab_LightChain1	264	7906, 15548, 23190, 30832, 38474, 46116, 53758
Ensituximab_HeavyChain1	265	7907, 15549, 23191, 30833, 38475, 46117, 53759
Ensituximab_LightChain1	266	7908, 15550, 23192, 30834, 38476, 46118, 53760
Ensituximab_SingleChain_variable_fragment	267	7909, 15551, 23193, 30835, 38477, 46119, 53761
Entolimod_chain1	268	7910, 15552, 23194, 30836, 38478, 46120, 53762
Epratuzumab_HeavyChain	269	7911, 15553, 23195, 30837, 38479, 46121, 53763
Epratuzumab_LightChain	270	7912, 15554, 23196, 30838, 38480, 46122, 53764
Eptacog_beta_HeavyChain1	271	7913, 15555, 23197, 30839, 38481, 46123, 53765
Eptacog_beta_LightChain1	272	7914, 15556, 23198, 30840, 38482, 46124, 53766
Erlizuab_HeavyChain1	273	7915, 15557, 23199, 30841, 38483, 46125, 53767
Erlizuab_LightChain1	274	7916, 15558, 23200, 30842, 38484, 46126, 53768
Etaracizumab_HeavyChain1	275	7917, 15559, 23201, 30843, 38485, 46127, 53769
Etaracizumab_LightChain1	276	7918, 15560, 23202, 30844, 38486, 46128, 53770
Etrolizuab_HeavyChain1	277	7919, 15561, 23203, 30845, 38487, 46129, 53771
Etrolizuab_HeavyChain2	278	7920, 15562, 23204, 30846, 38488, 46130, 53772
Etrolizuab_LightChain1	279	7921, 15563, 23205, 30847, 38489, 46131, 53773
Etrolizumab_HeavyChain1	280	7922, 15564, 23206, 30848, 38490, 46132, 53774
Etrolizumab_LightChain1	281	7923, 15565, 23207, 30849, 38491, 46133, 53775
Evinacumab_HeavyChain1	282	7924, 15566, 23208, 30850, 38492, 46134, 53776
Evinacumab_LightChain1	283	7925, 15567, 23209, 30851, 38493, 46135, 53777
Evolocumab_HeavyChain1	284	7926, 15568, 23210, 30852, 38494, 46136, 53778
Evolocumab_LightChain1	285	7927, 15569, 23211, 30853, 38495, 46137, 53779
Exbivirumab_HeavyChain1	286	7928, 15570, 23212, 30854, 38496, 46138, 53780
Exbivirumab_LightChain1	287	7929, 15571, 23213, 30855, 38497, 46139, 53781
Farletuzumab_HeavyChain1	288	7930, 15572, 23214, 30856, 38498, 46140, 53782
Farletuzumab_LightChain1	289	7931, 15573, 23215, 30857, 38499, 46141, 53783
Fasinumab_HeavyChain1	290	7932, 15574, 23216, 30858, 38500, 46142, 53784
Fasinumab_LightChain1	291	7933, 15575, 23217, 30859, 38501, 46143, 53785
Fezakinumab_HeavyChain1	292	7934, 15576, 23218, 30860, 38502, 46144, 53786
Fezakinumab_LightChain1	293	7935, 15577, 23219, 30861, 38503, 46145, 53787
FG-3019_HeavyChain1	294	7936, 15578, 23220, 30862, 38504, 46146, 53788

Name	Protein SEQ ID NO	RNA SEQ ID NO
FG-3019_LightChain1	295	7937, 15579, 23221, 30863, 38505, 46147, 53789
Fibatuzumab_HeavyChain1	296	7938, 15580, 23222, 30864, 38506, 46148, 53790
Fibatuzumab_LightChain1	297	7939, 15581, 23223, 30865, 38507, 46149, 53791
Ficlatuzumab_HeavyChain1	298	7940, 15582, 23224, 30866, 38508, 46150, 53792
Ficlatuzumab_HeavyChain	299	7941, 15583, 23225, 30867, 38509, 46151, 53793
Ficlatuzumab_LightChain1	300	7942, 15584, 23226, 30868, 38510, 46152, 53794
Figitumumab_HeavyChain1	301	7943, 15585, 23227, 30869, 38511, 46153, 53795
Figitumumab_LightChain1	302	7944, 15586, 23228, 30870, 38512, 46154, 53796
Firivumab_HeavyChain1	303	7945, 15587, 23229, 30871, 38513, 46155, 53797
Firivumab_LightChain1	304	7946, 15588, 23230, 30872, 38514, 46156, 53798
Flanvotumab_HeavyChain1	305	7947, 15589, 23231, 30873, 38515, 46157, 53799
Flanvotumab_LightChain1	306	7948, 15590, 23232, 30874, 38516, 46158, 53800
Fletikumab_HeavyChain1	307	7949, 15591, 23233, 30875, 38517, 46159, 53801
Fletikumab_LightChain1	308	7950, 15592, 23234, 30876, 38518, 46160, 53802
Fontolizumab_HeavyChain1	309	7951, 15593, 23235, 30877, 38519, 46161, 53803
Fontolizumab_LightChain1	310	7952, 15594, 23236, 30878, 38520, 46162, 53804
Foralumab_HeavyChain1	311	7953, 15595, 23237, 30879, 38521, 46163, 53805
Foralumab_LightChain1	312	7954, 15596, 23238, 30880, 38522, 46164, 53806
Foravirumab_HeavyChain1	313	7955, 15597, 23239, 30881, 38523, 46165, 53807
Foravirumab_HeavyChain	314	7956, 15598, 23240, 30882, 38524, 46166, 53808
Foravirumab_LightChain1	315	7957, 15599, 23241, 30883, 38525, 46167, 53809
Fresolimumab_HeavyChain1	316	7958, 15600, 23242, 30884, 38526, 46168, 53810
Fresolimumab_LightChain1	317	7959, 15601, 23243, 30885, 38527, 46169, 53811
Fulranumab_HeavyChain1	318	7960, 15602, 23244, 30886, 38528, 46170, 53812
Fulranumab_LightChain1	319	7961, 15603, 23245, 30887, 38529, 46171, 53813
Futuximab_HeavyChain1	320	7962, 15604, 23246, 30888, 38530, 46172, 53814
Futuximab_LightChain1	321	7963, 15605, 23247, 30889, 38531, 46173, 53815
Galcanezumab_HeavyChain1	322	7964, 15606, 23248, 30890, 38532, 46174, 53816
Galcanezumab_LightChain1	323	7965, 15607, 23249, 30891, 38533, 46175, 53817
Galiximab_HeavyChain1	324	7966, 15608, 23250, 30892, 38534, 46176, 53818
Galiximab_LightChain1	325	7967, 15609, 23251, 30893, 38535, 46177, 53819
Ganitumab_HeavyChain1	326	7968, 15610, 23252, 30894, 38536, 46178, 53820
Ganitumab_LightChain1	327	7969, 15611, 23253, 30895, 38537, 46179, 53821

Name	Protein SEQ ID NO	RNA SEQ ID NO
Gantenerumab_HeavyChain1	328	7970, 15612, 23254, 30896, 38538, 46180, 53822
Gantenerumab_LightChain1	329	7971, 15613, 23255, 30897, 38539, 46181, 53823
Gemtuzumab_HeavyChain1	330	7972, 15614, 23256, 30898, 38540, 46182, 53824
Gemtuzumab_HeavyChain2	331	7973, 15615, 23257, 30899, 38541, 46183, 53825
Gemtuzumab_LightChain2	332	7974, 15616, 23258, 30900, 38542, 46184, 53826
Gemtuzumab_ozogamicin_LightChain1	333	7975, 15617, 23259, 30901, 38543, 46185, 53827
Gevokizumab_HeavyChain1	334	7976, 15618, 23260, 30902, 38544, 46186, 53828
Gevokizumab_LightChain1	335	7977, 15619, 23261, 30903, 38545, 46187, 53829
Girentuximab_HeavyChain1	336	7978, 15620, 23262, 30904, 38546, 46188, 53830
Girentuximab_LightChain1	337	7979, 15621, 23263, 30905, 38547, 46189, 53831
Glembatumumab_HeavyChain1	338	7980, 15622, 23264, 30906, 38548, 46190, 53832
Glembatumumab_LightChain1	339	7981, 15623, 23265, 30907, 38549, 46191, 53833
Goilixiab_HeavyChain1	340	7982, 15624, 23266, 30908, 38550, 46192, 53834
Goilixiab_LightChain1	341	7983, 15625, 23267, 30909, 38551, 46193, 53835
Guselkumab_HeavyChain1	342	7984, 15626, 23268, 30910, 38552, 46194, 53836
Guselkumab_LightChain1	343	7985, 15627, 23269, 30911, 38553, 46195, 53837
HuMab-001_HeavyChain_VDJ-Region	344	7986, 15628, 23270, 30912, 38554, 46196, 53838
HuMab-001_LightChain_VJ-Region	345	7987, 15629, 23271, 30913, 38555, 46197, 53839
HuMab-005_HeavyChain_gamma-Chain_VDJ-Region	346	7988, 15630, 23272, 30914, 38556, 46198, 53840
HuMab-005_LightChain_VJ-Region	347	7989, 15631, 23273, 30915, 38557, 46199, 53841
HuMab-006_HeavyChain_VDJ-Region	348	7990, 15632, 23274, 30916, 38558, 46200, 53842
HuMab-006_LightChain_VJ-Region	349	7991, 15633, 23275, 30917, 38559, 46201, 53843
HuMab-019_HeavyChain_VDJ-Region	350	7992, 15634, 23276, 30918, 38560, 46202, 53844
HuMab-021_HeavyChain_VDJ-Region	351	7993, 15635, 23277, 30919, 38561, 46203, 53845
HuMab-021_LightChain_VJ-Region	352	7994, 15636, 23278, 30920, 38562, 46204, 53846
HuMab-025_HeavyChain_VDJ-Region	353	7995, 15637, 23279, 30921, 38563, 46205, 53847
HuMab-025_LightChain_VJ-Region	354	7996, 15638, 23280, 30922, 38564, 46206, 53848
HuMab-027_HeavyChain_VDJ-Region	355	7997, 15639, 23281, 30923, 38565, 46207, 53849
HuMab-032_HeavyChain_VDJ-Region	356	7998, 15640, 23282, 30924, 38566, 46208, 53850
HuMab-032_LightChain_VJ-Region	357	7999, 15641, 23283, 30925, 38567, 46209, 53851
HuMab-033_HeavyChain_VDJ-Region	358	8000, 15642, 23284, 30926, 38568, 46210, 53852
HuMab-035_HeavyChain_VDJ-Region	359	8001, 15643, 23285, 30927, 38569, 46211, 53853
HuMab-036_HeavyChain_VDJ-Region	360	8002, 15644, 23286, 30928, 38570, 46212, 53854

Name	Protein SEQ ID NO	RNA SEQ ID NO
HuMab-036_LightChain_VJ-Region	361	8003, 15645, 23287, 30929, 38571, 46213, 53855
HuMab-041_HeavyChain_VDJ-Region	362	8004, 15646, 23288, 30930, 38572, 46214, 53856
HuMab-044_HeavyChain_VDJ-Region	363	8005, 15647, 23289, 30931, 38573, 46215, 53857
HuMab-049_HeavyChain_VDJ-Region	364	8006, 15648, 23290, 30932, 38574, 46216, 53858
HuMab-049_LightChain_VJ-Region	365	8007, 15649, 23291, 30933, 38575, 46217, 53859
HuMab-050_HeavyChain_VDJ-Region	366	8008, 15650, 23292, 30934, 38576, 46218, 53860
HuMab-050_LightChain_VJ-Region	367	8009, 15651, 23293, 30935, 38577, 46219, 53861
HuMab-054_HeavyChain_VDJ-Region	368	8010, 15652, 23294, 30936, 38578, 46220, 53862
HuMab-054_LightChain_VJ-Region	369	8011, 15653, 23295, 30937, 38579, 46221, 53863
HuMab-055_HeavyChain_VDJ-Region	370	8012, 15654, 23296, 30938, 38580, 46222, 53864
HuMab-059_HeavyChain_VDJ-Region	371	8013, 15655, 23297, 30939, 38581, 46223, 53865
HuMab-059_LightChain_VJ-Region	372	8014, 15656, 23298, 30940, 38582, 46224, 53866
HuMab-060_HeavyChain_VDJ-Region	373	8015, 15657, 23299, 30941, 38583, 46225, 53867
HuMab-060_LightChain_VJ-Region	374	8016, 15658, 23300, 30942, 38584, 46226, 53868
HuMab-067_HeavyChain_VDJ-Region	375	8017, 15659, 23301, 30943, 38585, 46227, 53869
HuMab-072_HeavyChain_VDJ-Region	376	8018, 15660, 23302, 30944, 38586, 46228, 53870
HuMab-072_LightChain_VJ-Region	377	8019, 15661, 23303, 30945, 38587, 46229, 53871
HuMab-084_HeavyChain_VDJ-Region	378	8020, 15662, 23304, 30946, 38588, 46230, 53872
HuMab-084_LightChain_VJ-Region	379	8021, 15663, 23305, 30947, 38589, 46231, 53873
HuMab-091_HeavyChain_VDJ-Region	380	8022, 15664, 23306, 30948, 38590, 46232, 53874
HuMab-091_LightChain_VJ-Region	381	8023, 15665, 23307, 30949, 38591, 46233, 53875
HuMab-093_HeavyChain_VDJ-Region	382	8024, 15666, 23308, 30950, 38592, 46234, 53876
HuMab-098_HeavyChain_VDJ-Region	383	8025, 15667, 23309, 30951, 38593, 46235, 53877
HuMab-098_LightChain_VJ-Region	384	8026, 15668, 23310, 30952, 38594, 46236, 53878
HuMab-100_HeavyChain_VDJ-Region	385	8027, 15669, 23311, 30953, 38595, 46237, 53879
HuMab-106_HeavyChain_VDJ-Region	386	8028, 15670, 23312, 30954, 38596, 46238, 53880
HuMab-106_LightChain_VJ-Region	387	8029, 15671, 23313, 30955, 38597, 46239, 53881
HuMab_10F8_HeavyChain_V-Region	388	8030, 15672, 23314, 30956, 38598, 46240, 53882
HuMab_10F8_HeavyChain_V-Region_Precursor	389	8031, 15673, 23315, 30957, 38599, 46241, 53883
HuMab_10F8_LightChain_V-Region	390	8032, 15674, 23316, 30958, 38600, 46242, 53884
HuMab_10F8_LightChain_V-Region_Precursor	391	8033, 15675, 23317, 30959, 38601, 46243, 53885
HuMab-111_HeavyChain_VDJ-Region	392	8034, 15676, 23318, 30960, 38602, 46244, 53886
HuMab-111_LightChain_VJ-Region	393	8035, 15677, 23319, 30961, 38603, 46245, 53887

Name	Protein SEQ ID NO	RNA SEQ ID NO
HuMab-123_HeavyChain_VDJ-Region	394	8036, 15678, 23320, 30962, 38604, 46246, 53888
HuMab-123_LightChain_VJ-Region	395	8037, 15679, 23321, 30963, 38605, 46247, 53889
HuMab-124_HeavyChain_VDJ-Region	396	8038, 15680, 23322, 30964, 38606, 46248, 53890
HuMab-125_HeavyChain_VDJ-Region	397	8039, 15681, 23323, 30965, 38607, 46249, 53891
HuMab-125_LightChain_VJ-Region	398	8040, 15682, 23324, 30966, 38608, 46250, 53892
HuMab-127_HeavyChain_VDJ-Region	399	8041, 15683, 23325, 30967, 38609, 46251, 53893
HuMab-127_LightChain_VJ-Region	400	8042, 15684, 23326, 30968, 38610, 46252, 53894
HuMab-129_HeavyChain_VDJ-Region	401	8043, 15685, 23327, 30969, 38611, 46253, 53895
HuMab-129_LightChain_VJ-Region	402	8044, 15686, 23328, 30970, 38612, 46254, 53896
HuMab-132_HeavyChain_VDJ-Region	403	8045, 15687, 23329, 30971, 38613, 46255, 53897
HuMab-132_LightChain_VJ-Region	404	8046, 15688, 23330, 30972, 38614, 46256, 53898
HuMab-143_HeavyChain_VDJ-Region	405	8047, 15689, 23331, 30973, 38615, 46257, 53899
HuMab-143_LightChain_VJ-Region	406	8048, 15690, 23332, 30974, 38616, 46258, 53900
HuMab-150_HeavyChain_VDJ-Region	407	8049, 15691, 23333, 30975, 38617, 46259, 53901
HuMab-150_LightChain_VJ-Region	408	8050, 15692, 23334, 30976, 38618, 46260, 53902
HuMab-152_HeavyChain_VDJ-Region	409	8051, 15693, 23335, 30977, 38619, 46261, 53903
HuMab-152_LightChain_VJ-Region	410	8052, 15694, 23336, 30978, 38620, 46262, 53904
HuMab-153_HeavyChain_VDJ-Region	411	8053, 15695, 23337, 30979, 38621, 46263, 53905
HuMab-153_LightChain_VJ-Region	412	8054, 15696, 23338, 30980, 38622, 46264, 53906
HuMab-159_HeavyChain_VDJ-Region	413	8055, 15697, 23339, 30981, 38623, 46265, 53907
HuMab-159_LightChain_VJ-Region	414	8056, 15698, 23340, 30982, 38624, 46266, 53908
HuMab-160_HeavyChain_VDJ-Region	415	8057, 15699, 23341, 30983, 38625, 46267, 53909
HuMab-160_LightChain_VJ-Region	416	8058, 15700, 23342, 30984, 38626, 46268, 53910
HuMab-162_HeavyChain_VDJ-Region	417	8059, 15701, 23343, 30985, 38627, 46269, 53911
HuMab-162_LightChain_VJ-Region	418	8060, 15702, 23344, 30986, 38628, 46270, 53912
HuMab-163_HeavyChain_VDJ-Region	419	8061, 15703, 23345, 30987, 38629, 46271, 53913
HuMab-163_LightChain_VJ-Region	420	8062, 15704, 23346, 30988, 38630, 46272, 53914
HuMab-166_HeavyChain_VDJ-Region	421	8063, 15705, 23347, 30989, 38631, 46273, 53915
HuMab-166_LightChain_VJ-Region	422	8064, 15706, 23348, 30990, 38632, 46274, 53916
HuMab-167_HeavyChain_VDJ-Region	423	8065, 15707, 23349, 30991, 38633, 46275, 53917
HuMab-169_HeavyChain_VDJ-Region	424	8066, 15708, 23350, 30992, 38634, 46276, 53918
HuMab-169_LightChain_VJ-Region	425	8067, 15709, 23351, 30993, 38635, 46277, 53919
HuMab-708_HeavyChain_VH-Region	426	8068, 15710, 23352, 30994, 38636, 46278, 53920

Name	Protein SEQ ID NO	RNA SEQ ID NO
HuMab-708_HeavyChain_V-Region	427	8069, 15711, 23353, 30995, 38637, 46279, 53921
HuMab-708_LightChain_VL-Region	428	8070, 15712, 23354, 30996, 38638, 46280, 53922
HuMab-708_LightChain_V-Region	429	8071, 15713, 23355, 30997, 38639, 46281, 53923
huMAb-anti-MSP10.1_LightChain_VJ-Region	430	8072, 15714, 23356, 30998, 38640, 46282, 53924
huMAb-anti-MSP10.2_LightChain_VJ-Region	431	8073, 15715, 23357, 30999, 38641, 46283, 53925
HUMAB-Clone_18_VJ-Region	432	8074, 15716, 23358, 31000, 38642, 46284, 53926
HUMAB-Clone_22_VJ-Region	433	8075, 15717, 23359, 31001, 38643, 46285, 53927
HuMab-L612_µChain_VDJ-Region_Precursor	434	8076, 15718, 23360, 31002, 38644, 46286, 53928
HuMab_LC5002-002_LightChain_V-Region	435	8077, 15719, 23361, 31003, 38645, 46287, 53929
HuMab_LC5002-002_gamma1-Chain_V-Region	436	8078, 15720, 23362, 31004, 38646, 46288, 53930
HuMab_LC5002-003_LightChain_V-Region	437	8079, 15721, 23363, 31005, 38647, 46289, 53931
HuMab_LC5002-003_gamma1-Chain_V-Region	438	8080, 15722, 23364, 31006, 38648, 46290, 53932
HuMab_LC5002-005_LightChain_V-Region	439	8081, 15723, 23365, 31007, 38649, 46291, 53933
HuMab_LC5002-005_gamma1-Chain_V-Region	440	8082, 15724, 23366, 31008, 38650, 46292, 53934
HuMab_LC5002-007_LightChain_V-Region	441	8083, 15725, 23367, 31009, 38651, 46293, 53935
HuMab_LC5002-007_gamma1-Chain_V-Region	442	8084, 15726, 23368, 31010, 38652, 46294, 53936
HuMab_LC5002-018_gamma1-Chain_V-Region	443	8085, 15727, 23369, 31011, 38653, 46295, 53937
Ibalizumab_HeavyChain1	444	8086, 15728, 23370, 31012, 38654, 46296, 53938
Ibalizumab_LightChain1	445	8087, 15729, 23371, 31013, 38655, 46297, 53939
Ibritumomab_tiuxetan_HeavyChain	446	8088, 15730, 23372, 31014, 38656, 46298, 53940
Ibritumomab_tiuxetan_LightChain	447	8089, 15731, 23373, 31015, 38657, 46299, 53941
Icrucumab_HeavyChain1	448	8090, 15732, 23374, 31016, 38658, 46300, 53942
Icrucumab_LightChain1	449	8091, 15733, 23375, 31017, 38659, 46301, 53943
Idarucizumab_HeavyChain1	450	8092, 15734, 23376, 31018, 38660, 46302, 53944
Idarucizumab_LightChain1	451	8093, 15735, 23377, 31019, 38661, 46303, 53945
Igatuzuab_HeavyChain1	452	8094, 15736, 23378, 31020, 38662, 46304, 53946
Igatuzuab_LightChain1	453	8095, 15737, 23379, 31021, 38663, 46305, 53947
IGF-1R_HUMAB-1A_HeavyChain	454	8096, 15738, 23380, 31022, 38664, 46306, 53948
IGF-1R_HUMAB-23_HeavyChain	455	8097, 15739, 23381, 31023, 38665, 46307, 53949
IGF-1R_HUMAB-23_LightChain	456	8098, 15740, 23382, 31024, 38666, 46308, 53950
IGF-1R_HUMAB-8_HeavyChain	457	8099, 15741, 23383, 31025, 38667, 46309, 53951
IGF-1R_HUMAB-8_LightChain	458	8100, 15742, 23384, 31026, 38668, 46310, 53952
ImAb1_LightChain	459	8101, 15743, 23385, 31027, 38669, 46311, 53953

Name	Protein SEQ ID NO	RNA SEQ ID NO
ImAbl_gammal-Chain	460	8102, 15744, 23386, 31028, 38670, 46312, 53954
Imalumab_HeavyChainl	461	8103, 15745, 23387, 31029, 38671, 46313, 53955
Imalumab_LightChainl	462	8104, 15746, 23388, 31030, 38672, 46314, 53956
Imgatuzumab_HeavyChainl	463	8105, 15747, 23389, 31031, 38673, 46315, 53957
Imgatuzumab_LightChainl	464	8106, 15748, 23390, 31032, 38674, 46316, 53958
Inclacumab_HeavyChainl	465	8107, 15749, 23391, 31033, 38675, 46317, 53959
Inclacumab_LightChainl	466	8108, 15750, 23392, 31034, 38676, 46318, 53960
Indatuximab_ravtansine_HeavyChainl	467	8109, 15751, 23393, 31035, 38677, 46319, 53961
Indatuximab_ravtansine_LightChainl	468	8110, 15752, 23394, 31036, 38678, 46320, 53962
Indusatumab_vedotin_HeavyChainl	469	8111, 15753, 23395, 31037, 38679, 46321, 53963
Indusatumab_vedotin_LightChainl	470	8112, 15754, 23396, 31038, 38680, 46322, 53964
Inebilizumab_HeavyChainl	471	8113, 15755, 23397, 31039, 38681, 46323, 53965
Inebilizumab_LightChainl	472	8114, 15756, 23398, 31040, 38682, 46324, 53966
Insulin_peglispro_Fragmentl	473	8115, 15757, 23399, 31041, 38683, 46325, 53967
Insulin_peglispro_Fragment2	474	8116, 15758, 23400, 31042, 38684, 46326, 53968
Interferon_beta-lb_chainl	475	8117, 15759, 23401, 31043, 38685, 46327, 53969
Intetumumab_HeavyChainl	476	8118, 15760, 23402, 31044, 38686, 46328, 53970
Intetumumab_LightChainl	477	8119, 15761, 23403, 31045, 38687, 46329, 53971
Iodine_(124I)_Girentuximab_HeavyChainl	478	8120, 15762, 23404, 31046, 38688, 46330, 53972
Iodine_(124I)_Girentuximab_LightChainl	479	8121, 15763, 23405, 31047, 38689, 46331, 53973
Iodine_(131I)_Derlotuxiab_biotin_HeavyChainl	480	8122, 15764, 23406, 31048, 38690, 46332, 53974
Iodine_(131I)_Derlotuxiab_biotin_LightChainl	481	8123, 15765, 23407, 31049, 38691, 46333, 53975
Iodine_(131I)_Derlotuximab_biotin_HeavyChainl	482	8124, 15766, 23408, 31050, 38692, 46334, 53976
Iodine_(131I)_Derlotuximab_biotin_LightChainl	483	8125, 15767, 23409, 31051, 38693, 46335, 53977
Ipilimumab_HeavyChain	484	8126, 15768, 23410, 31052, 38694, 46336, 53978
Ipilimumab_LightChain	485	8127, 15769, 23411, 31053, 38695, 46337, 53979
Iratumumab_HeavyChainl	486	8128, 15770, 23412, 31054, 38696, 46338, 53980
Iratumumab_LightChainl	487	8129, 15771, 23413, 31055, 38697, 46339, 53981
Isatuximab_HeavyChainl	488	8130, 15772, 23414, 31056, 38698, 46340, 53982
Isatuximab_LightChainl	489	8131, 15773, 23415, 31057, 38699, 46341, 53983
Itolizumab_HeavyChainl	490	8132, 15774, 23416, 31058, 38700, 46342, 53984
Itolizumab_LightChainl	491	8133, 15775, 23417, 31059, 38701, 46343, 53985
Ixekizumab_HeavyChainl	492	8134, 15776, 23418, 31060, 38702, 46344, 53986

Name	Protein SEQ ID NO	RNA SEQ ID NO
Ixekizumab_LightChain1	493	8135, 15777, 23419, 31061, 38703, 46345, 53987
Labetuzumab_govitecan_HeavyChain1	494	8136, 15778, 23420, 31062, 38704, 46346, 53988
Labetuzumab_govitecan_LightChain1	495	8137, 15779, 23421, 31063, 38705, 46347, 53989
Lambrolizumab_HeavyChain1	496	8138, 15780, 23422, 31064, 38706, 46348, 53990
Lambrolizumab_LightChain1	497	8139, 15781, 23423, 31065, 38707, 46349, 53991
Lampalizumab_HeavyChain1	498	8140, 15782, 23424, 31066, 38708, 46350, 53992
Lampalizumab_LightChain1	499	8141, 15783, 23425, 31067, 38709, 46351, 53993
Lanadelumab_HeavyChain1	500	8142, 15784, 23426, 31068, 38710, 46352, 53994
Lanadelumab_LightChain1	501	8143, 15785, 23427, 31069, 38711, 46353, 53995
Landogrozumab_HeavyChain1	502	8144, 15786, 23428, 31070, 38712, 46354, 53996
Landogrozumab_LightChain1	503	8145, 15787, 23429, 31071, 38713, 46355, 53997
Laprituximab_emtansine_HeavyChain1	504	8146, 15788, 23430, 31072, 38714, 46356, 53998
Laprituximab_emtansine_LightChain1	505	8147, 15789, 23431, 31073, 38715, 46357, 53999
Lealesoab_HeavyChain1	506	8148, 15790, 23432, 31074, 38716, 46358, 54000
Lealesoab_LightChain1	507	8149, 15791, 23433, 31075, 38717, 46359, 54001
Lebrikizumab_HeavyChain1	508	8150, 15792, 23434, 31076, 38718, 46360, 54002
Lebrikizumab_LightChain1	509	8151, 15793, 23435, 31077, 38719, 46361, 54003
Lenercept_chain1	510	8152, 15794, 23436, 31078, 38720, 46362, 54004
Lenzilumab_HeavyChain1	511	8153, 15795, 23437, 31079, 38721, 46363, 54005
Lenzilumab_LightChain1	512	8154, 15796, 23438, 31080, 38722, 46364, 54006
Lerdelimumab_HeavyChain1	513	8155, 15797, 23439, 31081, 38723, 46365, 54007
Lerdelimumab_LightChain1	514	8156, 15798, 23440, 31082, 38724, 46366, 54008
Lexatumumab_HeavyChain1	515	8157, 15799, 23441, 31083, 38725, 46367, 54009
Lexatumumab_HeavyChain	516	8158, 15800, 23442, 31084, 38726, 46368, 54010
Lexatumumab_LightChain1	517	8159, 15801, 23443, 31085, 38727, 46369, 54011
Lexatumumab_LightChain	518	8160, 15802, 23444, 31086, 38728, 46370, 54012
Libivirumab_HeavyChain1	519	8161, 15803, 23445, 31087, 38729, 46371, 54013
Libivirumab_LightChain1	520	8162, 15804, 23446, 31088, 38730, 46372, 54014
Lifastuzumab_HeavyChain	521	8163, 15805, 23447, 31089, 38731, 46373, 54015
Lifastuzumab_LightChain	522	8164, 15806, 23448, 31090, 38732, 46374, 54016
Lifastuzumab_vedotin_HeavyChain1	523	8165, 15807, 23449, 31091, 38733, 46375, 54017
Lifastuzumab_vedotin_LightChain1	524	8166, 15808, 23450, 31092, 38734, 46376, 54018
Ligelizumab_HeavyChain1	525	8167, 15809, 23451, 31093, 38735, 46377, 54019

Name	Protein SEQ ID NO	RNA SEQ ID NO
Ligelizumab_LightChain1	526	8168, 15810, 23452, 31094, 38736, 46378, 54020
Lilotomab_HeavyChain1	527	8169, 15811, 23453, 31095, 38737, 46379, 54021
Lilotomab_LightChain1	528	8170, 15812, 23454, 31096, 38738, 46380, 54022
Lintuzumab_HeavyChain1	529	8171, 15813, 23455, 31097, 38739, 46381, 54023
Lintuzumab_LightChain1	530	8172, 15814, 23456, 31098, 38740, 46382, 54024
Lirilumab_HeavyChain1	531	8173, 15815, 23457, 31099, 38741, 46383, 54025
Lirilumab_LightChain1	532	8174, 15816, 23458, 31100, 38742, 46384, 54026
Lodelcizumab_HeavyChain1	533	8175, 15817, 23459, 31101, 38743, 46385, 54027
Lodelcizumab_LightChain1	534	8176, 15818, 23460, 31102, 38744, 46386, 54028
Lokivetmab_HeavyChain1	535	8177, 15819, 23461, 31103, 38745, 46387, 54029
Lokivetmab_LightChain1	536	8178, 15820, 23462, 31104, 38746, 46388, 54030
Lorvotuzumab_mertansine_HeavyChain1	537	8179, 15821, 23463, 31105, 38747, 46389, 54031
Lorvotuzumab_mertansine_LightChain1	538	8180, 15822, 23464, 31106, 38748, 46390, 54032
Lpathomab_VL	539	8181, 15823, 23465, 31107, 38749, 46391, 54033
Lpathomab_gamma1-Chain_VDJ-Region	540	8182, 15824, 23466, 31108, 38750, 46392, 54034
Lucatumumab_HeavyChain1	541	8183, 15825, 23467, 31109, 38751, 46393, 54035
Lucatumumab_LightChain1	542	8184, 15826, 23468, 31110, 38752, 46394, 54036
Lulizumab_pegol_LightChain1	543	8185, 15827, 23469, 31111, 38753, 46395, 54037
Lulizumab_pegol_LightChain	544	8186, 15828, 23470, 31112, 38754, 46396, 54038
Lumiliximab_HeavyChain1	545	8187, 15829, 23471, 31113, 38755, 46397, 54039
Lumiliximab_LightChain1	546	8188, 15830, 23472, 31114, 38756, 46398, 54040
Lumretuzumab_HeavyChain1	547	8189, 15831, 23473, 31115, 38757, 46399, 54041
Lumretuzumab_LightChain1	548	8190, 15832, 23474, 31116, 38758, 46400, 54042
Lutetium_(177Lu)_lilotomab_satetraxetan_HeavyChain1	549	8191, 15833, 23475, 31117, 38759, 46401, 54043
Lutetium_(177Lu)_lilotomab_satetraxetan_LightChain1	550	8192, 15834, 23476, 31118, 38760, 46402, 54044
Margetuximab_HeavyChain1	551	8193, 15835, 23477, 31119, 38761, 46403, 54045
Margetuximab_LightChain1	552	8194, 15836, 23478, 31120, 38762, 46404, 54046
Marzeptacog_alfa_HeavyChain1	553	8195, 15837, 23479, 31121, 38763, 46405, 54047
Marzeptacog_alfa_LightChain1	554	8196, 15838, 23480, 31122, 38764, 46406, 54048
Matuzumab_HeavyChain1_variant_3c08_H	555	8197, 15839, 23481, 31123, 38765, 46407, 54049
Matuzumab_HeavyChain1_variant_3c09_C	556	8198, 15840, 23482, 31124, 38766, 46408, 54050
Matuzumab_LightChain1_variant_3c08_L	557	8199, 15841, 23483, 31125, 38767, 46409, 54051
Matuzumab_LightChain1_variant_3c09_B	558	8200, 15842, 23484, 31126, 38768, 46410, 54052

Name	Protein SEQ ID NO	RNA SEQ ID NO
Mavrilimumab_HeavyChain1	559	8201, 15843, 23485, 31127, 38769, 46411, 54053
Mavrilimumab_LightChain1	560	8202, 15844, 23486, 31128, 38770, 46412, 54054
MDX-1303_HeavyChain1	561	8203, 15845, 23487, 31129, 38771, 46413, 54055
MDX-1303_LightChain1	562	8204, 15846, 23488, 31130, 38772, 46414, 54056
Mepolizumab_HeavyChain1	563	8205, 15847, 23489, 31131, 38773, 46415, 54057
Mepolizumab_LightChain1	564	8206, 15848, 23490, 31132, 38774, 46416, 54058
Metelimumab_HeavyChain1	565	8207, 15849, 23491, 31133, 38775, 46417, 54059
Metelimumab_LightChain1	566	8208, 15850, 23492, 31134, 38776, 46418, 54060
Milatuzumab_HeavyChain1	567	8209, 15851, 23493, 31135, 38777, 46419, 54061
Milatuzumab_LightChain1	568	8210, 15852, 23494, 31136, 38778, 46420, 54062
Mirvetuximab_HeavyChain1	569	8211, 15853, 23495, 31137, 38779, 46421, 54063
Mirvetuximab_LightChain1	570	8212, 15854, 23496, 31138, 38780, 46422, 54064
Modotuximab_HeavyChain1	571	8213, 15855, 23497, 31139, 38781, 46423, 54065
Modotuximab_LightChain1	572	8214, 15856, 23498, 31140, 38782, 46424, 54066
Mogamulizumab_HeavyChain1	573	8215, 15857, 23499, 31141, 38783, 46425, 54067
Mogamulizumab_LightChain1	574	8216, 15858, 23500, 31142, 38784, 46426, 54068
Monalizumab_HeavyChain1	575	8217, 15859, 23501, 31143, 38785, 46427, 54069
Monalizumab_LightChain1	576	8218, 15860, 23502, 31144, 38786, 46428, 54070
Motavizumab_HeavyChain	577	8219, 15861, 23503, 31145, 38787, 46429, 54071
Motavizumab_HeavyChain_variant	578	8220, 15862, 23504, 31146, 38788, 46430, 54072
Motavizumab_LightChain	579	8221, 15863, 23505, 31147, 38789, 46431, 54073
Motavizumab_LightChain_variant	580	8222, 15864, 23506, 31148, 38790, 46432, 54074
Moxetumomab_pasudotox_HeavyChain1	581	8223, 15865, 23507, 31149, 38791, 46433, 54075
Moxetumomab_pasudotox_LightChain1	582	8224, 15866, 23508, 31150, 38792, 46434, 54076
Muromonab-CD3_HeavyChain	583	8225, 15867, 23509, 31151, 38793, 46435, 54077
Muromonab-CD3_LightChain	584	8226, 15868, 23510, 31152, 38794, 46436, 54078
Namilumab_HeavyChain1	585	8227, 15869, 23511, 31153, 38795, 46437, 54079
Namilumab_LightChain1	586	8228, 15870, 23512, 31154, 38796, 46438, 54080
Naptumomab_estafenatox_HeavyChain	587	8229, 15871, 23513, 31155, 38797, 46439, 54081
Naptumomab_estafenatox_LightChain	588	8230, 15872, 23514, 31156, 38798, 46440, 54082
Narnatumab_HeavyChain1	589	8231, 15873, 23515, 31157, 38799, 46441, 54083
Narnatumab_LightChain1	590	8232, 15874, 23516, 31158, 38800, 46442, 54084
Natalizumab_HeavyChain1	591	8233, 15875, 23517, 31159, 38801, 46443, 54085

Name	Protein SEQ ID NO	RNA SEQ ID NO
Natalizumab_LightChain1	592	8234, 15876, 23518, 31160, 38802, 46444, 54086
Navicixizumab_HeavyChain1	593	8235, 15877, 23519, 31161, 38803, 46445, 54087
Navicixizumab_HeavyChain2	594	8236, 15878, 23520, 31162, 38804, 46446, 54088
Navicixizumab_LightChain1	595	8237, 15879, 23521, 31163, 38805, 46447, 54089
Navivumab_HeavyChain1	596	8238, 15880, 23522, 31164, 38806, 46448, 54090
Navivumab_LightChain1	597	8239, 15881, 23523, 31165, 38807, 46449, 54091
Ndimab-varB_HeavyChain	598	8240, 15882, 23524, 31166, 38808, 46450, 54092
Ndimab-varB_LightChain	599	8241, 15883, 23525, 31167, 38809, 46451, 54093
Necitumumab_HeavyChain1	600	8242, 15884, 23526, 31168, 38810, 46452, 54094
Necitumumab_LightChain1	601	8243, 15885, 23527, 31169, 38811, 46453, 54095
Neliximab_HeavyChain_VH-Region	602	8244, 15886, 23528, 31170, 38812, 46454, 54096
Neliximab_HeavyChain_VH-Region_variant1	603	8245, 15887, 23529, 31171, 38813, 46455, 54097
Neliximab_LightChain_VL-Region	604	8246, 15888, 23530, 31172, 38814, 46456, 54098
Neliximab_LightChain_VL-Region_variant1	605	8247, 15889, 23531, 31173, 38815, 46457, 54099
Nemolizumab_HeavyChain1	606	8248, 15890, 23532, 31174, 38816, 46458, 54100
Nemolizumab_LightChain1	607	8249, 15891, 23533, 31175, 38817, 46459, 54101
Nesvacumab_HeavyChain1	608	8250, 15892, 23534, 31176, 38818, 46460, 54102
Nesvacumab_LightChain1	609	8251, 15893, 23535, 31177, 38819, 46461, 54103
Neuradiab_HeavyChain1	610	8252, 15894, 23536, 31178, 38820, 46462, 54104
Neuradiab_LightChain1	611	8253, 15895, 23537, 31179, 38821, 46463, 54105
Nimotuzumab_HeavyChain1	612	8254, 15896, 23538, 31180, 38822, 46464, 54106
Nimotuzumab_LightChain1	613	8255, 15897, 23539, 31181, 38823, 46465, 54107
Nivolumab_HeavyChain1	614	8256, 15898, 23540, 31182, 38824, 46466, 54108
Nivolumab_LightChain1	615	8257, 15899, 23541, 31183, 38825, 46467, 54109
Obiltoxaximab_HeavyChain1	616	8258, 15900, 23542, 31184, 38826, 46468, 54110
Obiltoxaximab_LightChain1	617	8259, 15901, 23543, 31185, 38827, 46469, 54111
Obinutuzumab_HeavyChain1	618	8260, 15902, 23544, 31186, 38828, 46470, 54112
Obinutuzumab_LightChain1	619	8261, 15903, 23545, 31187, 38829, 46471, 54113
Ocaratuzumab_HeavyChain1	620	8262, 15904, 23546, 31188, 38830, 46472, 54114
Ocaratuzumab_LightChain1	621	8263, 15905, 23547, 31189, 38831, 46473, 54115
Ocrelizumab_HeavyChain1	622	8264, 15906, 23548, 31190, 38832, 46474, 54116
Ocrelizumab_LightChain1	623	8265, 15907, 23549, 31191, 38833, 46475, 54117
Ofatumumab_HeavyChain1	624	8266, 15908, 23550, 31192, 38834, 46476, 54118

Name	Protein SEQ ID NO	RNA SEQ ID NO
Ofatumumab_LightChain1	625	8267, 15909, 23551, 31193, 38835, 46477, 54119
Olaratumab_HeavyChain1	626	8268, 15910, 23552, 31194, 38836, 46478, 54120
Olaratumab_LightChain1	627	8269, 15911, 23553, 31195, 38837, 46479, 54121
Olizuab_HeavyChain1	628	8270, 15912, 23554, 31196, 38838, 46480, 54122
Olizuab_LightChain1	629	8271, 15913, 23555, 31197, 38839, 46481, 54123
Olokizumab_HeavyChain1	630	8272, 15914, 23556, 31198, 38840, 46482, 54124
Olokizumab_LightChain1	631	8273, 15915, 23557, 31199, 38841, 46483, 54125
Omalizumab_HeavyChain	632	8274, 15916, 23558, 31200, 38842, 46484, 54126
Omalizumab_LightChain	633	8275, 15917, 23559, 31201, 38843, 46485, 54127
Onartuzumab_HeavyChain1	634	8276, 15918, 23560, 31202, 38844, 46486, 54128
Onartuzumab_HeavyChain2	635	8277, 15919, 23561, 31203, 38845, 46487, 54129
Onartuzumab_LightChain1	636	8278, 15920, 23562, 31204, 38846, 46488, 54130
Ontuxizumab_HeavyChain1	637	8279, 15921, 23563, 31205, 38847, 46489, 54131
Ontuxizumab_LightChain1	638	8280, 15922, 23564, 31206, 38848, 46490, 54132
Opicinumab_HeavyChain1	639	8281, 15923, 23565, 31207, 38849, 46491, 54133
Opicinumab_LightChain1	640	8282, 15924, 23566, 31208, 38850, 46492, 54134
Oportuzumab_monatox_HeavyChain1	641	8283, 15925, 23567, 31209, 38851, 46493, 54135
Oportuzumab_monatox_SingleChain_variable_fragment	642	8284, 15926, 23568, 31210, 38852, 46494, 54136
Oreptacog_alfa_HeavyChain1	643	8285, 15927, 23569, 31211, 38853, 46495, 54137
Oreptacog_alfa_LightChain1	644	8286, 15928, 23570, 31212, 38854, 46496, 54138
Orticumab_HeavyChain1	645	8287, 15929, 23571, 31213, 38855, 46497, 54139
Orticumab_LightChain1	646	8288, 15930, 23572, 31214, 38856, 46498, 54140
Otelixizumab_HeavyChain1	647	8289, 15931, 23573, 31215, 38857, 46499, 54141
Otelixizumab_LightChain1	648	8290, 15932, 23574, 31216, 38858, 46500, 54142
Otlertuzumab_HeavyChain1	649	8291, 15933, 23575, 31217, 38859, 46501, 54143
Oxelumab_HeavyChain1	650	8292, 15934, 23576, 31218, 38860, 46502, 54144
Oxelumab_LightChain1	651	8293, 15935, 23577, 31219, 38861, 46503, 54145
Ozanezumab_HeavyChain1	652	8294, 15936, 23578, 31220, 38862, 46504, 54146
Ozanezumab_LightChain1	653	8295, 15937, 23579, 31221, 38863, 46505, 54147
Ozoralizumab_HeavyChain1	654	8296, 15938, 23580, 31222, 38864, 46506, 54148
Palivizumab_HeavyChain	655	8297, 15939, 23581, 31223, 38865, 46507, 54149
Palivizumab_LightChain	656	8298, 15940, 23582, 31224, 38866, 46508, 54150
Palivizumab_VH-Region	657	8299, 15941, 23583, 31225, 38867, 46509, 54151

Name	Protein SEQ ID NO	RNA SEQ ID NO
Pamrevlumab_HeavyChain1	658	8300, 15942, 23584, 31226, 38868, 46510, 54152
Pamrevlumab_LightChain1	659	8301, 15943, 23585, 31227, 38869, 46511, 54153
Panitumumab_HeavyChain1	660	8302, 15944, 23586, 31228, 38870, 46512, 54154
Panitumumab_LightChain1	661	8303, 15945, 23587, 31229, 38871, 46513, 54155
Pankoab_HeavyChain1	662	8304, 15946, 23588, 31230, 38872, 46514, 54156
Pankoab_LightChain1	663	8305, 15947, 23589, 31231, 38873, 46515, 54157
Pankoab_LightChain2	664	8306, 15948, 23590, 31232, 38874, 46516, 54158
PankoMab_HeavyChain_VDJ-Region	665	8307, 15949, 23591, 31233, 38875, 46517, 54159
PankoMab_LightChain_VJ-Region	666	8308, 15950, 23592, 31234, 38876, 46518, 54160
Panobacumab_HeavyChain1	667	8309, 15951, 23593, 31235, 38877, 46519, 54161
Panobacumab_LightChain1	668	8310, 15952, 23594, 31236, 38878, 46520, 54162
Panobacumab_LightChain2	669	8311, 15953, 23595, 31237, 38879, 46521, 54163
Parsatuzumab_HeavyChain1	670	8312, 15954, 23596, 31238, 38880, 46522, 54164
Parsatuzumab_LightChain1	671	8313, 15955, 23597, 31239, 38881, 46523, 54165
Pascolizumab_HeavyChain1	672	8314, 15956, 23598, 31240, 38882, 46524, 54166
Pascolizumab_LightChain1	673	8315, 15957, 23599, 31241, 38883, 46525, 54167
Pasotuxizumab_HeavyChain1	674	8316, 15958, 23600, 31242, 38884, 46526, 54168
Pasotuxizumab_SingleChain	675	8317, 15959, 23601, 31243, 38885, 46527, 54169
Pateclizumab_HeavyChain1	676	8318, 15960, 23602, 31244, 38886, 46528, 54170
Pateclizumab_LightChain1	677	8319, 15961, 23603, 31245, 38887, 46529, 54171
Patritumab_HeavyChain1	678	8320, 15962, 23604, 31246, 38888, 46530, 54172
Patritumab_hinge-CH2-CH3	679	8321, 15963, 23605, 31247, 38889, 46531, 54173
Patritumab_LightChain1	680	8322, 15964, 23606, 31248, 38890, 46532, 54174
Pembrolizumab_HeavyChain1	681	8323, 15965, 23607, 31249, 38891, 46533, 54175
Pembrolizumab_LightChain1	682	8324, 15966, 23608, 31250, 38892, 46534, 54176
Perakizumab_HeavyChain1	683	8325, 15967, 23609, 31251, 38893, 46535, 54177
Perakizumab_LightChain1	684	8326, 15968, 23610, 31252, 38894, 46536, 54178
Pertuzuab_HeavyChain1	685	8327, 15969, 23611, 31253, 38895, 46537, 54179
Pertuzuab_LightChain1	686	8328, 15970, 23612, 31254, 38896, 46538, 54180
Pertuzumab_HeavyChain	687	8329, 15971, 23613, 31255, 38897, 46539, 54181
Pertuzumab_LightChain	688	8330, 15972, 23614, 31256, 38898, 46540, 54182
Pexelizumab_h5gl.1-scFv	689	8331, 15973, 23615, 31257, 38899, 46541, 54183
Pexelizumab_h5gl.1VHC_+_F_Heavy_Chain_V-Region	690	8332, 15974, 23616, 31258, 38900, 46542, 54184

Name	Protein SEQ ID NO	RNA SEQ ID NO
Pexelizumab_h5gl.IVHC_+_F_Light_Chain_V-Region	691	8333, 15975, 23617, 31259, 38901, 46543, 54185
PF-05082566_HeavyChain1	692	8334, 15976, 23618, 31260, 38902, 46544, 54186
PF-05082568_LightChain1	693	8335, 15977, 23619, 31261, 38903, 46545, 54187
Pidilizumab_HeavyChain1	694	8336, 15978, 23620, 31262, 38904, 46546, 54188
Pidilizumab_LightChain1	695	8337, 15979, 23621, 31263, 38905, 46547, 54189
Pinatuzumab_vedotin_HeavyChain1	696	8338, 15980, 23622, 31264, 38906, 46548, 54190
Pinatuzumab_vedotin_LightChain1	697	8339, 15981, 23623, 31265, 38907, 46549, 54191
Placulumab_chain1	698	8340, 15982, 23624, 31266, 38908, 46550, 54192
Placulumab_HeavyChain1	699	8341, 15983, 23625, 31267, 38909, 46551, 54193
Plozalizumab_HeavyChain1	700	8342, 15984, 23626, 31268, 38910, 46552, 54194
Plozalizumab_LightChain1	701	8343, 15985, 23627, 31269, 38911, 46553, 54195
Pogalizumab_HeavyChain1	702	8344, 15986, 23628, 31270, 38912, 46554, 54196
Pogalizumab_LightChain1	703	8345, 15987, 23629, 31271, 38913, 46555, 54197
Polatuzumab_vedotin_HeavyChain1	704	8346, 15988, 23630, 31272, 38914, 46556, 54198
Polatuzumab_vedotin_LightChain1	705	8347, 15989, 23631, 31273, 38915, 46557, 54199
Ponezumab_HeavyChain1	706	8348, 15990, 23632, 31274, 38916, 46558, 54200
Ponezumab_LightChain1	707	8349, 15991, 23633, 31275, 38917, 46559, 54201
Pritoxaximab_HeavyChain1	708	8350, 15992, 23634, 31276, 38918, 46560, 54202
Pritoxaximab_LightChain1	709	8351, 15993, 23635, 31277, 38919, 46561, 54203
Pritumumab_HeavyChain1	710	8352, 15994, 23636, 31278, 38920, 46562, 54204
Pritumumab_LightChain1	711	8353, 15995, 23637, 31279, 38921, 46563, 54205
Quilizumab_HeavyChain1	712	8354, 15996, 23638, 31280, 38922, 46564, 54206
Quilizumab_LightChain1	713	8355, 15997, 23639, 31281, 38923, 46565, 54207
Racotumomab_HeavyChain1	714	8356, 15998, 23640, 31282, 38924, 46566, 54208
Racotumomab_LightChain1	715	8357, 15999, 23641, 31283, 38925, 46567, 54209
Racotumomab_scVH-VH'-VH_chain	716	8358, 16000, 23642, 31284, 38926, 46568, 54210
Radretumab_HeavyChain1	717	8359, 16001, 23643, 31285, 38927, 46569, 54211
Radretumab_j_chain	718	8360, 16002, 23644, 31286, 38928, 46570, 54212
Rafivirumab_HeavyChain1	719	8361, 16003, 23645, 31287, 38929, 46571, 54213
Rafivirumab_HeavyChain	720	8362, 16004, 23646, 31288, 38930, 46572, 54214
Rafivirumab_LightChain1	721	8363, 16005, 23647, 31289, 38931, 46573, 54215
Rafivirumab_LightChain	722	8364, 16006, 23648, 31290, 38932, 46574, 54216
Ralpancizumab_HeavyChain1	723	8365, 16007, 23649, 31291, 38933, 46575, 54217

Name	Protein SEQ ID NO	RNA SEQ ID NO
Ralpancizumab_LightChain1	724	8366, 16008, 23650, 31292, 38934, 46576, 54218
Ramucirumab_HeavyChain1	725	8367, 16009, 23651, 31293, 38935, 46577, 54219
Ramucirumab_LightChain1	726	8368, 16010, 23652, 31294, 38936, 46578, 54220
Ranibiziuab_HeavyChain1	727	8369, 16011, 23653, 31295, 38937, 46579, 54221
Ranibiziuab_LightChain1	728	8370, 16012, 23654, 31296, 38938, 46580, 54222
Ranibizumab_fab_fragment	729	8371, 16013, 23655, 31297, 38939, 46581, 54223
Ranibizumab_HeavyChain	730	8372, 16014, 23656, 31298, 38940, 46582, 54224
Ranibizumab_LightChain	731	8373, 16015, 23657, 31299, 38941, 46583, 54225
Ranibizumab_LightChain_variant	732	8374, 16016, 23658, 31300, 38942, 46584, 54226
Refanezumab_HeavyChain1	733	8375, 16017, 23659, 31301, 38943, 46585, 54227
Refanezumab_LightChain1	734	8376, 16018, 23660, 31302, 38944, 46586, 54228
REGN2810_HeavyChain1	735	8377, 16019, 23661, 31303, 38945, 46587, 54229
REGN2810_LightChain1	736	8378, 16020, 23662, 31304, 38946, 46588, 54230
rhuMab_HER2(9C1)_LightChain	737	8379, 16021, 23663, 31305, 38947, 46589, 54231
rhuMab_HER2_HeavyChain	738	8380, 16022, 23664, 31306, 38948, 46590, 54232
rhuMab_HER2_LightChain	739	8381, 16023, 23665, 31307, 38949, 46591, 54233
rhuMab_HER2_LightChain_variant1	740	8382, 16024, 23666, 31308, 38950, 46592, 54234
rhuMab_HER2_LightChain_variant2	741	8383, 16025, 23667, 31309, 38951, 46593, 54235
rhuMab_HER2_LightChain_variant3	742	8384, 16026, 23668, 31310, 38952, 46594, 54236
rhuMab_HER2_LightChain_variant4	743	8385, 16027, 23669, 31311, 38953, 46595, 54237
rhuMab_HER2_LightChain_V-Region	744	8386, 16028, 23670, 31312, 38954, 46596, 54238
rhuMab_HER2_gamma1-Chain	745	8387, 16029, 23671, 31313, 38955, 46597, 54239
rhuMab_HER2_gamma1-Chain	746	8388, 16030, 23672, 31314, 38956, 46598, 54240
rhuMab_HER2_gamma1-Chain_rhuMab_HER2_LightChain_sc4D5	747	8389, 16031, 23673, 31315, 38957, 46599, 54241
rhuMab_HER2_gamma1-Chain_variant1	748	8390, 16032, 23674, 31316, 38958, 46600, 54242
rhuMab_HER2_gamma1-Chain_variant2	749	8391, 16033, 23675, 31317, 38959, 46601, 54243
rhuMab_HER2_gamma1-Chain_variant3	750	8392, 16034, 23676, 31318, 38960, 46602, 54244
rhuMab_HER2_gamma1-Chain_V-Region	751	8393, 16035, 23677, 31319, 38961, 46603, 54245
rhuMAb-VEGF_HeavyChain1	752	8394, 16036, 23678, 31320, 38962, 46604, 54246
rhuMAb-VEGF_LightChain1	753	8395, 16037, 23679, 31321, 38963, 46605, 54247
rhuMAb-VEGF_LightChain	754	8396, 16038, 23680, 31322, 38964, 46606, 54248
rhuMAb-VEGF_LightChain_VG-Region	755	8397, 16039, 23681, 31323, 38965, 46607, 54249

Name	Protein SEQ ID NO	RNA SEQ ID NO
rhuMAb-VEGF_gamma1-Chain	756	8398, 16040, 23682, 31324, 38966, 46608, 54250
rhuMAb-VEGF_gamma1-Chain_VDG-Region	757	8399, 16041, 23683, 31325, 38967, 46609, 54251
Rilotumumab_HeavyChain1	758	8400, 16042, 23684, 31326, 38968, 46610, 54252
Rilotumumab_LightChain1	759	8401, 16043, 23685, 31327, 38969, 46611, 54253
Rilotumumab_scFv-CH_chain	760	8402, 16044, 23686, 31328, 38970, 46612, 54254
Rinucumab_HeavyChain1	761	8403, 16045, 23687, 31329, 38971, 46613, 54255
Rinucumab_HeavyChain	762	8404, 16046, 23688, 31330, 38972, 46614, 54256
Rinucumab_LightChain1	763	8405, 16047, 23689, 31331, 38973, 46615, 54257
Risankizumab_HeavyChain1	764	8406, 16048, 23690, 31332, 38974, 46616, 54258
Risankizumab_LightChain1	765	8407, 16049, 23691, 31333, 38975, 46617, 54259
Rituximab_HeavyChain	766	8408, 16050, 23692, 31334, 38976, 46618, 54260
Rituximab_HeavyChain_variant	767	8409, 16051, 23693, 31335, 38977, 46619, 54261
Rituximab_LightChain	768	8410, 16052, 23694, 31336, 38978, 46620, 54262
Rivabazumab_pegol_HeavyChain1	769	8411, 16053, 23695, 31337, 38979, 46621, 54263
Rivabazumab_pegol_LightChain1	770	8412, 16054, 23696, 31338, 38980, 46622, 54264
Robatumumab_HeavyChain1	771	8413, 16055, 23697, 31339, 38981, 46623, 54265
Robatumumab_LightChain1	772	8414, 16056, 23698, 31340, 38982, 46624, 54266
Roledumab_HeavyChain1	773	8415, 16057, 23699, 31341, 38983, 46625, 54267
Roledumab_LightChain1	774	8416, 16058, 23700, 31342, 38984, 46626, 54268
Romosozumab_fab_fragment	775	8417, 16059, 23701, 31343, 38985, 46627, 54269
Romosozumab_HeavyChain1	776	8418, 16060, 23702, 31344, 38986, 46628, 54270
Romosozumab_LightChain1	777	8419, 16061, 23703, 31345, 38987, 46629, 54271
Rontalizuab_HeavyChain1	778	8420, 16062, 23704, 31346, 38988, 46630, 54272
Rontalizuab_LightChain1	779	8421, 16063, 23705, 31347, 38989, 46631, 54273
Rontalizumab_HeavyChain1	780	8422, 16064, 23706, 31348, 38990, 46632, 54274
Rontalizumab_LightChain1	781	8423, 16065, 23707, 31349, 38991, 46633, 54275
Rovalpituzumab_tesirine_HeavyChain1	782	8424, 16066, 23708, 31350, 38992, 46634, 54276
Rovalpituzumab_tesirine_LightChain1	783	8425, 16067, 23709, 31351, 38993, 46635, 54277
Rovelizumab_HeavyChain1	784	8426, 16068, 23710, 31352, 38994, 46636, 54278
Rovelizumab_LightChain1	785	8427, 16069, 23711, 31353, 38995, 46637, 54279
Ruplizumab_HeavyChain1	786	8428, 16070, 23712, 31354, 38996, 46638, 54280
Ruplizumab_LightChain1	787	8429, 16071, 23713, 31355, 38997, 46639, 54281
Sacituzumab_govitecan_HeavyChain1	788	8430, 16072, 23714, 31356, 38998, 46640, 54282

Name	Protein SEQ ID NO	RNA SEQ ID NO
Sacituzumab_govitecan_LightChain1	789	8431, 16073, 23715, 31357, 38999, 46641, 54283
Samalizumab_HeavyChain1	790	8432, 16074, 23716, 31358, 39000, 46642, 54284
Samalizumab_LightChain1	791	8433, 16075, 23717, 31359, 39001, 46643, 54285
Sarilumab_HeavyChain1	792	8434, 16076, 23718, 31360, 39002, 46644, 54286
Sarilumab_LightChain1	793	8435, 16077, 23719, 31361, 39003, 46645, 54287
Satumomab_pendetide_HeavyChain	794	8436, 16078, 23720, 31362, 39004, 46646, 54288
Satumomab_pendetide_LightChain	795	8437, 16079, 23721, 31363, 39005, 46647, 54289
Secukinumab_HeavyChain1	796	8438, 16080, 23722, 31364, 39006, 46648, 54290
Secukinumab_LightChain1	797	8439, 16081, 23723, 31365, 39007, 46649, 54291
Seribantumab_HeavyChain1	798	8440, 16082, 23724, 31366, 39008, 46650, 54292
Seribantumab_LightChain1	799	8441, 16083, 23725, 31367, 39009, 46651, 54293
Setoxaximab_HeavyChain1	800	8442, 16084, 23726, 31368, 39010, 46652, 54294
Setoxaximab_LightChain1	801	8443, 16085, 23727, 31369, 39011, 46653, 54295
Sifalimumab_HeavyChain1	802	8444, 16086, 23728, 31370, 39012, 46654, 54296
Sifalimumab_LightChain1	803	8445, 16087, 23729, 31371, 39013, 46655, 54297
Siltuximab_HeavyChain1	804	8446, 16088, 23730, 31372, 39014, 46656, 54298
Siltuximab_LightChain1	805	8447, 16089, 23731, 31373, 39015, 46657, 54299
Simtuzumab_HeavyChain1	806	8448, 16090, 23732, 31374, 39016, 46658, 54300
Simtuzumab_LightChain1	807	8449, 16091, 23733, 31375, 39017, 46659, 54301
Sirukumab_HeavyChain1	808	8450, 16092, 23734, 31376, 39018, 46660, 54302
Sirukumab_LightChain1	809	8451, 16093, 23735, 31377, 39019, 46661, 54303
Sofituzumab_vedotin_HeavyChain1	810	8452, 16094, 23736, 31378, 39020, 46662, 54304
Sofituzumab_vedotin_LightChain1	811	8453, 16095, 23737, 31379, 39021, 46663, 54305
Solanezumab_HeavyChain1	812	8454, 16096, 23738, 31380, 39022, 46664, 54306
Solanezumab_HeavyChain	813	8455, 16097, 23739, 31381, 39023, 46665, 54307
Solanezumab_LightChain1	814	8456, 16098, 23740, 31382, 39024, 46666, 54308
Solitomab_HeavyChain1	815	8457, 16099, 23741, 31383, 39025, 46667, 54309
Solitomab_SingleChain	816	8458, 16100, 23742, 31384, 39026, 46668, 54310
Sonepcizumab_LightChain_Precursor	817	8459, 16101, 23743, 31385, 39027, 46669, 54311
Sonepcizumab_gamma1-Chain_Precursor	818	8460, 16102, 23744, 31386, 39028, 46670, 54312
Stamulumab_HeavyChain1	819	8461, 16103, 23745, 31387, 39029, 46671, 54313
Stamulumab_LightChain1	820	8462, 16104, 23746, 31388, 39030, 46672, 54314
Suptavumab_HeavyChain1	821	8463, 16105, 23747, 31389, 39031, 46673, 54315

Name	Protein SEQ ID NO	RNA SEQ ID NO
Suptavumab_LightChain1	822	8464, 16106, 23748, 31390, 39032, 46674, 54316
Suvizumab_HeavyChain1	823	8465, 16107, 23749, 31391, 39033, 46675, 54317
Suvizumab_LightChain1	824	8466, 16108, 23750, 31392, 39034, 46676, 54318
Tabalumab_HeavyChain1	825	8467, 16109, 23751, 31393, 39035, 46677, 54319
Tabalumab_LightChain1	826	8468, 16110, 23752, 31394, 39036, 46678, 54320
Tacatuzuab_HeavyChain1	827	8469, 16111, 23753, 31395, 39037, 46679, 54321
Tacatuzuab_LightChain1	828	8470, 16112, 23754, 31396, 39038, 46680, 54322
Tadocizumab_fab_fragment_HeavyChain	829	8471, 16113, 23755, 31397, 39039, 46681, 54323
Tadocizumab_fab_fragment_LightChain	830	8472, 16114, 23756, 31398, 39040, 46682, 54324
Talizumab_HeavyChain1	831	8473, 16115, 23757, 31399, 39041, 46683, 54325
Talizumab_LightChain1	832	8474, 16116, 23758, 31400, 39042, 46684, 54326
Tamtuvetmab_HeavyChain1	833	8475, 16117, 23759, 31401, 39043, 46685, 54327
Tamtuvetmab_LightChain1	834	8476, 16118, 23760, 31402, 39044, 46686, 54328
Tanezumab_HeavyChain	835	8477, 16119, 23761, 31403, 39045, 46687, 54329
Tanezumab_LightChain	836	8478, 16120, 23762, 31404, 39046, 46688, 54330
Tarextumab_HeavyChain1	837	8479, 16121, 23763, 31405, 39047, 46689, 54331
Tarextumab_LightChain1	838	8480, 16122, 23764, 31406, 39048, 46690, 54332
Tefibazumab_HeavyChain1	839	8481, 16123, 23765, 31407, 39049, 46691, 54333
Tefibazumab_LightChain1	840	8482, 16124, 23766, 31408, 39050, 46692, 54334
Tenatumomab_HeavyChain1	841	8483, 16125, 23767, 31409, 39051, 46693, 54335
Tenatumomab_LightChain1	842	8484, 16126, 23768, 31410, 39052, 46694, 54336
Teneliximab_HeavyChain1	843	8485, 16127, 23769, 31411, 39053, 46695, 54337
Teneliximab_LightChain1	844	8486, 16128, 23770, 31412, 39054, 46696, 54338
Teplizumab_HeavyChain1	845	8487, 16129, 23771, 31413, 39055, 46697, 54339
Teplizumab_LightChain1	846	8488, 16130, 23772, 31414, 39056, 46698, 54340
Teprotumumab_HeavyChain1	847	8489, 16131, 23773, 31415, 39057, 46699, 54341
Teprotumumab_LightChain1	848	8490, 16132, 23774, 31416, 39058, 46700, 54342
Tesidolumab_HeavyChain1	849	8491, 16133, 23775, 31417, 39059, 46701, 54343
Tesidolumab_LightChain1	850	8492, 16134, 23776, 31418, 39060, 46702, 54344
Tezepelumab_HeavyChain1	851	8493, 16135, 23777, 31419, 39061, 46703, 54345
Tezepelumab_LightChain1	852	8494, 16136, 23778, 31420, 39062, 46704, 54346
ThioMAb-chMA79b-HC(A118C)_HeavyChain	853	8495, 16137, 23779, 31421, 39063, 46705, 54347
ThioMab-huIOA8.v1-HC(A118C)_HeavyChain	854	8496, 16138, 23780, 31422, 39064, 46706, 54348

Name	Protein SEQ ID NO	RNA SEQ ID NO
ThioMab-hu10A8.v1-HC(V205C)_HeavyChain	855	8497, 16139, 23781, 31423, 39065, 46707, 54349
ThioMab-hu10A8.v1-LC(A118C)_LightChain	856	8498, 16140, 23782, 31424, 39066, 46708, 54350
ThioMab-hu10A8.v1-LC(V205C)_LightChain	857	8499, 16141, 23783, 31425, 39067, 46709, 54351
ThioMAb-huMA79b.v17-HC(A118C)_HeavyChain	858	8500, 16142, 23784, 31426, 39068, 46710, 54352
ThioMAb-huMA79b.v17-HC(A118C)_LightChain	859	8501, 16143, 23785, 31427, 39069, 46711, 54353
ThioMAb-huMA79b.v18-HC(A118C)_HeavyChain	860	8502, 16144, 23786, 31428, 39070, 46712, 54354
ThioMAb-huMA79b.v28-HC(A118C)_LightChain	861	8503, 16145, 23787, 31429, 39071, 46713, 54355
ThioMAb-huMA79b.v28-LC(V205C)_LightChain	862	8504, 16146, 23788, 31430, 39072, 46714, 54356
Ticiliuab_HeavyChain1	863	8505, 16147, 23789, 31431, 39073, 46715, 54357
Ticiliuab_LightChain1	864	8506, 16148, 23790, 31432, 39074, 46716, 54358
Tigatuzumab_HeavyChain1	865	8507, 16149, 23791, 31433, 39075, 46717, 54359
Tigatuzumab_HeavyChain	866	8508, 16150, 23792, 31434, 39076, 46718, 54360
Tigatuzumab_LightChain1	867	8509, 16151, 23793, 31435, 39077, 46719, 54361
Tigatuzumab_LightChain	868	8510, 16152, 23794, 31436, 39078, 46720, 54362
Tildrakizumab_HeavyChain1	869	8511, 16153, 23795, 31437, 39079, 46721, 54363
Tildrakizumab_LightChain1	870	8512, 16154, 23796, 31438, 39080, 46722, 54364
Tisotumab_vedotin_HeavyChain1	871	8513, 16155, 23797, 31439, 39081, 46723, 54365
Tisotumab_vedotin_LightChain1	872	8514, 16156, 23798, 31440, 39082, 46724, 54366
Tocilizumab_HeavyChain1	873	8515, 16157, 23799, 31441, 39083, 46725, 54367
Tocilizumab_LightChain1	874	8516, 16158, 23800, 31442, 39084, 46726, 54368
Tosatoxumab_HeavyChain1	875	8517, 16159, 23801, 31443, 39085, 46727, 54369
Tosatoxumab_LightChain1	876	8518, 16160, 23802, 31444, 39086, 46728, 54370
Tositumomab_HeavyChain	877	8519, 16161, 23803, 31445, 39087, 46729, 54371
Tositumomab_LightChain	878	8520, 16162, 23804, 31446, 39088, 46730, 54372
Tovetumab_HeavyChain1	879	8521, 16163, 23805, 31447, 39089, 46731, 54373
Tovetumab_LightChain1	880	8522, 16164, 23806, 31448, 39090, 46732, 54374
Tralokinumab_HeavyChain1	881	8523, 16165, 23807, 31449, 39091, 46733, 54375
Tralokinumab_LightChain1	882	8524, 16166, 23808, 31450, 39092, 46734, 54376
Trastuzuab_HeavyChain1	883	8525, 16167, 23809, 31451, 39093, 46735, 54377
Trastuzuab_LightChain1	884	8526, 16168, 23810, 31452, 39094, 46736, 54378
Trastuzumab_emtansine_HeavyChain1	885	8527, 16169, 23811, 31453, 39095, 46737, 54379
Trastuzumab_emtansine_LightChain1	886	8528, 16170, 23812, 31454, 39096, 46738, 54380
Trastuzumab_HeavyChain1	887	8529, 16171, 23813, 31455, 39097, 46739, 54381

Name	Protein SEQ ID NO	RNA SEQ ID NO
Trastuzumab_HeavyChain	888	8530, 16172, 23814, 31456, 39098, 46740, 54382
Trastuzumab_HeavyChain_variant_In8z_B	889	8531, 16173, 23815, 31457, 39099, 46741, 54383
Trastuzumab_HeavyChain_variant_7637_H	890	8532, 16174, 23816, 31458, 39100, 46742, 54384
Trastuzumab_LightChainI	891	8533, 16175, 23817, 31459, 39101, 46743, 54385
Trastuzumab_LightChain_variant_In8z_A	892	8534, 16176, 23818, 31460, 39102, 46744, 54386
Trastuzumab_LightChain_variant_7637_L	893	8535, 16177, 23819, 31461, 39103, 46745, 54387
TRC-105_HeavyChainI	894	8536, 16178, 23820, 31462, 39104, 46746, 54388
TRC-105_LightChainI	895	8537, 16179, 23821, 31463, 39105, 46747, 54389
Tregalizumab_HeavyChainI	896	8538, 16180, 23822, 31464, 39106, 46748, 54390
Tregalizumab_LightChainI	897	8539, 16181, 23823, 31465, 39107, 46749, 54391
Tremelimumab_HeavyChainI	898	8540, 16182, 23824, 31466, 39108, 46750, 54392
Tremelimumab_LightChainI	899	8541, 16183, 23825, 31467, 39109, 46751, 54393
Trevogrumab_HeavyChainI	900	8542, 16184, 23826, 31468, 39110, 46752, 54394
Trevogrumab_LightChainI	901	8543, 16185, 23827, 31469, 39111, 46753, 54395
Tucotuzumab_celmoleukin_HeavyChainI	902	8544, 16186, 23828, 31470, 39112, 46754, 54396
Tucotuzumab_celmoleukin_LightChainI	903	8545, 16187, 23829, 31471, 39113, 46755, 54397
Ublituximab_HeavyChainI	904	8546, 16188, 23830, 31472, 39114, 46756, 54398
Ublituximab_LightChainI	905	8547, 16189, 23831, 31473, 39115, 46757, 54399
Ulocuplumab_HeavyChainI	906	8548, 16190, 23832, 31474, 39116, 46758, 54400
Ulocuplumab_LightChainI	907	8549, 16191, 23833, 31475, 39117, 46759, 54401
Urelumab_HeavyChainI	908	8550, 16192, 23834, 31476, 39118, 46760, 54402
Urelumab_LightChainI	909	8551, 16193, 23835, 31477, 39119, 46761, 54403
Urtoxazumab_HeavyChainI	910	8552, 16194, 23836, 31478, 39120, 46762, 54404
Urtoxazumab_LightChainI	911	8553, 16195, 23837, 31479, 39121, 46763, 54405
Ustekinumab_HeavyChainI	912	8554, 16196, 23838, 31480, 39122, 46764, 54406
Ustekinumab_LightChainI	913	8555, 16197, 23839, 31481, 39123, 46765, 54407
Vadastuximab_talirine_HeavyChainI	914	8556, 16198, 23840, 31482, 39124, 46766, 54408
Vadastuximab_talirine_LightChainI	915	8557, 16199, 23841, 31483, 39125, 46767, 54409
Vandortuzumab_vedotin_HeavyChainI	916	8558, 16200, 23842, 31484, 39126, 46768, 54410
Vandortuzumab_vedotin_LightChainI	917	8559, 16201, 23843, 31485, 39127, 46769, 54411
Vantictumab_HeavyChainI	918	8560, 16202, 23844, 31486, 39128, 46770, 54412
Vantictumab_LightChainI	919	8561, 16203, 23845, 31487, 39129, 46771, 54413
Vanucizumab_HeavyChainI	920	8562, 16204, 23846, 31488, 39130, 46772, 54414

Name	Protein SEQ ID NO	RNA SEQ ID NO
Vanucizumab_HeavyChain2	921	8563, 16205, 23847, 31489, 39131, 46773, 54415
Vanucizumab_LightChain1	922	8564, 16206, 23848, 31490, 39132, 46774, 54416
Vanucizumab_LightChain2	923	8565, 16207, 23849, 31491, 39133, 46775, 54417
Varlilumab_HeavyChain1	924	8566, 16208, 23850, 31492, 39134, 46776, 54418
Varlilumab_LightChain1	925	8567, 16209, 23851, 31493, 39135, 46777, 54419
Vatelizumab_HeavyChain1	926	8568, 16210, 23852, 31494, 39136, 46778, 54420
Vatelizumab_LightChain1	927	8569, 16211, 23853, 31495, 39137, 46779, 54421
Vedolizumab_HeavyChain1	928	8570, 16212, 23854, 31496, 39138, 46780, 54422
Vedolizumab_LightChain1	929	8571, 16213, 23855, 31497, 39139, 46781, 54423
Veltuzumab_HeavyChain1	930	8572, 16214, 23856, 31498, 39140, 46782, 54424
Veltuzumab_LightChain1	931	8573, 16215, 23857, 31499, 39141, 46783, 54425
Vesencumab_HeavyChain1	932	8574, 16216, 23858, 31500, 39142, 46784, 54426
Vesencumab_LightChain1	933	8575, 16217, 23859, 31501, 39143, 46785, 54427
Visilizumab_HeavyChain1	934	8576, 16218, 23860, 31502, 39144, 46786, 54428
Visilizumab_LightChain1	935	8577, 16219, 23861, 31503, 39145, 46787, 54429
Volociximab_HeavyChain	936	8578, 16220, 23862, 31504, 39146, 46788, 54430
Volociximab_LightChain	937	8579, 16221, 23863, 31505, 39147, 46789, 54431
Vorsetuzumab_HeavyChain1	938	8580, 16222, 23864, 31506, 39148, 46790, 54432
Vorsetuzumab_LightChain1	939	8581, 16223, 23865, 31507, 39149, 46791, 54433
Vorsetuzumab_mafodotin_HeavyChain1	940	8582, 16224, 23866, 31508, 39150, 46792, 54434
Vorsetuzumab_mafodotin_LightChain1	941	8583, 16225, 23867, 31509, 39151, 46793, 54435
Yttrium_(90Y)_clivatuzumab_tetraxetan_HeavyChain1	942	8584, 16226, 23868, 31510, 39152, 46794, 54436
Yttrium_(90Y)_clivatuzumab_tetraxetan_LightChain1	943	8585, 16227, 23869, 31511, 39153, 46795, 54437
Yttrium_Y_90_epratuzumab_tetraxetan_HeavyChain1	944	8586, 16228, 23870, 31512, 39154, 46796, 54438
Yttrium_Y_90_epratuzumab_tetraxetan_LightChain1	945	8587, 16229, 23871, 31513, 39155, 46797, 54439
Yttrium_Y_90_epratuzumab_HeavyChain1	946	8588, 16230, 23872, 31514, 39156, 46798, 54440
Yttrium_Y_90_epratuzumab_LightChain1	947	8589, 16231, 23873, 31515, 39157, 46799, 54441
Zalutumumab_HeavyChain1	948	8590, 16232, 23874, 31516, 39158, 46800, 54442
Zalutumumab_LightChain1	949	8591, 16233, 23875, 31517, 39159, 46801, 54443
Zanolimumab_HD_HeavyChain	950	8592, 16234, 23876, 31518, 39160, 46802, 54444
Zanolimumab_LD_LightChain	951	8593, 16235, 23877, 31519, 39161, 46803, 54445
Zatuximab_HeavyChain1	952	8594, 16236, 23878, 31520, 39162, 46804, 54446
Zatuximab_LightChain1	953	8595, 16237, 23879, 31521, 39163, 46805, 54447

Name	Protein SEQ ID NO	RNA SEQ ID NO
Actoxumab_HeavyChain	954	8596, 16238, 23880, 31522, 39164, 46806, 54448
Actoxumab_LightChain	955	8597, 16239, 23881, 31523, 39165, 46807, 54449
Andecaliximab_HeavyChain	956	8598, 16240, 23882, 31524, 39166, 46808, 54450
Andecaliximab_LightChain	957	8599, 16241, 23883, 31525, 39167, 46809, 54451
Aprutumab_HeavyChain	958	8600, 16242, 23884, 31526, 39168, 46810, 54452
Aprutumab_LightChain	959	8601, 16243, 23885, 31527, 39169, 46811, 54453
Azintuxizumab_HeavyChain	960	8602, 16244, 23886, 31528, 39170, 46812, 54454
Azintuxizumab_LightChain	961	8603, 16245, 23887, 31529, 39171, 46813, 54455
Blinatumomab_HeavyChain1	962	8604, 16246, 23888, 31530, 39172, 46814, 54456
Blinatumomab_HeavyChain2	963	8605, 16247, 23889, 31531, 39173, 46815, 54457
Blinatumomab_LightChain_HeavyChain_HeavyChain_LightChain	964	8606, 16248, 23890, 31532, 39174, 46816, 54458
Blinatumomab_LightChain1	965	8607, 16249, 23891, 31533, 39175, 46817, 54459
Blinatumomab_LightChain2	966	8608, 16250, 23892, 31534, 39176, 46818, 54460
Brazikumab_HeavyChain	967	8609, 16251, 23893, 31535, 39177, 46819, 54461
Brazikumab_LightChain	968	8610, 16252, 23894, 31536, 39178, 46820, 54462
Brolucizumab_HeavyChain	969	8611, 16253, 23895, 31537, 39179, 46821, 54463
Brolucizumab_LightChain	970	8612, 16254, 23896, 31538, 39180, 46822, 54464
Cabiralizumab_HeavyChain	971	8613, 16255, 23897, 31539, 39181, 46823, 54465
Cabiralizumab_LightChain	972	8614, 16256, 23898, 31540, 39182, 46824, 54466
Camrelizumab_HeavyChain	973	8615, 16257, 23899, 31541, 39183, 46825, 54467
Camrelizumab_LightChain	974	8616, 16258, 23900, 31542, 39184, 46826, 54468
Caplacizumab_HeavyChain	975	8617, 16259, 23901, 31543, 39185, 46827, 54469
Citatuzumab_bogatox_HeavyChain	976	8618, 16260, 23902, 31544, 39186, 46828, 54470
Cosfroviximab_HeavyChain	977	8619, 16261, 23903, 31545, 39187, 46829, 54471
Cosfroviximab_LightChain	978	8620, 16262, 23904, 31546, 39188, 46830, 54472
Crizanlizumab_HeavyChain	979	8621, 16263, 23905, 31547, 39189, 46831, 54473
Crizanlizumab_LightChain	980	8622, 16264, 23906, 31548, 39190, 46832, 54474
Crotedumab_HeavyChain	981	8623, 16265, 23907, 31549, 39191, 46833, 54475
Crotedumab_LightChain	982	8624, 16266, 23908, 31550, 39192, 46834, 54476
Dezamizumab_HeavyChain	983	8625, 16267, 23909, 31551, 39193, 46835, 54477
Dezamizumab_LightChain	984	8626, 16268, 23910, 31552, 39194, 46836, 54478
Duvortuxizumab_Chain1_scFv	985	8627, 16269, 23911, 31553, 39195, 46837, 54479

Name	Protein SEQ ID NO	RNA SEQ ID NO
Duvortuxizumab_Chain2_scFv	986	8628, 16270, 23912, 31554, 39196, 46838, 54480
Duvortuxizumab_Chain3_h-CH2-CH3	987	8629, 16271, 23913, 31555, 39197, 46839, 54481
Efungumab_HeavyChain	988	8630, 16272, 23914, 31556, 39198, 46840, 54482
Efungumab_HeavyChain_LightChain	989	8631, 16273, 23915, 31557, 39199, 46841, 54483
Efungumab_LightChain	990	8632, 16274, 23916, 31558, 39200, 46842, 54484
Elezanumab_HeavyChain	991	8633, 16275, 23917, 31559, 39201, 46843, 54485
Elezanumab_LightChain	992	8634, 16276, 23918, 31560, 39202, 46844, 54486
Emapalumab_HeavyChain	993	8635, 16277, 23919, 31561, 39203, 46845, 54487
Emapalumab_LightChain	994	8636, 16278, 23920, 31562, 39204, 46846, 54488
Enoblituzumab_HeavyChain	995	8637, 16279, 23921, 31563, 39205, 46847, 54489
Enoblituzumab_LightChain	996	8638, 16280, 23922, 31564, 39206, 46848, 54490
Eptinezumab_HeavyChain	997	8639, 16281, 23923, 31565, 39207, 46849, 54491
Eptinezumab_LightChain	998	8640, 16282, 23924, 31566, 39208, 46850, 54492
Erenumab_HeavyChain	999	8641, 16283, 23925, 31567, 39209, 46851, 54493
Erenumab_LightChain	1000	8642, 16284, 23926, 31568, 39210, 46852, 54494
Fremanezumab_HeavyChain	1001	8643, 16285, 23927, 31569, 39211, 46853, 54495
Fremanezumab_LightChain	1002	8644, 16286, 23928, 31570, 39212, 46854, 54496
Frunevetmab_HeavyChain	1003	8645, 16287, 23929, 31571, 39213, 46855, 54497
Frunevetmab_LightChain	1004	8646, 16288, 23930, 31572, 39214, 46856, 54498
Gatipotuzumab_HeavyChain	1005	8647, 16289, 23931, 31573, 39215, 46857, 54499
Gatipotuzumab_LightChain	1006	8648, 16290, 23932, 31574, 39216, 46858, 54500
Gedivumab_HeavyChain	1007	8649, 16291, 23933, 31575, 39217, 46859, 54501
Gedivumab_LightChain	1008	8650, 16292, 23934, 31576, 39218, 46860, 54502
Gemetuzumab_HeavyChain	1009	8651, 16293, 23935, 31577, 39219, 46861, 54503
Gemetuzumab_LightChain	1010	8652, 16294, 23936, 31578, 39220, 46862, 54504
Gilvetmab_HeavyChain	1011	8653, 16295, 23937, 31579, 39221, 46863, 54505
Gilvetmab_LightChain	1012	8654, 16296, 23938, 31580, 39222, 46864, 54506
Ifabotuzumab_HeavyChain	1013	8655, 16297, 23939, 31581, 39223, 46865, 54507
Ifabotuzumab_LightChain	1014	8656, 16298, 23940, 31582, 39224, 46866, 54508
Iratumumab_HeavyChain	1015	8657, 16299, 23941, 31583, 39225, 46867, 54509
Iratumumab_LightChain	1016	8658, 16300, 23942, 31584, 39226, 46868, 54510
Lacnotuzumab_HeavyChain	1017	8659, 16301, 23943, 31585, 39227, 46869, 54511
Lacnotuzumab_LightChain	1018	8660, 16302, 23944, 31586, 39228, 46870, 54512

Name	Protein SEQ ID NO	RNA SEQ ID NO
Larcaviximab_HeavyChain	1019	8661, 16303, 23945, 31587, 39229, 46871, 54513
Larcaviximab_LightChain	1020	8662, 16304, 23946, 31588, 39230, 46872, 54514
Lendalizumab_HeavyChain	1021	8663, 16305, 23947, 31589, 39231, 46873, 54515
Lendalizumab_LightChain	1022	8664, 16306, 23948, 31590, 39232, 46874, 54516
Lesofavumab_HeavyChain	1023	8665, 16307, 23949, 31591, 39233, 46875, 54517
Lesofavumab_LightChain	1024	8666, 16308, 23950, 31592, 39234, 46876, 54518
Letolizumab_HeavyChain	1025	8667, 16309, 23951, 31593, 39235, 46877, 54519
Losatuxizumab_HeavyChain	1026	8668, 16310, 23952, 31594, 39236, 46878, 54520
Losatuxizumab_LightChain	1027	8669, 16311, 23953, 31595, 39237, 46879, 54521
Lupartumab_HeavyChain	1028	8670, 16312, 23954, 31596, 39238, 46880, 54522
Lupartumab_LightChain	1029	8671, 16313, 23955, 31597, 39239, 46881, 54523
Lutikizumab_HeavyChain	1030	8672, 16314, 23956, 31598, 39240, 46882, 54524
Lutikizumab_LightChain	1031	8673, 16315, 23957, 31599, 39241, 46883, 54525
Oleclumab_HeavyChain	1032	8674, 16316, 23958, 31600, 39242, 46884, 54526
Oleclumab_LightChain	1033	8675, 16317, 23959, 31601, 39243, 46885, 54527
Otlertuzumab_HeavyChain	1034	8676, 16318, 23960, 31602, 39244, 46886, 54528
Ozoralizumab_HeavyChain	1035	8677, 16319, 23961, 31603, 39245, 46887, 54529
Ozoralizumab_HeavyChain_HeavyChain_HeavyChain	1036	8678, 16320, 23962, 31604, 39246, 46888, 54530
Pasotuxizumab_HeavyChain_LightChain_HeavyChain_LightChain	1037	8679, 16321, 23963, 31605, 39247, 46889, 54531
Pasotuxizumab_HeavyChain1	1038	8680, 16322, 23964, 31606, 39248, 46890, 54532
Pasotuxizumab_HeavyChain2	1039	8681, 16323, 23965, 31607, 39249, 46891, 54533
Pasotuxizumab_LightChain1	1040	8682, 16324, 23966, 31608, 39250, 46892, 54534
Pasotuxizumab_LightChain2	1041	8683, 16325, 23967, 31609, 39251, 46893, 54535
Placulumab_HeavyChain	1042	8684, 16326, 23968, 31610, 39252, 46894, 54536
Porgaviximab_HeavyChain	1043	8685, 16327, 23969, 31611, 39253, 46895, 54537
Porgaviximab_LightChain	1044	8686, 16328, 23970, 31612, 39254, 46896, 54538
Prezalumab_HeavyChain	1045	8687, 16329, 23971, 31613, 39255, 46897, 54539
Prezalumab_LightChain	1046	8688, 16330, 23972, 31614, 39256, 46898, 54540
Radretumab_HeavyChain	1047	8689, 16331, 23973, 31615, 39257, 46899, 54541
Radretumab_HeavyChain_LightChain	1048	8690, 16332, 23974, 31616, 39258, 46900, 54542
Radretumab_LightChain	1049	8691, 16333, 23975, 31617, 39259, 46901, 54543
Ranevetmab_HeavyChain1	1050	8692, 16334, 23976, 31618, 39260, 46902, 54544

Name	Protein SEQ ID NO	RNA SEQ ID NO
Ranevetmab_HeavyChain2	1051	8693, 16335, 23977, 31619, 39261, 46903, 54545
Ranevetmab_LightChain	1052	8694, 16336, 23978, 31620, 39262, 46904, 54546
Remtolumab_HeavyChain	1053	8695, 16337, 23979, 31621, 39263, 46905, 54547
Remtolumab_LightChain	1054	8696, 16338, 23980, 31622, 39264, 46906, 54548
Rosmantuzumab_HeavyChain	1055	8697, 16339, 23981, 31623, 39265, 46907, 54549
Rosmantuzumab_LightChain	1056	8698, 16340, 23982, 31624, 39266, 46908, 54550
Rozanolixizumab_HeavyChain	1057	8699, 16341, 23983, 31625, 39267, 46909, 54551
Rozanolixizumab_LightChain	1058	8700, 16342, 23984, 31626, 39268, 46910, 54552
Sapelizumab_HeavyChain	1059	8701, 16343, 23985, 31627, 39269, 46911, 54553
Sapelizumab_LightChain	1060	8702, 16344, 23986, 31628, 39270, 46912, 54554
Selicrelumab_HeavyChain	1061	8703, 16345, 23987, 31629, 39271, 46913, 54555
Selicrelumab_LightChain	1062	8704, 16346, 23988, 31630, 39272, 46914, 54556
Solitomab_HeavyChain1	1063	8705, 16347, 23989, 31631, 39273, 46915, 54557
Solitomab_HeavyChain2	1064	8706, 16348, 23990, 31632, 39274, 46916, 54558
Solitomab_LightChain_HeavyChain_HeavyChain_LightChain	1065	8707, 16349, 23991, 31633, 39275, 46917, 54559
Solitomab_LightChain1	1066	8708, 16350, 23992, 31634, 39276, 46918, 54560
Solitomab_LightChain2	1067	8709, 16351, 23993, 31635, 39277, 46919, 54561
Suptavumab_HeavyChain2	1068	8710, 16352, 23994, 31636, 39278, 46920, 54562
Suvratoxumab_HeavyChain	1069	8711, 16353, 23995, 31637, 39279, 46921, 54563
Suvratoxumab_LightChain	1070	8712, 16354, 23996, 31638, 39280, 46922, 54564
Tadocizumab_LightChain	1071	8713, 16355, 23997, 31639, 39281, 46923, 54565
Tanezumab_HeavyChain	1072	8714, 16356, 23998, 31640, 39282, 46924, 54566
Tanezumab_LightChain	1073	8715, 16357, 23999, 31641, 39283, 46925, 54567
Tavolixizumab_HeavyChain	1074	8716, 16358, 24000, 31642, 39284, 46926, 54568
Tavolixizumab_LightChain	1075	8717, 16359, 24001, 31643, 39285, 46927, 54569
Telisotuzumab_HeavyChain	1076	8718, 16360, 24002, 31644, 39286, 46928, 54570
Telisotuzumab_LightChain	1077	8719, 16361, 24003, 31645, 39287, 46929, 54571
Telisotuzumab_vedotin_HeavyChain	1078	8720, 16362, 24004, 31646, 39288, 46930, 54572
Telisotuzumab_vedotin_LightChain	1079	8721, 16363, 24005, 31647, 39289, 46931, 54573
Timigutuzumab_HeavyChain	1080	8722, 16364, 24006, 31648, 39290, 46932, 54574
Timigutuzumab_LightChain	1081	8723, 16365, 24007, 31649, 39291, 46933, 54575
Timolumab_HeavyChain	1082	8724, 16366, 24008, 31650, 39292, 46934, 54576

Name	Protein SEQ ID NO	RNA SEQ ID NO
Timolumab_LightChain	1083	8725, 16367, 24009, 31651, 39293, 46935, 54577
Tomuzotuximab_HeavyChain	1084	8726, 16368, 24010, 31652, 39294, 46936, 54578
Tomuzotuximab_LightChain	1085	8727, 16369, 24011, 31653, 39295, 46937, 54579
Trastuzumab_duocarmazine_HeavyChain	1086	8728, 16370, 24012, 31654, 39296, 46938, 54580
Trastuzumab_duocarmazine_LightChain	1087	8729, 16371, 24013, 31655, 39297, 46939, 54581
Varisacumab_HeavyChain	1088	8730, 16372, 24014, 31656, 39298, 46940, 54582
Varisacumab_LightChain	1089	8731, 16373, 24015, 31657, 39299, 46941, 54583
Vunakizumab_HeavyChain	1090	8732, 16374, 24016, 31658, 39300, 46942, 54584
Vunakizumab_LightChain	1091	8733, 16375, 24017, 31659, 39301, 46943, 54585
Xentuzumab_HeavyChain	1092	8734, 16376, 24018, 31660, 39302, 46944, 54586
Xentuzumab_LightChain	1093	8735, 16377, 24019, 31661, 39303, 46945, 54587
anti-rabies_S057_LightChain	1094	8736, 16378, 24020, 31662, 39304, 46946, 54588
anti-rabies_S057_HeavyChain	1095	8737, 16379, 24021, 31663, 39305, 46947, 54589
anti-rabies_S0JB_LightChain	1096	8738, 16380, 24022, 31664, 39306, 46948, 54590
anti-rabies_S0JB_HeavyChain	1097	8739, 16381, 24023, 31665, 39307, 46949, 54591
anti-rabies_S0JA_LightChain	1098	8740, 16382, 24024, 31666, 39308, 46950, 54592
anti-rabies_S0JA_HeavyChain	1099	8741, 16383, 24025, 31667, 39309, 46951, 54593
anti-rabies_LightChain	1100	8742, 16384, 24026, 31668, 39310, 46952, 54594
anti-rabies_HeavyChain	1101	8743, 16385, 24027, 31669, 39311, 46953, 54595
anti-rabies_LightChain	1102	8744, 16386, 24028, 31670, 39312, 46954, 54596
anti-rabies_HeavyChain	1103	8745, 16387, 24029, 31671, 39313, 46955, 54597
anti-RSV_5ITB_LightChain	1104	8746, 16388, 24030, 31672, 39314, 46956, 54598
anti-RSV_5ITB_HeavyChain	1105	8747, 16389, 24031, 31673, 39315, 46957, 54599
anti-alpha-toxin_4U6V_LightChain	1106	8748, 16390, 24032, 31674, 39316, 46958, 54600
anti-alpha-toxin_4U6V_HeavyChain	1107	8749, 16391, 24033, 31675, 39317, 46959, 54601
anti-alpha-toxin_4U6V_Chain-A	1108	8750, 16392, 24034, 31676, 39318, 46960, 54602
anti-alpha-toxin_4U6V_Chain-B	1109	8751, 16393, 24035, 31677, 39319, 46961, 54603
anti-IsdB_5D1Q_Chain-A	1110	8752, 16394, 24036, 31678, 39320, 46962, 54604
anti-IsdB_5D1Q_Chain-B	1111	8753, 16395, 24037, 31679, 39321, 46963, 54605
anti-IsdB_5D1Q_Chain-C	1112	8754, 16396, 24038, 31680, 39322, 46964, 54606
anti-IsdB_5D1Q_Chain-D	1113	8755, 16397, 24039, 31681, 39323, 46965, 54607
anti-IsdB_5D1Q_Chain-E	1114	8756, 16398, 24040, 31682, 39324, 46966, 54608
anti-IsdB_5D1X_Chain-A	1115	8757, 16399, 24041, 31683, 39325, 46967, 54609

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-IsdB_5DIX_Chain-B	1116	8758, 16400, 24042, 31684, 39326, 46968, 54610
anti-IsdB_5DIX_Chain-C	1117	8759, 16401, 24043, 31685, 39327, 46969, 54611
anti-IsdB_5DIX_Chain-D	1118	8760, 16402, 24044, 31686, 39328, 46970, 54612
anti-IsdB_5DIX_Chain-E	1119	8761, 16403, 24045, 31687, 39329, 46971, 54613
anti-IsdB_5DIZ_Chain-B	1120	8762, 16404, 24046, 31688, 39330, 46972, 54614
anti-IsdB_5DIZ_Chain-C	1121	8763, 16405, 24047, 31689, 39331, 46973, 54615
anti-IsdB_5DIZ_Chain-D	1122	8764, 16406, 24048, 31690, 39332, 46974, 54616
anti-IsdB_5DIZ_Chain-F	1123	8765, 16407, 24049, 31691, 39333, 46975, 54617
anti-IsdB_5DIZ_Chain-G	1124	8766, 16408, 24050, 31692, 39334, 46976, 54618
anti-IsdB_5DIZ_HeavyChain	1125	8767, 16409, 24051, 31693, 39335, 46977, 54619
anti-IsdB_5DIZ_Chain-I	1126	8768, 16410, 24052, 31694, 39336, 46978, 54620
anti-HIV_b12_LightChain	1127	8769, 16411, 24053, 31695, 39337, 46979, 54621
anti-HIV_b12_HeavyChain	1128	8770, 16412, 24054, 31696, 39338, 46980, 54622
anti-HIV_2G12_LightChain	1129	8771, 16413, 24055, 31697, 39339, 46981, 54623
anti-HIV_2G12_HeavyChain	1130	8772, 16414, 24056, 31698, 39340, 46982, 54624
anti-HIV_4E10_LightChain	1131	8773, 16415, 24057, 31699, 39341, 46983, 54625
anti-HIV_4E10_HeavyChain	1132	8774, 16416, 24058, 31700, 39342, 46984, 54626
anti-HIV_VRC01_LightChain	1133	8775, 16417, 24059, 31701, 39343, 46985, 54627
anti-HIV_VRC01_HeavyChain	1134	8776, 16418, 24060, 31702, 39344, 46986, 54628
anti-HIV_PG9_LightChain	1135	8777, 16419, 24061, 31703, 39345, 46987, 54629
anti-HIV_PG9_HeavyChain	1136	8778, 16420, 24062, 31704, 39346, 46988, 54630
anti-HIV_VRC07_LightChain	1137	8779, 16421, 24063, 31705, 39347, 46989, 54631
anti-HIV_VRC07_HeavyChain	1138	8780, 16422, 24064, 31706, 39348, 46990, 54632
anti-HIV_3BNC117_LightChain	1139	8781, 16423, 24065, 31707, 39349, 46991, 54633
anti-HIV_3BNC117_HeavyChain	1140	8782, 16424, 24066, 31708, 39350, 46992, 54634
anti-HIV_10-1074_LightChain	1141	8783, 16425, 24067, 31709, 39351, 46993, 54635
anti-HIV_10-1074_HeavyChain	1142	8784, 16426, 24068, 31710, 39352, 46994, 54636
anti-HIV_PGT121_LightChain	1143	8785, 16427, 24069, 31711, 39353, 46995, 54637
anti-HIV_PGT121_HeavyChain	1144	8786, 16428, 24070, 31712, 39354, 46996, 54638
anti-HIV_PGDM1400_LightChain	1145	8787, 16429, 24071, 31713, 39355, 46997, 54639
anti-HIV_PGDM1400_HeavyChain	1146	8788, 16430, 24072, 31714, 39356, 46998, 54640
anti-HIV_N6_LightChain	1147	8789, 16431, 24073, 31715, 39357, 46999, 54641
anti-HIV_N6_HeavyChain	1148	8790, 16432, 24074, 31716, 39358, 47000, 54642

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_N6_GChain	1149	8791, 16433, 24075, 31717, 39359, 47001, 54643
anti-HIV_10E8_LightChain	1150	8792, 16434, 24076, 31718, 39360, 47002, 54644
anti-HIV_10E8_HeavyChain	1151	8793, 16435, 24077, 31719, 39361, 47003, 54645
anti-HIV_12A12_LightChain	1152	8794, 16436, 24078, 31720, 39362, 47004, 54646
anti-HIV_12A12_HeavyChain	1153	8795, 16437, 24079, 31721, 39363, 47005, 54647
anti-HIV_12A21_LightChain	1154	8796, 16438, 24080, 31722, 39364, 47006, 54648
anti-HIV_12A21_HeavyChain	1155	8797, 16439, 24081, 31723, 39365, 47007, 54649
anti-HIV_35022_LightChain	1156	8798, 16440, 24082, 31724, 39366, 47008, 54650
anti-HIV_35022_HeavyChain	1157	8799, 16441, 24083, 31725, 39367, 47009, 54651
anti-HIV_3BC176_LightChain	1158	8800, 16442, 24084, 31726, 39368, 47010, 54652
anti-HIV_3BC176_HeavyChain	1159	8801, 16443, 24085, 31727, 39369, 47011, 54653
anti-HIV_3BNC55_LightChain	1160	8802, 16444, 24086, 31728, 39370, 47012, 54654
anti-HIV_3BNC55_HeavyChain	1161	8803, 16445, 24087, 31729, 39371, 47013, 54655
anti-HIV_3BNC60_LightChain	1162	8804, 16446, 24088, 31730, 39372, 47014, 54656
anti-HIV_3BNC60_HeavyChain	1163	8805, 16447, 24089, 31731, 39373, 47015, 54657
anti-HIV_3BNC60_HeavyChain	1164	8806, 16448, 24090, 31732, 39374, 47016, 54658
anti-HIV_447-52D_LightChain	1165	8807, 16449, 24091, 31733, 39375, 47017, 54659
anti-HIV_447-52D_HeavyChain	1166	8808, 16450, 24092, 31734, 39376, 47018, 54660
anti-HIV_447-52D_LightChain	1167	8809, 16451, 24093, 31735, 39377, 47019, 54661
anti-HIV_447-52D_HeavyChain	1168	8810, 16452, 24094, 31736, 39378, 47020, 54662
anti-HIV_5H/11-BMV-D5_LightChain	1169	8811, 16453, 24095, 31737, 39379, 47021, 54663
anti-HIV_5H/11-BMV-D5_HeavyChain	1170	8812, 16454, 24096, 31738, 39380, 47022, 54664
anti-HIV_5H/11-BMV-D5_A-Chain	1171	8813, 16455, 24097, 31739, 39381, 47023, 54665
anti-HIV_8ANC195_LightChain	1172	8814, 16456, 24098, 31740, 39382, 47024, 54666
anti-HIV_8ANC195_HeavyChain	1173	8815, 16457, 24099, 31741, 39383, 47025, 54667
anti-HIV_CAP256-VRC26.01_LightChain	1174	8816, 16458, 24100, 31742, 39384, 47026, 54668
anti-HIV_CAP256-VRC26.01_HeavyChain	1175	8817, 16459, 24101, 31743, 39385, 47027, 54669
anti-HIV_CAP256-VRC26.02_LightChain	1176	8818, 16460, 24102, 31744, 39386, 47028, 54670
anti-HIV_CAP256-VRC26.02_HeavyChain	1177	8819, 16461, 24103, 31745, 39387, 47029, 54671
anti-HIV_CAP256-VRC26.03_LightChain	1178	8820, 16462, 24104, 31746, 39388, 47030, 54672
anti-HIV_CAP256-VRC26.03_HeavyChain	1179	8821, 16463, 24105, 31747, 39389, 47031, 54673
anti-HIV_CAP256-VRC26.04_LightChain	1180	8822, 16464, 24106, 31748, 39390, 47032, 54674
anti-HIV_CAP256-VRC26.04_HeavyChain	1181	8823, 16465, 24107, 31749, 39391, 47033, 54675

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_CAP256-VRC26.05_LightChain	1182	8824, 16466, 24108, 31750, 39392, 47034, 54676
anti-HIV_CAP256-VRC26.05_HeavyChain	1183	8825, 16467, 24109, 31751, 39393, 47035, 54677
anti-HIV_CAP256-VRC26.06_LightChain	1184	8826, 16468, 24110, 31752, 39394, 47036, 54678
anti-HIV_CAP256-VRC26.06_HeavyChain	1185	8827, 16469, 24111, 31753, 39395, 47037, 54679
anti-HIV_CAP256-VRC26.07_LightChain	1186	8828, 16470, 24112, 31754, 39396, 47038, 54680
anti-HIV_CAP256-VRC26.07_HeavyChain	1187	8829, 16471, 24113, 31755, 39397, 47039, 54681
anti-HIV_CAP256-VRC26.08_LightChain	1188	8830, 16472, 24114, 31756, 39398, 47040, 54682
anti-HIV_CAP256-VRC26.08_HeavyChain	1189	8831, 16473, 24115, 31757, 39399, 47041, 54683
anti-HIV_CAP256-VRC26.09_LightChain	1190	8832, 16474, 24116, 31758, 39400, 47042, 54684
anti-HIV_CAP256-VRC26.09_HeavyChain	1191	8833, 16475, 24117, 31759, 39401, 47043, 54685
anti-HIV_CAP256-VRC26.10_LightChain	1192	8834, 16476, 24118, 31760, 39402, 47044, 54686
anti-HIV_CAP256-VRC26.10_HeavyChain	1193	8835, 16477, 24119, 31761, 39403, 47045, 54687
anti-HIV_CAP256-VRC26.11_LightChain	1194	8836, 16478, 24120, 31762, 39404, 47046, 54688
anti-HIV_CAP256-VRC26.11_HeavyChain	1195	8837, 16479, 24121, 31763, 39405, 47047, 54689
anti-HIV_CAP256-VRC26.12_LightChain	1196	8838, 16480, 24122, 31764, 39406, 47048, 54690
anti-HIV_CAP256-VRC26.12_HeavyChain	1197	8839, 16481, 24123, 31765, 39407, 47049, 54691
anti-HIV_CAP256-VRC26.11_LightChain	1198	8840, 16482, 24124, 31766, 39408, 47050, 54692
anti-HIV_CAP256-VRC26.11_HeavyChain	1199	8841, 16483, 24125, 31767, 39409, 47051, 54693
anti-HIV_CAP256-VRC26.12_LightChain	1200	8842, 16484, 24126, 31768, 39410, 47052, 54694
anti-HIV_CAP256-VRC26.12_HeavyChain	1201	8843, 16485, 24127, 31769, 39411, 47053, 54695
anti-HIV_CAP256-VRC26.UCA_LightChain	1202	8844, 16486, 24128, 31770, 39412, 47054, 54696
anti-HIV_CAP256-VRC26.UCA_HeavyChain	1203	8845, 16487, 24129, 31771, 39413, 47055, 54697
anti-HIV_CH01_LightChain	1204	8846, 16488, 24130, 31772, 39414, 47056, 54698
anti-HIV_CH01_HeavyChain	1205	8847, 16489, 24131, 31773, 39415, 47057, 54699
anti-HIV_CH02_LightChain	1206	8848, 16490, 24132, 31774, 39416, 47058, 54700
anti-HIV_CH02_HeavyChain	1207	8849, 16491, 24133, 31775, 39417, 47059, 54701
anti-HIV_CH03_LightChain	1208	8850, 16492, 24134, 31776, 39418, 47060, 54702
anti-HIV_CH03_HeavyChain	1209	8851, 16493, 24135, 31777, 39419, 47061, 54703
anti-HIV_CH04_LightChain	1210	8852, 16494, 24136, 31778, 39420, 47062, 54704
anti-HIV_CH04_HeavyChain	1211	8853, 16495, 24137, 31779, 39421, 47063, 54705
anti-HIV_CH103_LightChain	1212	8854, 16496, 24138, 31780, 39422, 47064, 54706
anti-HIV_CH103_HeavyChain	1213	8855, 16497, 24139, 31781, 39423, 47065, 54707
anti-HIV_M66.6_LightChain	1214	8856, 16498, 24140, 31782, 39424, 47066, 54708

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_M66.6_HeavyChain	1215	8857, 16499, 24141, 31783, 39425, 47067, 54709
anti-HIV_NIH45-46_LightChain	1216	8858, 16500, 24142, 31784, 39426, 47068, 54710
anti-HIV_NIH45-46_HeavyChain	1217	8859, 16501, 24143, 31785, 39427, 47069, 54711
anti-HIV_PG16_LightChain	1218	8860, 16502, 24144, 31786, 39428, 47070, 54712
anti-HIV_PG16_HeavyChain	1219	8861, 16503, 24145, 31787, 39429, 47071, 54713
anti-HIV_PGT122_LightChain	1220	8862, 16504, 24146, 31788, 39430, 47072, 54714
anti-HIV_PGT122_HeavyChain	1221	8863, 16505, 24147, 31789, 39431, 47073, 54715
anti-HIV_PGT123_LightChain	1222	8864, 16506, 24148, 31790, 39432, 47074, 54716
anti-HIV_PGT123_HeavyChain	1223	8865, 16507, 24149, 31791, 39433, 47075, 54717
anti-HIV_PGT125_LightChain	1224	8866, 16508, 24150, 31792, 39434, 47076, 54718
anti-HIV_PGT125_HeavyChain	1225	8867, 16509, 24151, 31793, 39435, 47077, 54719
anti-HIV_PGT126_LightChain	1226	8868, 16510, 24152, 31794, 39436, 47078, 54720
anti-HIV_PGT126_HeavyChain	1227	8869, 16511, 24153, 31795, 39437, 47079, 54721
anti-HIV_PGT127_LightChain	1228	8870, 16512, 24154, 31796, 39438, 47080, 54722
anti-HIV_PGT127_HeavyChain	1229	8871, 16513, 24155, 31797, 39439, 47081, 54723
anti-HIV_PGT128_LightChain	1230	8872, 16514, 24156, 31798, 39440, 47082, 54724
anti-HIV_PGT128_HeavyChain	1231	8873, 16515, 24157, 31799, 39441, 47083, 54725
anti-HIV_PGT130_LightChain	1232	8874, 16516, 24158, 31800, 39442, 47084, 54726
anti-HIV_PGT130_HeavyChain	1233	8875, 16517, 24159, 31801, 39443, 47085, 54727
anti-HIV_PGT131_LightChain	1234	8876, 16518, 24160, 31802, 39444, 47086, 54728
anti-HIV_PGT131_HeavyChain	1235	8877, 16519, 24161, 31803, 39445, 47087, 54729
anti-HIV_PGT135_LightChain	1236	8878, 16520, 24162, 31804, 39446, 47088, 54730
anti-HIV_PGT135_HeavyChain	1237	8879, 16521, 24163, 31805, 39447, 47089, 54731
anti-HIV_PGT136_LightChain	1238	8880, 16522, 24164, 31806, 39448, 47090, 54732
anti-HIV_PGT136_HeavyChain	1239	8881, 16523, 24165, 31807, 39449, 47091, 54733
anti-HIV_PGT137_LightChain	1240	8882, 16524, 24166, 31808, 39450, 47092, 54734
anti-HIV_PGT137_HeavyChain	1241	8883, 16525, 24167, 31809, 39451, 47093, 54735
anti-HIV_PGT141_LightChain	1242	8884, 16526, 24168, 31810, 39452, 47094, 54736
anti-HIV_PGT141_HeavyChain	1243	8885, 16527, 24169, 31811, 39453, 47095, 54737
anti-HIV_PGT142_LightChain	1244	8886, 16528, 24170, 31812, 39454, 47096, 54738
anti-HIV_PGT142_HeavyChain	1245	8887, 16529, 24171, 31813, 39455, 47097, 54739
anti-HIV_PGT143_LightChain	1246	8888, 16530, 24172, 31814, 39456, 47098, 54740
anti-HIV_PGT143_HeavyChain	1247	8889, 16531, 24173, 31815, 39457, 47099, 54741

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_PGT144_LightChain	1248	8890, 16532, 24174, 31816, 39458, 47100, 54742
anti-HIV_PGT144_HeavyChain	1249	8891, 16533, 24175, 31817, 39459, 47101, 54743
anti-HIV_PGT145_LightChain	1250	8892, 16534, 24176, 31818, 39460, 47102, 54744
anti-HIV_PGT145_HeavyChain	1251	8893, 16535, 24177, 31819, 39461, 47103, 54745
anti-HIV_PGT151_LightChain	1252	8894, 16536, 24178, 31820, 39462, 47104, 54746
anti-HIV_PGT151_HeavyChain	1253	8895, 16537, 24179, 31821, 39463, 47105, 54747
anti-HIV_PGT152_LightChain	1254	8896, 16538, 24180, 31822, 39464, 47106, 54748
anti-HIV_PGT152_HeavyChain	1255	8897, 16539, 24181, 31823, 39465, 47107, 54749
anti-HIV_VRC-CH30_LightChain	1256	8898, 16540, 24182, 31824, 39466, 47108, 54750
anti-HIV_VRC-CH30_HeavyChain	1257	8899, 16541, 24183, 31825, 39467, 47109, 54751
anti-HIV_VRC-CH31_LightChain	1258	8900, 16542, 24184, 31826, 39468, 47110, 54752
anti-HIV_VRC-CH31_HeavyChain	1259	8901, 16543, 24185, 31827, 39469, 47111, 54753
anti-HIV_VRC-CH32_LightChain	1260	8902, 16544, 24186, 31828, 39470, 47112, 54754
anti-HIV_VRC-CH32_HeavyChain	1261	8903, 16545, 24187, 31829, 39471, 47113, 54755
anti-HIV_VRC-CH33_LightChain	1262	8904, 16546, 24188, 31830, 39472, 47114, 54756
anti-HIV_VRC-CH33_HeavyChain	1263	8905, 16547, 24189, 31831, 39473, 47115, 54757
anti-HIV_VRC-CH34_LightChain	1264	8906, 16548, 24190, 31832, 39474, 47116, 54758
anti-HIV_VRC-CH34_HeavyChain	1265	8907, 16549, 24191, 31833, 39475, 47117, 54759
anti-HIV_VRC-PG04_LightChain	1266	8908, 16550, 24192, 31834, 39476, 47118, 54760
anti-HIV_VRC-PG04_HeavyChain	1267	8909, 16551, 24193, 31835, 39477, 47119, 54761
anti-HIV_VRC-PG04b_LightChain	1268	8910, 16552, 24194, 31836, 39478, 47120, 54762
anti-HIV_VRC-PG04b_HeavyChain	1269	8911, 16553, 24195, 31837, 39479, 47121, 54763
anti-HIV_VRC-PG20_LightChain	1270	8912, 16554, 24196, 31838, 39480, 47122, 54764
anti-HIV_VRC-PG20_HeavyChain	1271	8913, 16555, 24197, 31839, 39481, 47123, 54765
anti-HIV_VRC-PG20_G-Chain	1272	8914, 16556, 24198, 31840, 39482, 47124, 54766
anti-HIV_VRC02_LightChain	1273	8915, 16557, 24199, 31841, 39483, 47125, 54767
anti-HIV_VRC02_HeavyChain	1274	8916, 16558, 24200, 31842, 39484, 47126, 54768
anti-HIV_VRC03_LightChain	1275	8917, 16559, 24201, 31843, 39485, 47127, 54769
anti-HIV_VRC03_HeavyChain	1276	8918, 16560, 24202, 31844, 39486, 47128, 54770
anti-HIV_VRC23_LightChain	1277	8919, 16561, 24203, 31845, 39487, 47129, 54771
anti-HIV_VRC23_HeavyChain	1278	8920, 16562, 24204, 31846, 39488, 47130, 54772
anti-HIV_VRC23_G-Chain	1279	8921, 16563, 24205, 31847, 39489, 47131, 54773
anti-HIV_5CCK_LightChain	1280	8922, 16564, 24206, 31848, 39490, 47132, 54774

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_5CCK_HeavyChain	1281	8923, 16565, 24207, 31849, 39491, 47133, 54775
anti-HIV_5AWN_LightChain	1282	8924, 16566, 24208, 31850, 39492, 47134, 54776
anti-HIV_5AWN_HeavyChain	1283	8925, 16567, 24209, 31851, 39493, 47135, 54777
anti-HIV_3QEG_LightChain	1284	8926, 16568, 24210, 31852, 39494, 47136, 54778
anti-HIV_3QEG_HeavyChain	1285	8927, 16569, 24211, 31853, 39495, 47137, 54779
anti-HIV_1NOX_K-Chain	1286	8928, 16570, 24212, 31854, 39496, 47138, 54780
anti-HIV_1NOX_M-Chain	1287	8929, 16571, 24213, 31855, 39497, 47139, 54781
anti-HIV_3QEH_HeavyChain	1288	8930, 16572, 24214, 31856, 39498, 47140, 54782
anti-HIV_3QEH_G-Chain	1289	8931, 16573, 24215, 31857, 39499, 47141, 54783
anti-HIV_2B1H_HeavyChain	1290	8932, 16574, 24216, 31858, 39500, 47142, 54784
anti-HIV_2B1H_LightChain	1291	8933, 16575, 24217, 31859, 39501, 47143, 54785
anti-HIV_3TNM_B-Chain	1292	8934, 16576, 24218, 31860, 39502, 47144, 54786
anti-HIV_3TNM_A-Chain	1293	8935, 16577, 24219, 31861, 39503, 47145, 54787
anti-HIV_3UJJ_HeavyChain	1294	8936, 16578, 24220, 31862, 39504, 47146, 54788
anti-HIV_3UJJ_LightChain	1295	8937, 16579, 24221, 31863, 39505, 47147, 54789
anti-HIV_3UJI_HeavyChain	1296	8938, 16580, 24222, 31864, 39506, 47148, 54790
anti-HIV_3UJI_LightChain	1297	8939, 16581, 24223, 31865, 39507, 47149, 54791
anti-HIV_2QSC_HeavyChain	1298	8940, 16582, 24224, 31866, 39508, 47150, 54792
anti-HIV_2QSC_LightChain	1299	8941, 16583, 24225, 31867, 39509, 47151, 54793
anti-HIV_3MLZ_HeavyChain	1300	8942, 16584, 24226, 31868, 39510, 47152, 54794
anti-HIV_3MLZ_LightChain	1301	8943, 16585, 24227, 31869, 39511, 47153, 54795
anti-HIV_3MLX_I-Chain	1302	8944, 16586, 24228, 31870, 39512, 47154, 54796
anti-HIV_3MLX_M-Chain	1303	8945, 16587, 24229, 31871, 39513, 47155, 54797
anti-HIV_3MLW_I-Chain	1304	8946, 16588, 24230, 31872, 39514, 47156, 54798
anti-HIV_3MLW_M-Chain	1305	8947, 16589, 24231, 31873, 39515, 47157, 54799
anti-HIV_3MLV_N-Chain	1306	8948, 16590, 24232, 31874, 39516, 47158, 54800
anti-HIV_3MLV_M-Chain	1307	8949, 16591, 24233, 31875, 39517, 47159, 54801
anti-HIV_3MLU_LightChain	1308	8950, 16592, 24234, 31876, 39518, 47160, 54802
anti-HIV_3MLT_G-Chain	1309	8951, 16593, 24235, 31877, 39519, 47161, 54803
anti-HIV_3G01_HeavyChain	1310	8952, 16594, 24236, 31878, 39520, 47162, 54804
anti-HIV_3G01_LightChain	1311	8953, 16595, 24237, 31879, 39521, 47163, 54805
anti-HIV_4XCY_J-Chain	1312	8954, 16596, 24238, 31880, 39522, 47164, 54806
anti-HIV_4XCY_K-Chain	1313	8955, 16597, 24239, 31881, 39523, 47165, 54807

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_4YBL_C-Chain	1314	8956, 16598, 24240, 31882, 39524, 47166, 54808
anti-HIV_4YBL_B-Chain	1315	8957, 16599, 24241, 31883, 39525, 47167, 54809
anti-HIV_4R4N_X-Chain	1316	8958, 16600, 24242, 31884, 39526, 47168, 54810
anti-HIV_4R4B_F-Chain	1317	8959, 16601, 24243, 31885, 39527, 47169, 54811
anti-HIV_3JUY_D-Chain	1318	8960, 16602, 24244, 31886, 39528, 47170, 54812
anti-HIV_4KG5_HeavyChain	1319	8961, 16603, 24245, 31887, 39529, 47171, 54813
anti-HIV_4KG5_LightChain	1320	8962, 16604, 24246, 31888, 39530, 47172, 54814
anti-HIV-1_LightChain	1321	8963, 16605, 24247, 31889, 39531, 47173, 54815
anti-HIV-1_LightChain	1322	8964, 16606, 24248, 31890, 39532, 47174, 54816
anti-HIV-1_LightChain	1323	8965, 16607, 24249, 31891, 39533, 47175, 54817
anti-HIV-1_LightChain	1324	8966, 16608, 24250, 31892, 39534, 47176, 54818
anti-HIV-1_LightChain	1325	8967, 16609, 24251, 31893, 39535, 47177, 54819
anti-HIV-1_LightChain	1326	8968, 16610, 24252, 31894, 39536, 47178, 54820
anti-HIV-1_HeavyChain	1327	8969, 16611, 24253, 31895, 39537, 47179, 54821
anti-HIV-1_HeavyChain	1328	8970, 16612, 24254, 31896, 39538, 47180, 54822
anti-HIV-1_HeavyChain	1329	8971, 16613, 24255, 31897, 39539, 47181, 54823
anti-HIV-1_HeavyChain	1330	8972, 16614, 24256, 31898, 39540, 47182, 54824
anti-HIV-1_HeavyChain	1331	8973, 16615, 24257, 31899, 39541, 47183, 54825
anti-HIV-1_HeavyChain	1332	8974, 16616, 24258, 31900, 39542, 47184, 54826
anti-HIV-1_HeavyChain	1333	8975, 16617, 24259, 31901, 39543, 47185, 54827
anti-HIV-1_HeavyChain	1334	8976, 16618, 24260, 31902, 39544, 47186, 54828
anti-HIV-1_HeavyChain	1335	8977, 16619, 24261, 31903, 39545, 47187, 54829
anti-HIV-1_HeavyChain	1336	8978, 16620, 24262, 31904, 39546, 47188, 54830
anti-HIV-1_LightChain	1337	8979, 16621, 24263, 31905, 39547, 47189, 54831
anti-HIV-1_LightChain	1338	8980, 16622, 24264, 31906, 39548, 47190, 54832
anti-HIV-1_LightChain	1339	8981, 16623, 24265, 31907, 39549, 47191, 54833
anti-HIV-1_LightChain	1340	8982, 16624, 24266, 31908, 39550, 47192, 54834
anti-HIV-1_LightChain	1341	8983, 16625, 24267, 31909, 39551, 47193, 54835
anti-HIV-1_LightChain	1342	8984, 16626, 24268, 31910, 39552, 47194, 54836
anti-HIV-1_LightChain	1343	8985, 16627, 24269, 31911, 39553, 47195, 54837
anti-HIV-1_LightChain	1344	8986, 16628, 24270, 31912, 39554, 47196, 54838
anti-HIV-1_HeavyChain	1345	8987, 16629, 24271, 31913, 39555, 47197, 54839
anti-HIV-1_HeavyChain	1346	8988, 16630, 24272, 31914, 39556, 47198, 54840

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	1347	8989, 16631, 24273, 31915, 39557, 47199, 54841
anti-HIV-1_HeavyChain	1348	8990, 16632, 24274, 31916, 39558, 47200, 54842
anti-HIV-1_HeavyChain	1349	8991, 16633, 24275, 31917, 39559, 47201, 54843
anti-HIV-1_HeavyChain	1350	8992, 16634, 24276, 31918, 39560, 47202, 54844
anti-HIV-1_HeavyChain	1351	8993, 16635, 24277, 31919, 39561, 47203, 54845
anti-HIV-1_HeavyChain	1352	8994, 16636, 24278, 31920, 39562, 47204, 54846
anti-HIV_V3_HeavyChain	1353	8995, 16637, 24279, 31921, 39563, 47205, 54847
anti-HIV_V3_HeavyChain	1354	8996, 16638, 24280, 31922, 39564, 47206, 54848
anti-HIV_V3_HeavyChain	1355	8997, 16639, 24281, 31923, 39565, 47207, 54849
anti-HIV_V3_HeavyChain	1356	8998, 16640, 24282, 31924, 39566, 47208, 54850
anti-HIV_V3_HeavyChain	1357	8999, 16641, 24283, 31925, 39567, 47209, 54851
anti-HIV_V3_HeavyChain	1358	9000, 16642, 24284, 31926, 39568, 47210, 54852
anti-HIV_V3_HeavyChain	1359	9001, 16643, 24285, 31927, 39569, 47211, 54853
anti-HIV_V3_HeavyChain	1360	9002, 16644, 24286, 31928, 39570, 47212, 54854
anti-HIV_V3_HeavyChain	1361	9003, 16645, 24287, 31929, 39571, 47213, 54855
anti-HIV_V3_HeavyChain	1362	9004, 16646, 24288, 31930, 39572, 47214, 54856
anti-HIV_V3_HeavyChain	1363	9005, 16647, 24289, 31931, 39573, 47215, 54857
anti-HIV_V3_HeavyChain	1364	9006, 16648, 24290, 31932, 39574, 47216, 54858
anti-HIV_CD4bs_HeavyChain	1365	9007, 16649, 24291, 31933, 39575, 47217, 54859
anti-HIV_CD4bs_HeavyChain	1366	9008, 16650, 24292, 31934, 39576, 47218, 54860
anti-HIV_CD4bs_HeavyChain	1367	9009, 16651, 24293, 31935, 39577, 47219, 54861
anti-HIV_CD4bs_HeavyChain	1368	9010, 16652, 24294, 31936, 39578, 47220, 54862
anti-HIV_CD4bs_HeavyChain	1369	9011, 16653, 24295, 31937, 39579, 47221, 54863
anti-HIV_CD4bs_HeavyChain	1370	9012, 16654, 24296, 31938, 39580, 47222, 54864
anti-HIV_CD4bs_HeavyChain	1371	9013, 16655, 24297, 31939, 39581, 47223, 54865
anti-HIV_CD4bs_HeavyChain	1372	9014, 16656, 24298, 31940, 39582, 47224, 54866
anti-HIV_CD4bs_HeavyChain	1373	9015, 16657, 24299, 31941, 39583, 47225, 54867
anti-HIV_CD4bs_HeavyChain	1374	9016, 16658, 24300, 31942, 39584, 47226, 54868
anti-HIV_V2_HeavyChain	1375	9017, 16659, 24301, 31943, 39585, 47227, 54869
anti-HIV_V2_HeavyChain	1376	9018, 16660, 24302, 31944, 39586, 47228, 54870
anti-HIV_V2_HeavyChain	1377	9019, 16661, 24303, 31945, 39587, 47229, 54871
anti-HIV_V2_HeavyChain	1378	9020, 16662, 24304, 31946, 39588, 47230, 54872
anti-HIV_V2_HeavyChain	1379	9021, 16663, 24305, 31947, 39589, 47231, 54873

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_V2_HeavyChain	1380	9022, 16664, 24306, 31948, 39590, 47232, 54874
anti-HIV_V3_LightChain	1381	9023, 16665, 24307, 31949, 39591, 47233, 54875
anti-HIV_V3_LightChain	1382	9024, 16666, 24308, 31950, 39592, 47234, 54876
anti-HIV_V3_LightChain	1383	9025, 16667, 24309, 31951, 39593, 47235, 54877
anti-HIV_V3_LightChain	1384	9026, 16668, 24310, 31952, 39594, 47236, 54878
anti-HIV_V3_LightChain	1385	9027, 16669, 24311, 31953, 39595, 47237, 54879
anti-HIV_V3_LightChain	1386	9028, 16670, 24312, 31954, 39596, 47238, 54880
anti-HIV_V3_LightChain	1387	9029, 16671, 24313, 31955, 39597, 47239, 54881
anti-HIV_V3_LightChain	1388	9030, 16672, 24314, 31956, 39598, 47240, 54882
anti-HIV_V3_LightChain	1389	9031, 16673, 24315, 31957, 39599, 47241, 54883
anti-HIV_V3_LightChain	1390	9032, 16674, 24316, 31958, 39600, 47242, 54884
anti-HIV_V3_LightChain	1391	9033, 16675, 24317, 31959, 39601, 47243, 54885
anti-HIV_V3_LightChain	1392	9034, 16676, 24318, 31960, 39602, 47244, 54886
anti-HIV_V3_LightChain	1393	9035, 16677, 24319, 31961, 39603, 47245, 54887
anti-HIV_V3_LightChain	1394	9036, 16678, 24320, 31962, 39604, 47246, 54888
anti-HIV_V3_LightChain	1395	9037, 16679, 24321, 31963, 39605, 47247, 54889
anti-HIV_V3_LightChain	1396	9038, 16680, 24322, 31964, 39606, 47248, 54890
anti-HIV_V3_LightChain	1397	9039, 16681, 24323, 31965, 39607, 47249, 54891
anti-HIV_V3_LightChain	1398	9040, 16682, 24324, 31966, 39608, 47250, 54892
anti-HIV_V3_LightChain	1399	9041, 16683, 24325, 31967, 39609, 47251, 54893
anti-HIV_V3_LightChain	1400	9042, 16684, 24326, 31968, 39610, 47252, 54894
anti-HIV_V3_LightChain	1401	9043, 16685, 24327, 31969, 39611, 47253, 54895
anti-HIV_V3_LightChain	1402	9044, 16686, 24328, 31970, 39612, 47254, 54896
anti-HIV_V3_LightChain	1403	9045, 16687, 24329, 31971, 39613, 47255, 54897
anti-HIV_V3_LightChain	1404	9046, 16688, 24330, 31972, 39614, 47256, 54898
anti-HIV_V3_LightChain	1405	9047, 16689, 24331, 31973, 39615, 47257, 54899
anti-HIV_V3_LightChain	1406	9048, 16690, 24332, 31974, 39616, 47258, 54900
anti-HIV_V3_LightChain	1407	9049, 16691, 24333, 31975, 39617, 47259, 54901
anti-HIV_V3_LightChain	1408	9050, 16692, 24334, 31976, 39618, 47260, 54902
anti-HIV_V3_LightChain	1409	9051, 16693, 24335, 31977, 39619, 47261, 54903
anti-HIV_V3_LightChain	1410	9052, 16694, 24336, 31978, 39620, 47262, 54904
anti-HIV_CD4bs_LightChain	1411	9053, 16695, 24337, 31979, 39621, 47263, 54905
anti-HIV_CD4bs_LightChain	1412	9054, 16696, 24338, 31980, 39622, 47264, 54906

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_CD4bs_LightChain	1413	9055, 16697, 24339, 31981, 39623, 47265, 54907
anti-HIV_CD4bs_LightChain	1414	9056, 16698, 24340, 31982, 39624, 47266, 54908
anti-HIV_CD4bs_LightChain	1415	9057, 16699, 24341, 31983, 39625, 47267, 54909
anti-HIV_CD4bs_LightChain	1416	9058, 16700, 24342, 31984, 39626, 47268, 54910
anti-HIV_CD4bs_LightChain	1417	9059, 16701, 24343, 31985, 39627, 47269, 54911
anti-HIV_CD4bs_LightChain	1418	9060, 16702, 24344, 31986, 39628, 47270, 54912
anti-HIV_CD4bs_LightChain	1419	9061, 16703, 24345, 31987, 39629, 47271, 54913
anti-HIV_CD4bs_LightChain	1420	9062, 16704, 24346, 31988, 39630, 47272, 54914
anti-HIV_V2_LightChain	1421	9063, 16705, 24347, 31989, 39631, 47273, 54915
anti-HIV_V2_LightChain	1422	9064, 16706, 24348, 31990, 39632, 47274, 54916
anti-HIV_V2_LightChain	1423	9065, 16707, 24349, 31991, 39633, 47275, 54917
anti-HIV_V2_LightChain	1424	9066, 16708, 24350, 31992, 39634, 47276, 54918
anti-HIV_V2_LightChain	1425	9067, 16709, 24351, 31993, 39635, 47277, 54919
anti-HIV_V2_LightChain	1426	9068, 16710, 24352, 31994, 39636, 47278, 54920
anti-HIV_10E8	1427	9069, 16711, 24353, 31995, 39637, 47279, 54921
anti-HIV_10E8	1428	9070, 16712, 24354, 31996, 39638, 47280, 54922
anti-HIV_10E8	1429	9071, 16713, 24355, 31997, 39639, 47281, 54923
anti-HIV_10E8	1430	9072, 16714, 24356, 31998, 39640, 47282, 54924
anti-HIV_10E8	1431	9073, 16715, 24357, 31999, 39641, 47283, 54925
anti-HIV_10E8	1432	9074, 16716, 24358, 32000, 39642, 47284, 54926
anti-HIV_10E8	1433	9075, 16717, 24359, 32001, 39643, 47285, 54927
anti-HIV_10E8	1434	9076, 16718, 24360, 32002, 39644, 47286, 54928
anti-HIV_10E8	1435	9077, 16719, 24361, 32003, 39645, 47287, 54929
anti-HIV_10E8	1436	9078, 16720, 24362, 32004, 39646, 47288, 54930
anti-HIV_10E8	1437	9079, 16721, 24363, 32005, 39647, 47289, 54931
anti-HIV_10E8	1438	9080, 16722, 24364, 32006, 39648, 47290, 54932
anti-HIV_10E8	1439	9081, 16723, 24365, 32007, 39649, 47291, 54933
anti-HIV_10E8	1440	9082, 16724, 24366, 32008, 39650, 47292, 54934
anti-HIV_10E8	1441	9083, 16725, 24367, 32009, 39651, 47293, 54935
anti-HIV_10E8	1442	9084, 16726, 24368, 32010, 39652, 47294, 54936
anti-HIV_10E8	1443	9085, 16727, 24369, 32011, 39653, 47295, 54937
anti-HIV_10E8	1444	9086, 16728, 24370, 32012, 39654, 47296, 54938
anti-HIV_10E8	1445	9087, 16729, 24371, 32013, 39655, 47297, 54939

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_10E8	1446	9088, 16730, 24372, 32014, 39656, 47298, 54940
anti-HIV_10E8	1447	9089, 16731, 24373, 32015, 39657, 47299, 54941
anti-HIV_10E8	1448	9090, 16732, 24374, 32016, 39658, 47300, 54942
anti-HIV_10E8	1449	9091, 16733, 24375, 32017, 39659, 47301, 54943
anti-HIV_10E8	1450	9092, 16734, 24376, 32018, 39660, 47302, 54944
anti-HIV_10E8	1451	9093, 16735, 24377, 32019, 39661, 47303, 54945
anti-HIV_10E8	1452	9094, 16736, 24378, 32020, 39662, 47304, 54946
anti-HIV_10E8	1453	9095, 16737, 24379, 32021, 39663, 47305, 54947
anti-HIV_10E8	1454	9096, 16738, 24380, 32022, 39664, 47306, 54948
anti-HIV_10E8	1455	9097, 16739, 24381, 32023, 39665, 47307, 54949
anti-HIV_10E8	1456	9098, 16740, 24382, 32024, 39666, 47308, 54950
anti-HIV_10E8	1457	9099, 16741, 24383, 32025, 39667, 47309, 54951
anti-HIV_10E8	1458	9100, 16742, 24384, 32026, 39668, 47310, 54952
anti-HIV-1_LightChain	1459	9101, 16743, 24385, 32027, 39669, 47311, 54953
anti-HIV-1_LightChain	1460	9102, 16744, 24386, 32028, 39670, 47312, 54954
anti-HIV-1_LightChain	1461	9103, 16745, 24387, 32029, 39671, 47313, 54955
anti-HIV-1_LightChain	1462	9104, 16746, 24388, 32030, 39672, 47314, 54956
anti-HIV-1_LightChain	1463	9105, 16747, 24389, 32031, 39673, 47315, 54957
anti-HIV-1_LightChain	1464	9106, 16748, 24390, 32032, 39674, 47316, 54958
anti-HIV-1_LightChain	1465	9107, 16749, 24391, 32033, 39675, 47317, 54959
anti-HIV-1_LightChain	1466	9108, 16750, 24392, 32034, 39676, 47318, 54960
anti-HIV-1_LightChain	1467	9109, 16751, 24393, 32035, 39677, 47319, 54961
anti-HIV-1_LightChain	1468	9110, 16752, 24394, 32036, 39678, 47320, 54962
anti-HIV-1_LightChain	1469	9111, 16753, 24395, 32037, 39679, 47321, 54963
anti-HIV-1_LightChain	1470	9112, 16754, 24396, 32038, 39680, 47322, 54964
anti-HIV-1_LightChain	1471	9113, 16755, 24397, 32039, 39681, 47323, 54965
anti-HIV-1_LightChain	1472	9114, 16756, 24398, 32040, 39682, 47324, 54966
anti-HIV-1_LightChain	1473	9115, 16757, 24399, 32041, 39683, 47325, 54967
anti-HIV-1_LightChain	1474	9116, 16758, 24400, 32042, 39684, 47326, 54968
anti-HIV-1_LightChain	1475	9117, 16759, 24401, 32043, 39685, 47327, 54969
anti-HIV-1_LightChain	1476	9118, 16760, 24402, 32044, 39686, 47328, 54970
anti-HIV-1_LightChain	1477	9119, 16761, 24403, 32045, 39687, 47329, 54971
anti-HIV-1_LightChain	1478	9120, 16762, 24404, 32046, 39688, 47330, 54972

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_LightChain	1479	9121, 16763, 24405, 32047, 39689, 47331, 54973
anti-HIV-1_LightChain	1480	9122, 16764, 24406, 32048, 39690, 47332, 54974
anti-HIV-1_LightChain	1481	9123, 16765, 24407, 32049, 39691, 47333, 54975
anti-HIV-1_LightChain	1482	9124, 16766, 24408, 32050, 39692, 47334, 54976
anti-HIV-1_LightChain	1483	9125, 16767, 24409, 32051, 39693, 47335, 54977
anti-HIV-1_LightChain	1484	9126, 16768, 24410, 32052, 39694, 47336, 54978
anti-HIV-1_LightChain	1485	9127, 16769, 24411, 32053, 39695, 47337, 54979
anti-HIV-1_LightChain	1486	9128, 16770, 24412, 32054, 39696, 47338, 54980
anti-HIV-1_LightChain	1487	9129, 16771, 24413, 32055, 39697, 47339, 54981
anti-HIV-1_LightChain	1488	9130, 16772, 24414, 32056, 39698, 47340, 54982
anti-HIV-1_LightChain	1489	9131, 16773, 24415, 32057, 39699, 47341, 54983
anti-HIV-1_LightChain	1490	9132, 16774, 24416, 32058, 39700, 47342, 54984
anti-HIV-1_LightChain	1491	9133, 16775, 24417, 32059, 39701, 47343, 54985
anti-HIV-1_LightChain	1492	9134, 16776, 24418, 32060, 39702, 47344, 54986
anti-HIV-1_LightChain	1493	9135, 16777, 24419, 32061, 39703, 47345, 54987
anti-HIV-1_LightChain	1494	9136, 16778, 24420, 32062, 39704, 47346, 54988
anti-HIV-1_LightChain	1495	9137, 16779, 24421, 32063, 39705, 47347, 54989
anti-HIV-1_LightChain	1496	9138, 16780, 24422, 32064, 39706, 47348, 54990
anti-HIV-1_LightChain	1497	9139, 16781, 24423, 32065, 39707, 47349, 54991
anti-HIV-1_LightChain	1498	9140, 16782, 24424, 32066, 39708, 47350, 54992
anti-HIV-1_LightChain	1499	9141, 16783, 24425, 32067, 39709, 47351, 54993
anti-HIV-1_LightChain	1500	9142, 16784, 24426, 32068, 39710, 47352, 54994
anti-HIV-1_LightChain	1501	9143, 16785, 24427, 32069, 39711, 47353, 54995
anti-HIV-1_LightChain	1502	9144, 16786, 24428, 32070, 39712, 47354, 54996
anti-HIV-1_LightChain	1503	9145, 16787, 24429, 32071, 39713, 47355, 54997
anti-HIV-1_LightChain	1504	9146, 16788, 24430, 32072, 39714, 47356, 54998
anti-HIV-1_LightChain	1505	9147, 16789, 24431, 32073, 39715, 47357, 54999
anti-HIV-1_LightChain	1506	9148, 16790, 24432, 32074, 39716, 47358, 55000
anti-HIV-1_LightChain	1507	9149, 16791, 24433, 32075, 39717, 47359, 55001
anti-HIV-1_LightChain	1508	9150, 16792, 24434, 32076, 39718, 47360, 55002
anti-HIV-1_LightChain	1509	9151, 16793, 24435, 32077, 39719, 47361, 55003
anti-HIV-1_LightChain	1510	9152, 16794, 24436, 32078, 39720, 47362, 55004
anti-HIV-1_LightChain	1511	9153, 16795, 24437, 32079, 39721, 47363, 55005

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_LightChain	1512	9154, 16796, 24438, 32080, 39722, 47364, 55006
anti-HIV-1_LightChain	1513	9155, 16797, 24439, 32081, 39723, 47365, 55007
anti-HIV-1_LightChain	1514	9156, 16798, 24440, 32082, 39724, 47366, 55008
anti-HIV-1_LightChain	1515	9157, 16799, 24441, 32083, 39725, 47367, 55009
anti-HIV-1_LightChain	1516	9158, 16800, 24442, 32084, 39726, 47368, 55010
anti-HIV-1_LightChain	1517	9159, 16801, 24443, 32085, 39727, 47369, 55011
anti-HIV-1_LightChain	1518	9160, 16802, 24444, 32086, 39728, 47370, 55012
anti-HIV-1_LightChain	1519	9161, 16803, 24445, 32087, 39729, 47371, 55013
anti-HIV-1_LightChain	1520	9162, 16804, 24446, 32088, 39730, 47372, 55014
anti-HIV-1_LightChain	1521	9163, 16805, 24447, 32089, 39731, 47373, 55015
anti-HIV-1_LightChain	1522	9164, 16806, 24448, 32090, 39732, 47374, 55016
anti-HIV-1_LightChain	1523	9165, 16807, 24449, 32091, 39733, 47375, 55017
anti-HIV-1_LightChain	1524	9166, 16808, 24450, 32092, 39734, 47376, 55018
anti-HIV-1_LightChain	1525	9167, 16809, 24451, 32093, 39735, 47377, 55019
anti-HIV-1_LightChain	1526	9168, 16810, 24452, 32094, 39736, 47378, 55020
anti-HIV-1_LightChain	1527	9169, 16811, 24453, 32095, 39737, 47379, 55021
anti-HIV-1_LightChain	1528	9170, 16812, 24454, 32096, 39738, 47380, 55022
anti-HIV-1_LightChain	1529	9171, 16813, 24455, 32097, 39739, 47381, 55023
anti-HIV-1_LightChain	1530	9172, 16814, 24456, 32098, 39740, 47382, 55024
anti-HIV-1_LightChain	1531	9173, 16815, 24457, 32099, 39741, 47383, 55025
anti-HIV-1_LightChain	1532	9174, 16816, 24458, 32100, 39742, 47384, 55026
anti-HIV-1_LightChain	1533	9175, 16817, 24459, 32101, 39743, 47385, 55027
anti-HIV-1_LightChain	1534	9176, 16818, 24460, 32102, 39744, 47386, 55028
anti-HIV-1_LightChain	1535	9177, 16819, 24461, 32103, 39745, 47387, 55029
anti-HIV-1_LightChain	1536	9178, 16820, 24462, 32104, 39746, 47388, 55030
anti-HIV-1_LightChain	1537	9179, 16821, 24463, 32105, 39747, 47389, 55031
anti-HIV-1_LightChain	1538	9180, 16822, 24464, 32106, 39748, 47390, 55032
anti-HIV-1_LightChain	1539	9181, 16823, 24465, 32107, 39749, 47391, 55033
anti-HIV-1_LightChain	1540	9182, 16824, 24466, 32108, 39750, 47392, 55034
anti-HIV-1_LightChain	1541	9183, 16825, 24467, 32109, 39751, 47393, 55035
anti-HIV-1_LightChain	1542	9184, 16826, 24468, 32110, 39752, 47394, 55036
anti-HIV-1_LightChain	1543	9185, 16827, 24469, 32111, 39753, 47395, 55037
anti-HIV-1_LightChain	1544	9186, 16828, 24470, 32112, 39754, 47396, 55038

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_LightChain	1545	9187, 16829, 24471, 32113, 39755, 47397, 55039
anti-HIV-1_LightChain	1546	9188, 16830, 24472, 32114, 39756, 47398, 55040
anti-HIV-1_LightChain	1547	9189, 16831, 24473, 32115, 39757, 47399, 55041
anti-HIV-1_LightChain	1548	9190, 16832, 24474, 32116, 39758, 47400, 55042
anti-HIV-1_LightChain	1549	9191, 16833, 24475, 32117, 39759, 47401, 55043
anti-HIV-1_LightChain	1550	9192, 16834, 24476, 32118, 39760, 47402, 55044
anti-HIV-1_LightChain	1551	9193, 16835, 24477, 32119, 39761, 47403, 55045
anti-HIV-1_LightChain	1552	9194, 16836, 24478, 32120, 39762, 47404, 55046
anti-HIV-1_LightChain	1553	9195, 16837, 24479, 32121, 39763, 47405, 55047
anti-HIV-1_LightChain	1554	9196, 16838, 24480, 32122, 39764, 47406, 55048
anti-HIV-1_LightChain	1555	9197, 16839, 24481, 32123, 39765, 47407, 55049
anti-HIV-1_LightChain	1556	9198, 16840, 24482, 32124, 39766, 47408, 55050
anti-HIV-1_LightChain	1557	9199, 16841, 24483, 32125, 39767, 47409, 55051
anti-HIV-1_LightChain	1558	9200, 16842, 24484, 32126, 39768, 47410, 55052
anti-HIV-1_LightChain	1559	9201, 16843, 24485, 32127, 39769, 47411, 55053
anti-HIV-1_LightChain	1560	9202, 16844, 24486, 32128, 39770, 47412, 55054
anti-HIV-1_LightChain	1561	9203, 16845, 24487, 32129, 39771, 47413, 55055
anti-HIV-1_LightChain	1562	9204, 16846, 24488, 32130, 39772, 47414, 55056
anti-HIV-1_LightChain	1563	9205, 16847, 24489, 32131, 39773, 47415, 55057
anti-HIV-1_LightChain	1564	9206, 16848, 24490, 32132, 39774, 47416, 55058
anti-HIV-1_LightChain	1565	9207, 16849, 24491, 32133, 39775, 47417, 55059
anti-HIV-1_LightChain	1566	9208, 16850, 24492, 32134, 39776, 47418, 55060
anti-HIV-1_LightChain	1567	9209, 16851, 24493, 32135, 39777, 47419, 55061
anti-HIV-1_LightChain	1568	9210, 16852, 24494, 32136, 39778, 47420, 55062
anti-HIV-1_LightChain	1569	9211, 16853, 24495, 32137, 39779, 47421, 55063
anti-HIV-1_LightChain	1570	9212, 16854, 24496, 32138, 39780, 47422, 55064
anti-HIV-1_LightChain	1571	9213, 16855, 24497, 32139, 39781, 47423, 55065
anti-HIV-1_LightChain	1572	9214, 16856, 24498, 32140, 39782, 47424, 55066
anti-HIV-1_LightChain	1573	9215, 16857, 24499, 32141, 39783, 47425, 55067
anti-HIV-1_LightChain	1574	9216, 16858, 24500, 32142, 39784, 47426, 55068
anti-HIV-1_LightChain	1575	9217, 16859, 24501, 32143, 39785, 47427, 55069
anti-HIV-1_LightChain	1576	9218, 16860, 24502, 32144, 39786, 47428, 55070
anti-HIV-1_LightChain	1577	9219, 16861, 24503, 32145, 39787, 47429, 55071

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_LightChain	1578	9220, 16862, 24504, 32146, 39788, 47430, 55072
anti-HIV-1_LightChain	1579	9221, 16863, 24505, 32147, 39789, 47431, 55073
anti-HIV-1_LightChain	1580	9222, 16864, 24506, 32148, 39790, 47432, 55074
anti-HIV-1_LightChain	1581	9223, 16865, 24507, 32149, 39791, 47433, 55075
anti-HIV-1_LightChain	1582	9224, 16866, 24508, 32150, 39792, 47434, 55076
anti-HIV-1_LightChain	1583	9225, 16867, 24509, 32151, 39793, 47435, 55077
anti-HIV-1_LightChain	1584	9226, 16868, 24510, 32152, 39794, 47436, 55078
anti-HIV-1_LightChain	1585	9227, 16869, 24511, 32153, 39795, 47437, 55079
anti-HIV-1_LightChain	1586	9228, 16870, 24512, 32154, 39796, 47438, 55080
anti-HIV-1_LightChain	1587	9229, 16871, 24513, 32155, 39797, 47439, 55081
anti-HIV-1_LightChain	1588	9230, 16872, 24514, 32156, 39798, 47440, 55082
anti-HIV-1_LightChain	1589	9231, 16873, 24515, 32157, 39799, 47441, 55083
anti-HIV-1_LightChain	1590	9232, 16874, 24516, 32158, 39800, 47442, 55084
anti-HIV-1_LightChain	1591	9233, 16875, 24517, 32159, 39801, 47443, 55085
anti-HIV-1_LightChain	1592	9234, 16876, 24518, 32160, 39802, 47444, 55086
anti-HIV-1_LightChain	1593	9235, 16877, 24519, 32161, 39803, 47445, 55087
anti-HIV-1_LightChain	1594	9236, 16878, 24520, 32162, 39804, 47446, 55088
anti-HIV-1_LightChain	1595	9237, 16879, 24521, 32163, 39805, 47447, 55089
anti-HIV-1_LightChain	1596	9238, 16880, 24522, 32164, 39806, 47448, 55090
anti-HIV-1_LightChain	1597	9239, 16881, 24523, 32165, 39807, 47449, 55091
anti-HIV-1_LightChain	1598	9240, 16882, 24524, 32166, 39808, 47450, 55092
anti-HIV-1_LightChain	1599	9241, 16883, 24525, 32167, 39809, 47451, 55093
anti-HIV-1_LightChain	1600	9242, 16884, 24526, 32168, 39810, 47452, 55094
anti-HIV-1_LightChain	1601	9243, 16885, 24527, 32169, 39811, 47453, 55095
anti-HIV-1_LightChain	1602	9244, 16886, 24528, 32170, 39812, 47454, 55096
anti-HIV-1_LightChain	1603	9245, 16887, 24529, 32171, 39813, 47455, 55097
anti-HIV-1_LightChain	1604	9246, 16888, 24530, 32172, 39814, 47456, 55098
anti-HIV-1_LightChain	1605	9247, 16889, 24531, 32173, 39815, 47457, 55099
anti-HIV-1_LightChain	1606	9248, 16890, 24532, 32174, 39816, 47458, 55100
anti-HIV-1_LightChain	1607	9249, 16891, 24533, 32175, 39817, 47459, 55101
anti-HIV-1_LightChain	1608	9250, 16892, 24534, 32176, 39818, 47460, 55102
anti-HIV-1_HeavyChain	1609	9251, 16893, 24535, 32177, 39819, 47461, 55103
anti-HIV-1_HeavyChain	1610	9252, 16894, 24536, 32178, 39820, 47462, 55104

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	1611	9253, 16895, 24537, 32179, 39821, 47463, 55105
anti-HIV-1_HeavyChain	1612	9254, 16896, 24538, 32180, 39822, 47464, 55106
anti-HIV-1_HeavyChain	1613	9255, 16897, 24539, 32181, 39823, 47465, 55107
anti-HIV-1_HeavyChain	1614	9256, 16898, 24540, 32182, 39824, 47466, 55108
anti-HIV-1_HeavyChain	1615	9257, 16899, 24541, 32183, 39825, 47467, 55109
anti-HIV-1_HeavyChain	1616	9258, 16900, 24542, 32184, 39826, 47468, 55110
anti-HIV-1_HeavyChain	1617	9259, 16901, 24543, 32185, 39827, 47469, 55111
anti-HIV-1_HeavyChain	1618	9260, 16902, 24544, 32186, 39828, 47470, 55112
anti-HIV-1_HeavyChain	1619	9261, 16903, 24545, 32187, 39829, 47471, 55113
anti-HIV-1_HeavyChain	1620	9262, 16904, 24546, 32188, 39830, 47472, 55114
anti-HIV-1_HeavyChain	1621	9263, 16905, 24547, 32189, 39831, 47473, 55115
anti-HIV-1_HeavyChain	1622	9264, 16906, 24548, 32190, 39832, 47474, 55116
anti-HIV-1_HeavyChain	1623	9265, 16907, 24549, 32191, 39833, 47475, 55117
anti-HIV-1_HeavyChain	1624	9266, 16908, 24550, 32192, 39834, 47476, 55118
anti-HIV-1_HeavyChain	1625	9267, 16909, 24551, 32193, 39835, 47477, 55119
anti-HIV-1_HeavyChain	1626	9268, 16910, 24552, 32194, 39836, 47478, 55120
anti-HIV-1_HeavyChain	1627	9269, 16911, 24553, 32195, 39837, 47479, 55121
anti-HIV-1_HeavyChain	1628	9270, 16912, 24554, 32196, 39838, 47480, 55122
anti-HIV-1_HeavyChain	1629	9271, 16913, 24555, 32197, 39839, 47481, 55123
anti-HIV-1_HeavyChain	1630	9272, 16914, 24556, 32198, 39840, 47482, 55124
anti-HIV-1_HeavyChain	1631	9273, 16915, 24557, 32199, 39841, 47483, 55125
anti-HIV-1_HeavyChain	1632	9274, 16916, 24558, 32200, 39842, 47484, 55126
anti-HIV-1_HeavyChain	1633	9275, 16917, 24559, 32201, 39843, 47485, 55127
anti-HIV-1_HeavyChain	1634	9276, 16918, 24560, 32202, 39844, 47486, 55128
anti-HIV-1_HeavyChain	1635	9277, 16919, 24561, 32203, 39845, 47487, 55129
anti-HIV-1_HeavyChain	1636	9278, 16920, 24562, 32204, 39846, 47488, 55130
anti-HIV-1_HeavyChain	1637	9279, 16921, 24563, 32205, 39847, 47489, 55131
anti-HIV-1_HeavyChain	1638	9280, 16922, 24564, 32206, 39848, 47490, 55132
anti-HIV-1_HeavyChain	1639	9281, 16923, 24565, 32207, 39849, 47491, 55133
anti-HIV-1_HeavyChain	1640	9282, 16924, 24566, 32208, 39850, 47492, 55134
anti-HIV-1_HeavyChain	1641	9283, 16925, 24567, 32209, 39851, 47493, 55135
anti-HIV-1_HeavyChain	1642	9284, 16926, 24568, 32210, 39852, 47494, 55136
anti-HIV-1_HeavyChain	1643	9285, 16927, 24569, 32211, 39853, 47495, 55137

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	1644	9286, 16928, 24570, 32212, 39854, 47496, 55138
anti-HIV-1_HeavyChain	1645	9287, 16929, 24571, 32213, 39855, 47497, 55139
anti-HIV-1_HeavyChain	1646	9288, 16930, 24572, 32214, 39856, 47498, 55140
anti-HIV-1_HeavyChain	1647	9289, 16931, 24573, 32215, 39857, 47499, 55141
anti-HIV-1_HeavyChain	1648	9290, 16932, 24574, 32216, 39858, 47500, 55142
anti-HIV-1_HeavyChain	1649	9291, 16933, 24575, 32217, 39859, 47501, 55143
anti-HIV-1_HeavyChain	1650	9292, 16934, 24576, 32218, 39860, 47502, 55144
anti-HIV-1_HeavyChain	1651	9293, 16935, 24577, 32219, 39861, 47503, 55145
anti-HIV-1_HeavyChain	1652	9294, 16936, 24578, 32220, 39862, 47504, 55146
anti-HIV-1_HeavyChain	1653	9295, 16937, 24579, 32221, 39863, 47505, 55147
anti-HIV-1_HeavyChain	1654	9296, 16938, 24580, 32222, 39864, 47506, 55148
anti-HIV-1_HeavyChain	1655	9297, 16939, 24581, 32223, 39865, 47507, 55149
anti-HIV_C38-VRC18.02_HeavyChain	1656	9298, 16940, 24582, 32224, 39866, 47508, 55150
anti-HIV_44-VRC13.02_HeavyChain	1657	9299, 16941, 24583, 32225, 39867, 47509, 55151
anti-HIV-1_LightChain	1658	9300, 16942, 24584, 32226, 39868, 47510, 55152
anti-HIV-1_LightChain	1659	9301, 16943, 24585, 32227, 39869, 47511, 55153
anti-HIV-1_LightChain	1660	9302, 16944, 24586, 32228, 39870, 47512, 55154
anti-HIV-1_LightChain	1661	9303, 16945, 24587, 32229, 39871, 47513, 55155
anti-HIV-1_LightChain	1662	9304, 16946, 24588, 32230, 39872, 47514, 55156
anti-HIV-1_LightChain	1663	9305, 16947, 24589, 32231, 39873, 47515, 55157
anti-HIV-1_LightChain	1664	9306, 16948, 24590, 32232, 39874, 47516, 55158
anti-HIV-1_HeavyChain	1665	9307, 16949, 24591, 32233, 39875, 47517, 55159
anti-HIV-1_HeavyChain	1666	9308, 16950, 24592, 32234, 39876, 47518, 55160
anti-HIV-1_HeavyChain	1667	9309, 16951, 24593, 32235, 39877, 47519, 55161
anti-HIV-1_HeavyChain	1668	9310, 16952, 24594, 32236, 39878, 47520, 55162
anti-HIV-1_HeavyChain	1669	9311, 16953, 24595, 32237, 39879, 47521, 55163
anti-HIV-1_HeavyChain	1670	9312, 16954, 24596, 32238, 39880, 47522, 55164
anti-HIV-1_HeavyChain	1671	9313, 16955, 24597, 32239, 39881, 47523, 55165
anti-HIV_45_LightChain	1672	9314, 16956, 24598, 32240, 39882, 47524, 55166
anti-HIV_45_LightChain	1673	9315, 16957, 24599, 32241, 39883, 47525, 55167
anti-HIV_45_LightChain	1674	9316, 16958, 24600, 32242, 39884, 47526, 55168
anti-HIV_45_HeavyChain	1675	9317, 16959, 24601, 32243, 39885, 47527, 55169
anti-HIV_45_HeavyChain	1676	9318, 16960, 24602, 32244, 39886, 47528, 55170

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_45_HeavyChain	1677	9319, 16961, 24603, 32245, 39887, 47529, 55171
anti-HIV_cap256-206-252885_VR-Chain	1678	9320, 16962, 24604, 32246, 39888, 47530, 55172
anti-HIV_cap256-206-249183_VR-Chain	1679	9321, 16963, 24605, 32247, 39889, 47531, 55173
anti-HIV_cap256-206-220956_VR-Chain	1680	9322, 16964, 24606, 32248, 39890, 47532, 55174
anti-HIV_cap256-206-220629_VR-Chain	1681	9323, 16965, 24607, 32249, 39891, 47533, 55175
anti-HIV_cap256-206-200599_VR-Chain	1682	9324, 16966, 24608, 32250, 39892, 47534, 55176
anti-HIV_cap256-206-186347_VR-Chain	1683	9325, 16967, 24609, 32251, 39893, 47535, 55177
anti-HIV_cap256-206-186226_VR-Chain	1684	9326, 16968, 24610, 32252, 39894, 47536, 55178
anti-HIV_cap256-206-179686_VR-Chain	1685	9327, 16969, 24611, 32253, 39895, 47537, 55179
anti-HIV_cap256-206-173707_VR-Chain	1686	9328, 16970, 24612, 32254, 39896, 47538, 55180
anti-HIV_cap256-206-173339_VR-Chain	1687	9329, 16971, 24613, 32255, 39897, 47539, 55181
anti-HIV_cap256-206-172689_VR-Chain	1688	9330, 16972, 24614, 32256, 39898, 47540, 55182
anti-HIV_cap256-206-162744_VR-Chain	1689	9331, 16973, 24615, 32257, 39899, 47541, 55183
anti-HIV_cap256-206-146057_VR-Chain	1690	9332, 16974, 24616, 32258, 39900, 47542, 55184
anti-HIV_cap256-206-139519_VR-Chain	1691	9333, 16975, 24617, 32259, 39901, 47543, 55185
anti-HIV_cap256-206-136316_VR-Chain	1692	9334, 16976, 24618, 32260, 39902, 47544, 55186
anti-HIV_cap256-206-116098_VR-Chain	1693	9335, 16977, 24619, 32261, 39903, 47545, 55187
anti-HIV_cap256-206-115862_VR-Chain	1694	9336, 16978, 24620, 32262, 39904, 47546, 55188
anti-HIV_cap256-206-107018_VR-Chain	1695	9337, 16979, 24621, 32263, 39905, 47547, 55189
anti-HIV_cap256-206-098644_VR-Chain	1696	9338, 16980, 24622, 32264, 39906, 47548, 55190
anti-HIV_cap256-206-098135_VR-Chain	1697	9339, 16981, 24623, 32265, 39907, 47549, 55191
anti-HIV_cap256-206-096276_VR-Chain	1698	9340, 16982, 24624, 32266, 39908, 47550, 55192
anti-HIV_cap256-206-092794_VR-Chain	1699	9341, 16983, 24625, 32267, 39909, 47551, 55193
anti-HIV_cap256-206-086817_VR-Chain	1700	9342, 16984, 24626, 32268, 39910, 47552, 55194
anti-HIV_cap256-206-086446_VR-Chain	1701	9343, 16985, 24627, 32269, 39911, 47553, 55195
anti-HIV_cap256-206-086180_VR-Chain	1702	9344, 16986, 24628, 32270, 39912, 47554, 55196
anti-HIV_cap256-206-083708_VR-Chain	1703	9345, 16987, 24629, 32271, 39913, 47555, 55197
anti-HIV_cap256-206-079556_VR-Chain	1704	9346, 16988, 24630, 32272, 39914, 47556, 55198
anti-HIV_cap256-206-078657_VR-Chain	1705	9347, 16989, 24631, 32273, 39915, 47557, 55199
anti-HIV_cap256-206-075802_VR-Chain	1706	9348, 16990, 24632, 32274, 39916, 47558, 55200
anti-HIV_cap256-206-069097_VR-Chain	1707	9349, 16991, 24633, 32275, 39917, 47559, 55201
anti-HIV_cap256-206-067758_VR-Chain	1708	9350, 16992, 24634, 32276, 39918, 47560, 55202
anti-HIV_cap256-206-057019_VR-Chain	1709	9351, 16993, 24635, 32277, 39919, 47561, 55203

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-206-055385_VR-Chain	1710	9352, 16994, 24636, 32278, 39920, 47562, 55204
anti-HIV_cap256-206-053187_VR-Chain	1711	9353, 16995, 24637, 32279, 39921, 47563, 55205
anti-HIV_cap256-206-053139_VR-Chain	1712	9354, 16996, 24638, 32280, 39922, 47564, 55206
anti-HIV_cap256-206-050350_VR-Chain	1713	9355, 16997, 24639, 32281, 39923, 47565, 55207
anti-HIV_cap256-206-046207_VR-Chain	1714	9356, 16998, 24640, 32282, 39924, 47566, 55208
anti-HIV_cap256-206-043389_VR-Chain	1715	9357, 16999, 24641, 32283, 39925, 47567, 55209
anti-HIV_cap256-206-042555_VR-Chain	1716	9358, 17000, 24642, 32284, 39926, 47568, 55210
anti-HIV_cap256-206-029720_VR-Chain	1717	9359, 17001, 24643, 32285, 39927, 47569, 55211
anti-HIV_cap256-206-028848_VR-Chain	1718	9360, 17002, 24644, 32286, 39928, 47570, 55212
anti-HIV_cap256-206-027652_VR-Chain	1719	9361, 17003, 24645, 32287, 39929, 47571, 55213
anti-HIV_cap256-206-024075_VR-Chain	1720	9362, 17004, 24646, 32288, 39930, 47572, 55214
anti-HIV_cap256-206-008748_VR-Chain	1721	9363, 17005, 24647, 32289, 39931, 47573, 55215
anti-HIV_cap256-206-008530_VR-Chain	1722	9364, 17006, 24648, 32290, 39932, 47574, 55216
anti-HIV_cap256-176-723043_VR-Chain	1723	9365, 17007, 24649, 32291, 39933, 47575, 55217
anti-HIV_cap256-176-600049_VR-Chain	1724	9366, 17008, 24650, 32292, 39934, 47576, 55218
anti-HIV_cap256-176-531926_VR-Chain	1725	9367, 17009, 24651, 32293, 39935, 47577, 55219
anti-HIV_cap256-176-504134_VR-Chain	1726	9368, 17010, 24652, 32294, 39936, 47578, 55220
anti-HIV_cap256-119-186229_VR-Chain	1727	9369, 17011, 24653, 32295, 39937, 47579, 55221
anti-HIV_cap256-119-183891_VR-Chain	1728	9370, 17012, 24654, 32296, 39938, 47580, 55222
anti-HIV_cap256-119-183631_VR-Chain	1729	9371, 17013, 24655, 32297, 39939, 47581, 55223
anti-HIV_cap256-119-182676_VR-Chain	1730	9372, 17014, 24656, 32298, 39940, 47582, 55224
anti-HIV_cap256-119-180772_VR-Chain	1731	9373, 17015, 24657, 32299, 39941, 47583, 55225
anti-HIV_cap256-119-180508_VR-Chain	1732	9374, 17016, 24658, 32300, 39942, 47584, 55226
anti-HIV_cap256-119-180260_VR-Chain	1733	9375, 17017, 24659, 32301, 39943, 47585, 55227
anti-HIV_cap256-119-180173_VR-Chain	1734	9376, 17018, 24660, 32302, 39944, 47586, 55228
anti-HIV_cap256-119-179839_VR-Chain	1735	9377, 17019, 24661, 32303, 39945, 47587, 55229
anti-HIV_cap256-119-179262_VR-Chain	1736	9378, 17020, 24662, 32304, 39946, 47588, 55230
anti-HIV_cap256-119-178995_VR-Chain	1737	9379, 17021, 24663, 32305, 39947, 47589, 55231
anti-HIV_cap256-119-178455_VR-Chain	1738	9380, 17022, 24664, 32306, 39948, 47590, 55232
anti-HIV_cap256-119-177993_VR-Chain	1739	9381, 17023, 24665, 32307, 39949, 47591, 55233
anti-HIV_cap256-119-177727_VR-Chain	1740	9382, 17024, 24666, 32308, 39950, 47592, 55234
anti-HIV_cap256-119-176746_VR-Chain	1741	9383, 17025, 24667, 32309, 39951, 47593, 55235
anti-HIV_cap256-119-176241_VR-Chain	1742	9384, 17026, 24668, 32310, 39952, 47594, 55236

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-119-175215_VR-Chain	1743	9385, 17027, 24669, 32311, 39953, 47595, 55237
anti-HIV_cap256-119-173928_VR-Chain	1744	9386, 17028, 24670, 32312, 39954, 47596, 55238
anti-HIV_cap256-119-173495_VR-Chain	1745	9387, 17029, 24671, 32313, 39955, 47597, 55239
anti-HIV_cap256-119-172882_VR-Chain	1746	9388, 17030, 24672, 32314, 39956, 47598, 55240
anti-HIV_cap256-119-172429_VR-Chain	1747	9389, 17031, 24673, 32315, 39957, 47599, 55241
anti-HIV_cap256-119-172223_VR-Chain	1748	9390, 17032, 24674, 32316, 39958, 47600, 55242
anti-HIV_cap256-119-171838_VR-Chain	1749	9391, 17033, 24675, 32317, 39959, 47601, 55243
anti-HIV_cap256-119-171587_VR-Chain	1750	9392, 17034, 24676, 32318, 39960, 47602, 55244
anti-HIV_cap256-119-169596_VR-Chain	1751	9393, 17035, 24677, 32319, 39961, 47603, 55245
anti-HIV_cap256-119-169523_VR-Chain	1752	9394, 17036, 24678, 32320, 39962, 47604, 55246
anti-HIV_cap256-119-169462_VR-Chain	1753	9395, 17037, 24679, 32321, 39963, 47605, 55247
anti-HIV_cap256-119-169092_VR-Chain	1754	9396, 17038, 24680, 32322, 39964, 47606, 55248
anti-HIV_cap256-119-168680_VR-Chain	1755	9397, 17039, 24681, 32323, 39965, 47607, 55249
anti-HIV_cap256-119-166385_VR-Chain	1756	9398, 17040, 24682, 32324, 39966, 47608, 55250
anti-HIV_cap256-119-165943_VR-Chain	1757	9399, 17041, 24683, 32325, 39967, 47609, 55251
anti-HIV_cap256-119-165738_VR-Chain	1758	9400, 17042, 24684, 32326, 39968, 47610, 55252
anti-HIV_cap256-119-164913_VR-Chain	1759	9401, 17043, 24685, 32327, 39969, 47611, 55253
anti-HIV_cap256-119-164167_VR-Chain	1760	9402, 17044, 24686, 32328, 39970, 47612, 55254
anti-HIV_cap256-119-163558_VR-Chain	1761	9403, 17045, 24687, 32329, 39971, 47613, 55255
anti-HIV_cap256-119-162043_VR-Chain	1762	9404, 17046, 24688, 32330, 39972, 47614, 55256
anti-HIV_cap256-119-161718_VR-Chain	1763	9405, 17047, 24689, 32331, 39973, 47615, 55257
anti-HIV_cap256-119-161675_VR-Chain	1764	9406, 17048, 24690, 32332, 39974, 47616, 55258
anti-HIV_cap256-119-161053_VR-Chain	1765	9407, 17049, 24691, 32333, 39975, 47617, 55259
anti-HIV_cap256-119-159499_VR-Chain	1766	9408, 17050, 24692, 32334, 39976, 47618, 55260
anti-HIV_cap256-119-159114_VR-Chain	1767	9409, 17051, 24693, 32335, 39977, 47619, 55261
anti-HIV_cap256-119-156751_VR-Chain	1768	9410, 17052, 24694, 32336, 39978, 47620, 55262
anti-HIV_cap256-119-155656_VR-Chain	1769	9411, 17053, 24695, 32337, 39979, 47621, 55263
anti-HIV_cap256-119-154420_VR-Chain	1770	9412, 17054, 24696, 32338, 39980, 47622, 55264
anti-HIV_cap256-119-153954_VR-Chain	1771	9413, 17055, 24697, 32339, 39981, 47623, 55265
anti-HIV_cap256-119-153864_VR-Chain	1772	9414, 17056, 24698, 32340, 39982, 47624, 55266
anti-HIV_cap256-119-153793_VR-Chain	1773	9415, 17057, 24699, 32341, 39983, 47625, 55267
anti-HIV_cap256-119-153462_VR-Chain	1774	9416, 17058, 24700, 32342, 39984, 47626, 55268
anti-HIV_cap256-119-153124_VR-Chain	1775	9417, 17059, 24701, 32343, 39985, 47627, 55269

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-119-153025_VR-Chain	1776	9418, 17060, 24702, 32344, 39986, 47628, 55270
anti-HIV_cap256-119-152713_VR-Chain	1777	9419, 17061, 24703, 32345, 39987, 47629, 55271
anti-HIV_cap256-119-151794_VR-Chain	1778	9420, 17062, 24704, 32346, 39988, 47630, 55272
anti-HIV_cap256-119-150980_VR-Chain	1779	9421, 17063, 24705, 32347, 39989, 47631, 55273
anti-HIV_cap256-119-148895_VR-Chain	1780	9422, 17064, 24706, 32348, 39990, 47632, 55274
anti-HIV_cap256-119-148848_VR-Chain	1781	9423, 17065, 24707, 32349, 39991, 47633, 55275
anti-HIV_cap256-119-148743_VR-Chain	1782	9424, 17066, 24708, 32350, 39992, 47634, 55276
anti-HIV_cap256-119-148595_VR-Chain	1783	9425, 17067, 24709, 32351, 39993, 47635, 55277
anti-HIV_cap256-119-148490_VR-Chain	1784	9426, 17068, 24710, 32352, 39994, 47636, 55278
anti-HIV_cap256-119-148470_VR-Chain	1785	9427, 17069, 24711, 32353, 39995, 47637, 55279
anti-HIV_cap256-119-148107_VR-Chain	1786	9428, 17070, 24712, 32354, 39996, 47638, 55280
anti-HIV_cap256-119-147933_VR-Chain	1787	9429, 17071, 24713, 32355, 39997, 47639, 55281
anti-HIV_cap256-119-147434_VR-Chain	1788	9430, 17072, 24714, 32356, 39998, 47640, 55282
anti-HIV_cap256-119-146106_VR-Chain	1789	9431, 17073, 24715, 32357, 39999, 47641, 55283
anti-HIV_cap256-119-145604_VR-Chain	1790	9432, 17074, 24716, 32358, 40000, 47642, 55284
anti-HIV_cap256-119-143998_VR-Chain	1791	9433, 17075, 24717, 32359, 40001, 47643, 55285
anti-HIV_cap256-119-143441_VR-Chain	1792	9434, 17076, 24718, 32360, 40002, 47644, 55286
anti-HIV_cap256-119-141307_VR-Chain	1793	9435, 17077, 24719, 32361, 40003, 47645, 55287
anti-HIV_cap256-119-140896_VR-Chain	1794	9436, 17078, 24720, 32362, 40004, 47646, 55288
anti-HIV_cap256-119-140090_VR-Chain	1795	9437, 17079, 24721, 32363, 40005, 47647, 55289
anti-HIV_cap256-119-140037_VR-Chain	1796	9438, 17080, 24722, 32364, 40006, 47648, 55290
anti-HIV_cap256-119-139135_VR-Chain	1797	9439, 17081, 24723, 32365, 40007, 47649, 55291
anti-HIV_cap256-119-137881_VR-Chain	1798	9440, 17082, 24724, 32366, 40008, 47650, 55292
anti-HIV_cap256-119-137643_VR-Chain	1799	9441, 17083, 24725, 32367, 40009, 47651, 55293
anti-HIV_cap256-119-137170_VR-Chain	1800	9442, 17084, 24726, 32368, 40010, 47652, 55294
anti-HIV_cap256-119-136616_VR-Chain	1801	9443, 17085, 24727, 32369, 40011, 47653, 55295
anti-HIV_cap256-119-136206_VR-Chain	1802	9444, 17086, 24728, 32370, 40012, 47654, 55296
anti-HIV_cap256-119-135565_VR-Chain	1803	9445, 17087, 24729, 32371, 40013, 47655, 55297
anti-HIV_cap256-119-135025_VR-Chain	1804	9446, 17088, 24730, 32372, 40014, 47656, 55298
anti-HIV_cap256-119-133983_VR-Chain	1805	9447, 17089, 24731, 32373, 40015, 47657, 55299
anti-HIV_cap256-119-133917_VR-Chain	1806	9448, 17090, 24732, 32374, 40016, 47658, 55300
anti-HIV_cap256-119-132663_VR-Chain	1807	9449, 17091, 24733, 32375, 40017, 47659, 55301
anti-HIV_cap256-119-132113_VR-Chain	1808	9450, 17092, 24734, 32376, 40018, 47660, 55302

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-119-131839_VR-Chain	1809	9451, 17093, 24735, 32377, 40019, 47661, 55303
anti-HIV_cap256-119-130626_VR-Chain	1810	9452, 17094, 24736, 32378, 40020, 47662, 55304
anti-HIV_cap256-119-130191_VR-Chain	1811	9453, 17095, 24737, 32379, 40021, 47663, 55305
anti-HIV_cap256-119-129798_VR-Chain	1812	9454, 17096, 24738, 32380, 40022, 47664, 55306
anti-HIV_cap256-119-128745_VR-Chain	1813	9455, 17097, 24739, 32381, 40023, 47665, 55307
anti-HIV_cap256-119-128593_VR-Chain	1814	9456, 17098, 24740, 32382, 40024, 47666, 55308
anti-HIV_cap256-119-128152_VR-Chain	1815	9457, 17099, 24741, 32383, 40025, 47667, 55309
anti-HIV_cap256-119-127693_VR-Chain	1816	9458, 17100, 24742, 32384, 40026, 47668, 55310
anti-HIV_cap256-119-126684_VR-Chain	1817	9459, 17101, 24743, 32385, 40027, 47669, 55311
anti-HIV_cap256-119-126056_VR-Chain	1818	9460, 17102, 24744, 32386, 40028, 47670, 55312
anti-HIV_cap256-119-125765_VR-Chain	1819	9461, 17103, 24745, 32387, 40029, 47671, 55313
anti-HIV_cap256-119-125106_VR-Chain	1820	9462, 17104, 24746, 32388, 40030, 47672, 55314
anti-HIV_cap256-119-124026_VR-Chain	1821	9463, 17105, 24747, 32389, 40031, 47673, 55315
anti-HIV_cap256-119-121783_VR-Chain	1822	9464, 17106, 24748, 32390, 40032, 47674, 55316
anti-HIV_cap256-119-121208_VR-Chain	1823	9465, 17107, 24749, 32391, 40033, 47675, 55317
anti-HIV_cap256-119-120945_VR-Chain	1824	9466, 17108, 24750, 32392, 40034, 47676, 55318
anti-HIV_cap256-119-118229_VR-Chain	1825	9467, 17109, 24751, 32393, 40035, 47677, 55319
anti-HIV_cap256-119-118025_VR-Chain	1826	9468, 17110, 24752, 32394, 40036, 47678, 55320
anti-HIV_cap256-119-117418_VR-Chain	1827	9469, 17111, 24753, 32395, 40037, 47679, 55321
anti-HIV_cap256-119-117250_VR-Chain	1828	9470, 17112, 24754, 32396, 40038, 47680, 55322
anti-HIV_cap256-119-117230_VR-Chain	1829	9471, 17113, 24755, 32397, 40039, 47681, 55323
anti-HIV_cap256-119-116999_VR-Chain	1830	9472, 17114, 24756, 32398, 40040, 47682, 55324
anti-HIV_cap256-119-116558_VR-Chain	1831	9473, 17115, 24757, 32399, 40041, 47683, 55325
anti-HIV_cap256-119-116484_VR-Chain	1832	9474, 17116, 24758, 32400, 40042, 47684, 55326
anti-HIV_cap256-119-114844_VR-Chain	1833	9475, 17117, 24759, 32401, 40043, 47685, 55327
anti-HIV_cap256-119-114141_VR-Chain	1834	9476, 17118, 24760, 32402, 40044, 47686, 55328
anti-HIV_cap256-119-111917_VR-Chain	1835	9477, 17119, 24761, 32403, 40045, 47687, 55329
anti-HIV_cap256-119-111862_VR-Chain	1836	9478, 17120, 24762, 32404, 40046, 47688, 55330
anti-HIV_cap256-119-110064_VR-Chain	1837	9479, 17121, 24763, 32405, 40047, 47689, 55331
anti-HIV_cap256-119-109192_VR-Chain	1838	9480, 17122, 24764, 32406, 40048, 47690, 55332
anti-HIV_cap256-119-108793_VR-Chain	1839	9481, 17123, 24765, 32407, 40049, 47691, 55333
anti-HIV_cap256-119-108127_VR-Chain	1840	9482, 17124, 24766, 32408, 40050, 47692, 55334
anti-HIV_cap256-119-107758_VR-Chain	1841	9483, 17125, 24767, 32409, 40051, 47693, 55335

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-119-107209_VR-Chain	1842	9484, 17126, 24768, 32410, 40052, 47694, 55336
anti-HIV_cap256-119-107184_VR-Chain	1843	9485, 17127, 24769, 32411, 40053, 47695, 55337
anti-HIV_cap256-119-106827_VR-Chain	1844	9486, 17128, 24770, 32412, 40054, 47696, 55338
anti-HIV_cap256-119-106511_VR-Chain	1845	9487, 17129, 24771, 32413, 40055, 47697, 55339
anti-HIV_cap256-119-106327_VR-Chain	1846	9488, 17130, 24772, 32414, 40056, 47698, 55340
anti-HIV_cap256-119-105486_VR-Chain	1847	9489, 17131, 24773, 32415, 40057, 47699, 55341
anti-HIV_cap256-119-105197_VR-Chain	1848	9490, 17132, 24774, 32416, 40058, 47700, 55342
anti-HIV_cap256-119-104946_VR-Chain	1849	9491, 17133, 24775, 32417, 40059, 47701, 55343
anti-HIV_cap256-119-103667_VR-Chain	1850	9492, 17134, 24776, 32418, 40060, 47702, 55344
anti-HIV_cap256-119-103385_VR-Chain	1851	9493, 17135, 24777, 32419, 40061, 47703, 55345
anti-HIV_cap256-119-103267_VR-Chain	1852	9494, 17136, 24778, 32420, 40062, 47704, 55346
anti-HIV_cap256-119-103011_VR-Chain	1853	9495, 17137, 24779, 32421, 40063, 47705, 55347
anti-HIV_cap256-119-102072_VR-Chain	1854	9496, 17138, 24780, 32422, 40064, 47706, 55348
anti-HIV_cap256-119-101945_VR-Chain	1855	9497, 17139, 24781, 32423, 40065, 47707, 55349
anti-HIV_cap256-119-101319_VR-Chain	1856	9498, 17140, 24782, 32424, 40066, 47708, 55350
anti-HIV_cap256-119-100871_VR-Chain	1857	9499, 17141, 24783, 32425, 40067, 47709, 55351
anti-HIV_cap256-119-100838_VR-Chain	1858	9500, 17142, 24784, 32426, 40068, 47710, 55352
anti-HIV_cap256-119-100025_VR-Chain	1859	9501, 17143, 24785, 32427, 40069, 47711, 55353
anti-HIV_cap256-119-100000_VR-Chain	1860	9502, 17144, 24786, 32428, 40070, 47712, 55354
anti-HIV_cap256-119-098890_VR-Chain	1861	9503, 17145, 24787, 32429, 40071, 47713, 55355
anti-HIV_cap256-119-098715_VR-Chain	1862	9504, 17146, 24788, 32430, 40072, 47714, 55356
anti-HIV_cap256-119-098632_VR-Chain	1863	9505, 17147, 24789, 32431, 40073, 47715, 55357
anti-HIV_cap256-119-097199_VR-Chain	1864	9506, 17148, 24790, 32432, 40074, 47716, 55358
anti-HIV_cap256-119-096189_VR-Chain	1865	9507, 17149, 24791, 32433, 40075, 47717, 55359
anti-HIV_cap256-119-094581_VR-Chain	1866	9508, 17150, 24792, 32434, 40076, 47718, 55360
anti-HIV_cap256-119-094200_VR-Chain	1867	9509, 17151, 24793, 32435, 40077, 47719, 55361
anti-HIV_cap256-119-094158_VR-Chain	1868	9510, 17152, 24794, 32436, 40078, 47720, 55362
anti-HIV_cap256-119-092814_VR-Chain	1869	9511, 17153, 24795, 32437, 40079, 47721, 55363
anti-HIV_cap256-119-092808_VR-Chain	1870	9512, 17154, 24796, 32438, 40080, 47722, 55364
anti-HIV_cap256-119-092573_VR-Chain	1871	9513, 17155, 24797, 32439, 40081, 47723, 55365
anti-HIV_cap256-119-090815_VR-Chain	1872	9514, 17156, 24798, 32440, 40082, 47724, 55366
anti-HIV_cap256-119-090368_VR-Chain	1873	9515, 17157, 24799, 32441, 40083, 47725, 55367
anti-HIV_cap256-119-089710_VR-Chain	1874	9516, 17158, 24800, 32442, 40084, 47726, 55368

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-119-088555_VR-Chain	1875	9517, 17159, 24801, 32443, 40085, 47727, 55369
anti-HIV_cap256-119-087962_VR-Chain	1876	9518, 17160, 24802, 32444, 40086, 47728, 55370
anti-HIV_cap256-119-086903_VR-Chain	1877	9519, 17161, 24803, 32445, 40087, 47729, 55371
anti-HIV_cap256-119-086804_VR-Chain	1878	9520, 17162, 24804, 32446, 40088, 47730, 55372
anti-HIV_cap256-119-085910_VR-Chain	1879	9521, 17163, 24805, 32447, 40089, 47731, 55373
anti-HIV_cap256-119-085772_VR-Chain	1880	9522, 17164, 24806, 32448, 40090, 47732, 55374
anti-HIV_cap256-119-084603_VR-Chain	1881	9523, 17165, 24807, 32449, 40091, 47733, 55375
anti-HIV_cap256-119-084276_VR-Chain	1882	9524, 17166, 24808, 32450, 40092, 47734, 55376
anti-HIV_cap256-119-082288_VR-Chain	1883	9525, 17167, 24809, 32451, 40093, 47735, 55377
anti-HIV_cap256-119-080383_VR-Chain	1884	9526, 17168, 24810, 32452, 40094, 47736, 55378
anti-HIV_cap256-119-079333_VR-Chain	1885	9527, 17169, 24811, 32453, 40095, 47737, 55379
anti-HIV_cap256-119-078618_VR-Chain	1886	9528, 17170, 24812, 32454, 40096, 47738, 55380
anti-HIV_cap256-119-077466_VR-Chain	1887	9529, 17171, 24813, 32455, 40097, 47739, 55381
anti-HIV_cap256-119-076284_VR-Chain	1888	9530, 17172, 24814, 32456, 40098, 47740, 55382
anti-HIV_cap256-119-074680_VR-Chain	1889	9531, 17173, 24815, 32457, 40099, 47741, 55383
anti-HIV_cap256-119-074081_VR-Chain	1890	9532, 17174, 24816, 32458, 40100, 47742, 55384
anti-HIV_cap256-119-071704_VR-Chain	1891	9533, 17175, 24817, 32459, 40101, 47743, 55385
anti-HIV_cap256-119-071266_VR-Chain	1892	9534, 17176, 24818, 32460, 40102, 47744, 55386
anti-HIV_cap256-119-069667_VR-Chain	1893	9535, 17177, 24819, 32461, 40103, 47745, 55387
anti-HIV_cap256-119-069591_VR-Chain	1894	9536, 17178, 24820, 32462, 40104, 47746, 55388
anti-HIV_cap256-119-068691_VR-Chain	1895	9537, 17179, 24821, 32463, 40105, 47747, 55389
anti-HIV_cap256-119-068488_VR-Chain	1896	9538, 17180, 24822, 32464, 40106, 47748, 55390
anti-HIV_cap256-119-067536_VR-Chain	1897	9539, 17181, 24823, 32465, 40107, 47749, 55391
anti-HIV_cap256-119-065852_VR-Chain	1898	9540, 17182, 24824, 32466, 40108, 47750, 55392
anti-HIV_cap256-119-065457_VR-Chain	1899	9541, 17183, 24825, 32467, 40109, 47751, 55393
anti-HIV_cap256-119-064501_VR-Chain	1900	9542, 17184, 24826, 32468, 40110, 47752, 55394
anti-HIV_cap256-119-063568_VR-Chain	1901	9543, 17185, 24827, 32469, 40111, 47753, 55395
anti-HIV_cap256-119-063103_VR-Chain	1902	9544, 17186, 24828, 32470, 40112, 47754, 55396
anti-HIV_cap256-119-061027_VR-Chain	1903	9545, 17187, 24829, 32471, 40113, 47755, 55397
anti-HIV_cap256-119-058232_VR-Chain	1904	9546, 17188, 24830, 32472, 40114, 47756, 55398
anti-HIV_cap256-119-057341_VR-Chain	1905	9547, 17189, 24831, 32473, 40115, 47757, 55399
anti-HIV_cap256-119-056895_VR-Chain	1906	9548, 17190, 24832, 32474, 40116, 47758, 55400
anti-HIV_cap256-119-056402_VR-Chain	1907	9549, 17191, 24833, 32475, 40117, 47759, 55401

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-119-056034_VR-Chain	1908	9550, 17192, 24834, 32476, 40118, 47760, 55402
anti-HIV_cap256-119-055042_VR-Chain	1909	9551, 17193, 24835, 32477, 40119, 47761, 55403
anti-HIV_cap256-119-054776_VR-Chain	1910	9552, 17194, 24836, 32478, 40120, 47762, 55404
anti-HIV_cap256-119-054539_VR-Chain	1911	9553, 17195, 24837, 32479, 40121, 47763, 55405
anti-HIV_cap256-119-054112_VR-Chain	1912	9554, 17196, 24838, 32480, 40122, 47764, 55406
anti-HIV_cap256-119-053339_VR-Chain	1913	9555, 17197, 24839, 32481, 40123, 47765, 55407
anti-HIV_cap256-119-052404_VR-Chain	1914	9556, 17198, 24840, 32482, 40124, 47766, 55408
anti-HIV_cap256-119-051123_VR-Chain	1915	9557, 17199, 24841, 32483, 40125, 47767, 55409
anti-HIV_cap256-119-051077_VR-Chain	1916	9558, 17200, 24842, 32484, 40126, 47768, 55410
anti-HIV_cap256-119-050442_VR-Chain	1917	9559, 17201, 24843, 32485, 40127, 47769, 55411
anti-HIV_cap256-119-049433_VR-Chain	1918	9560, 17202, 24844, 32486, 40128, 47770, 55412
anti-HIV_cap256-119-047532_VR-Chain	1919	9561, 17203, 24845, 32487, 40129, 47771, 55413
anti-HIV_cap256-119-047489_VR-Chain	1920	9562, 17204, 24846, 32488, 40130, 47772, 55414
anti-HIV_cap256-119-046020_VR-Chain	1921	9563, 17205, 24847, 32489, 40131, 47773, 55415
anti-HIV_cap256-119-044746_VR-Chain	1922	9564, 17206, 24848, 32490, 40132, 47774, 55416
anti-HIV_cap256-119-044740_VR-Chain	1923	9565, 17207, 24849, 32491, 40133, 47775, 55417
anti-HIV_cap256-119-043790_VR-Chain	1924	9566, 17208, 24850, 32492, 40134, 47776, 55418
anti-HIV_cap256-119-042880_VR-Chain	1925	9567, 17209, 24851, 32493, 40135, 47777, 55419
anti-HIV_cap256-119-042606_VR-Chain	1926	9568, 17210, 24852, 32494, 40136, 47778, 55420
anti-HIV_cap256-119-042444_VR-Chain	1927	9569, 17211, 24853, 32495, 40137, 47779, 55421
anti-HIV_cap256-119-040328_VR-Chain	1928	9570, 17212, 24854, 32496, 40138, 47780, 55422
anti-HIV_cap256-119-040164_VR-Chain	1929	9571, 17213, 24855, 32497, 40139, 47781, 55423
anti-HIV_cap256-119-039130_VR-Chain	1930	9572, 17214, 24856, 32498, 40140, 47782, 55424
anti-HIV_cap256-119-038138_VR-Chain	1931	9573, 17215, 24857, 32499, 40141, 47783, 55425
anti-HIV_cap256-119-037868_VR-Chain	1932	9574, 17216, 24858, 32500, 40142, 47784, 55426
anti-HIV_cap256-119-037102_VR-Chain	1933	9575, 17217, 24859, 32501, 40143, 47785, 55427
anti-HIV_cap256-119-036683_VR-Chain	1934	9576, 17218, 24860, 32502, 40144, 47786, 55428
anti-HIV_cap256-119-036495_VR-Chain	1935	9577, 17219, 24861, 32503, 40145, 47787, 55429
anti-HIV_cap256-119-035375_VR-Chain	1936	9578, 17220, 24862, 32504, 40146, 47788, 55430
anti-HIV_cap256-119-035165_VR-Chain	1937	9579, 17221, 24863, 32505, 40147, 47789, 55431
anti-HIV_cap256-119-035109_VR-Chain	1938	9580, 17222, 24864, 32506, 40148, 47790, 55432
anti-HIV_cap256-119-033789_VR-Chain	1939	9581, 17223, 24865, 32507, 40149, 47791, 55433
anti-HIV_cap256-119-033641_VR-Chain	1940	9582, 17224, 24866, 32508, 40150, 47792, 55434

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-119-032113_VR-Chain	1941	9583, 17225, 24867, 32509, 40151, 47793, 55435
anti-HIV_cap256-119-031739_VR-Chain	1942	9584, 17226, 24868, 32510, 40152, 47794, 55436
anti-HIV_cap256-119-030932_VR-Chain	1943	9585, 17227, 24869, 32511, 40153, 47795, 55437
anti-HIV_cap256-119-030740_VR-Chain	1944	9586, 17228, 24870, 32512, 40154, 47796, 55438
anti-HIV_cap256-119-030197_VR-Chain	1945	9587, 17229, 24871, 32513, 40155, 47797, 55439
anti-HIV_cap256-119-027047_VR-Chain	1946	9588, 17230, 24872, 32514, 40156, 47798, 55440
anti-HIV_cap256-119-026950_VR-Chain	1947	9589, 17231, 24873, 32515, 40157, 47799, 55441
anti-HIV_cap256-119-026279_VR-Chain	1948	9590, 17232, 24874, 32516, 40158, 47800, 55442
anti-HIV_cap256-119-025355_VR-Chain	1949	9591, 17233, 24875, 32517, 40159, 47801, 55443
anti-HIV_cap256-119-025301_VR-Chain	1950	9592, 17234, 24876, 32518, 40160, 47802, 55444
anti-HIV_cap256-119-025010_VR-Chain	1951	9593, 17235, 24877, 32519, 40161, 47803, 55445
anti-HIV_cap256-119-024631_VR-Chain	1952	9594, 17236, 24878, 32520, 40162, 47804, 55446
anti-HIV_cap256-119-024467_VR-Chain	1953	9595, 17237, 24879, 32521, 40163, 47805, 55447
anti-HIV_cap256-119-023805_VR-Chain	1954	9596, 17238, 24880, 32522, 40164, 47806, 55448
anti-HIV_cap256-119-021736_VR-Chain	1955	9597, 17239, 24881, 32523, 40165, 47807, 55449
anti-HIV_cap256-119-021203_VR-Chain	1956	9598, 17240, 24882, 32524, 40166, 47808, 55450
anti-HIV_cap256-119-020569_VR-Chain	1957	9599, 17241, 24883, 32525, 40167, 47809, 55451
anti-HIV_cap256-119-019432_VR-Chain	1958	9600, 17242, 24884, 32526, 40168, 47810, 55452
anti-HIV_cap256-119-018827_VR-Chain	1959	9601, 17243, 24885, 32527, 40169, 47811, 55453
anti-HIV_cap256-119-018483_VR-Chain	1960	9602, 17244, 24886, 32528, 40170, 47812, 55454
anti-HIV_cap256-119-018118_VR-Chain	1961	9603, 17245, 24887, 32529, 40171, 47813, 55455
anti-HIV_cap256-119-017782_VR-Chain	1962	9604, 17246, 24888, 32530, 40172, 47814, 55456
anti-HIV_cap256-119-017669_VR-Chain	1963	9605, 17247, 24889, 32531, 40173, 47815, 55457
anti-HIV_cap256-119-016976_VR-Chain	1964	9606, 17248, 24890, 32532, 40174, 47816, 55458
anti-HIV_cap256-119-015432_VR-Chain	1965	9607, 17249, 24891, 32533, 40175, 47817, 55459
anti-HIV_cap256-119-015281_VR-Chain	1966	9608, 17250, 24892, 32534, 40176, 47818, 55460
anti-HIV_cap256-119-014957_VR-Chain	1967	9609, 17251, 24893, 32535, 40177, 47819, 55461
anti-HIV_cap256-119-014777_VR-Chain	1968	9610, 17252, 24894, 32536, 40178, 47820, 55462
anti-HIV_cap256-119-014313_VR-Chain	1969	9611, 17253, 24895, 32537, 40179, 47821, 55463
anti-HIV_cap256-119-014219_VR-Chain	1970	9612, 17254, 24896, 32538, 40180, 47822, 55464
anti-HIV_cap256-119-013631_VR-Chain	1971	9613, 17255, 24897, 32539, 40181, 47823, 55465
anti-HIV_cap256-119-012924_VR-Chain	1972	9614, 17256, 24898, 32540, 40182, 47824, 55466
anti-HIV_cap256-119-011793_VR-Chain	1973	9615, 17257, 24899, 32541, 40183, 47825, 55467

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-119-011413_VR-Chain	1974	9616, 17258, 24900, 32542, 40184, 47826, 55468
anti-HIV_cap256-119-011323_VR-Chain	1975	9617, 17259, 24901, 32543, 40185, 47827, 55469
anti-HIV_cap256-119-011233_VR-Chain	1976	9618, 17260, 24902, 32544, 40186, 47828, 55470
anti-HIV_cap256-119-009038_VR-Chain	1977	9619, 17261, 24903, 32545, 40187, 47829, 55471
anti-HIV_cap256-119-008756_VR-Chain	1978	9620, 17262, 24904, 32546, 40188, 47830, 55472
anti-HIV_cap256-119-008055_VR-Chain	1979	9621, 17263, 24905, 32547, 40189, 47831, 55473
anti-HIV_cap256-119-006949_VR-Chain	1980	9622, 17264, 24906, 32548, 40190, 47832, 55474
anti-HIV_cap256-119-006685_VR-Chain	1981	9623, 17265, 24907, 32549, 40191, 47833, 55475
anti-HIV_cap256-119-006015_VR-Chain	1982	9624, 17266, 24908, 32550, 40192, 47834, 55476
anti-HIV_cap256-119-005841_VR-Chain	1983	9625, 17267, 24909, 32551, 40193, 47835, 55477
anti-HIV_cap256-119-005824_VR-Chain	1984	9626, 17268, 24910, 32552, 40194, 47836, 55478
anti-HIV_cap256-119-005494_VR-Chain	1985	9627, 17269, 24911, 32553, 40195, 47837, 55479
anti-HIV_cap256-119-004949_VR-Chain	1986	9628, 17270, 24912, 32554, 40196, 47838, 55480
anti-HIV_cap256-119-004422_VR-Chain	1987	9629, 17271, 24913, 32555, 40197, 47839, 55481
anti-HIV_cap256-119-003932_VR-Chain	1988	9630, 17272, 24914, 32556, 40198, 47840, 55482
anti-HIV_cap256-119-003577_VR-Chain	1989	9631, 17273, 24915, 32557, 40199, 47841, 55483
anti-HIV_cap256-119-002155_VR-Chain	1990	9632, 17274, 24916, 32558, 40200, 47842, 55484
anti-HIV_cap256-119-002017_VR-Chain	1991	9633, 17275, 24917, 32559, 40201, 47843, 55485
anti-HIV_cap256-119-001312_VR-Chain	1992	9634, 17276, 24918, 32560, 40202, 47844, 55486
anti-HIV_cap256-119-001017_VR-Chain	1993	9635, 17277, 24919, 32561, 40203, 47845, 55487
anti-HIV_cap256-119-000594_VR-Chain	1994	9636, 17278, 24920, 32562, 40204, 47846, 55488
anti-HIV_cap256-059-241099_VR-Chain	1995	9637, 17279, 24921, 32563, 40205, 47847, 55489
anti-HIV_cap256-059-207529_VR-Chain	1996	9638, 17280, 24922, 32564, 40206, 47848, 55490
anti-HIV_cap256-059-205541_VR-Chain	1997	9639, 17281, 24923, 32565, 40207, 47849, 55491
anti-HIV_cap256-059-188439_VR-Chain	1998	9640, 17282, 24924, 32566, 40208, 47850, 55492
anti-HIV_cap256-059-187234_VR-Chain	1999	9641, 17283, 24925, 32567, 40209, 47851, 55493
anti-HIV_cap256-059-187047_VR-Chain	2000	9642, 17284, 24926, 32568, 40210, 47852, 55494
anti-HIV_cap256-059-186068_VR-Chain	2001	9643, 17285, 24927, 32569, 40211, 47853, 55495
anti-HIV_cap256-059-182835_VR-Chain	2002	9644, 17286, 24928, 32570, 40212, 47854, 55496
anti-HIV_cap256-059-176659_VR-Chain	2003	9645, 17287, 24929, 32571, 40213, 47855, 55497
anti-HIV_cap256-059-172956_VR-Chain	2004	9646, 17288, 24930, 32572, 40214, 47856, 55498
anti-HIV_cap256-059-171272_VR-Chain	2005	9647, 17289, 24931, 32573, 40215, 47857, 55499
anti-HIV_cap256-059-168734_VR-Chain	2006	9648, 17290, 24932, 32574, 40216, 47858, 55500

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-059-155838_VR-Chain	2007	9649, 17291, 24933, 32575, 40217, 47859, 55501
anti-HIV_cap256-059-149799_VR-Chain	2008	9650, 17292, 24934, 32576, 40218, 47860, 55502
anti-HIV_cap256-059-148168_VR-Chain	2009	9651, 17293, 24935, 32577, 40219, 47861, 55503
anti-HIV_cap256-059-144685_VR-Chain	2010	9652, 17294, 24936, 32578, 40220, 47862, 55504
anti-HIV_cap256-059-140017_VR-Chain	2011	9653, 17295, 24937, 32579, 40221, 47863, 55505
anti-HIV_cap256-059-137547_VR-Chain	2012	9654, 17296, 24938, 32580, 40222, 47864, 55506
anti-HIV_cap256-059-131908_VR-Chain	2013	9655, 17297, 24939, 32581, 40223, 47865, 55507
anti-HIV_cap256-059-116006_VR-Chain	2014	9656, 17298, 24940, 32582, 40224, 47866, 55508
anti-HIV_cap256-059-115783_VR-Chain	2015	9657, 17299, 24941, 32583, 40225, 47867, 55509
anti-HIV_cap256-059-114609_VR-Chain	2016	9658, 17300, 24942, 32584, 40226, 47868, 55510
anti-HIV_cap256-059-113952_VR-Chain	2017	9659, 17301, 24943, 32585, 40227, 47869, 55511
anti-HIV_cap256-059-113878_VR-Chain	2018	9660, 17302, 24944, 32586, 40228, 47870, 55512
anti-HIV_cap256-059-113622_VR-Chain	2019	9661, 17303, 24945, 32587, 40229, 47871, 55513
anti-HIV_cap256-059-109427_VR-Chain	2020	9662, 17304, 24946, 32588, 40230, 47872, 55514
anti-HIV_cap256-059-109081_VR-Chain	2021	9663, 17305, 24947, 32589, 40231, 47873, 55515
anti-HIV_cap256-059-107590_VR-Chain	2022	9664, 17306, 24948, 32590, 40232, 47874, 55516
anti-HIV_cap256-059-107504_VR-Chain	2023	9665, 17307, 24949, 32591, 40233, 47875, 55517
anti-HIV_cap256-059-099614_VR-Chain	2024	9666, 17308, 24950, 32592, 40234, 47876, 55518
anti-HIV_cap256-059-098972_VR-Chain	2025	9667, 17309, 24951, 32593, 40235, 47877, 55519
anti-HIV_cap256-059-097236_VR-Chain	2026	9668, 17310, 24952, 32594, 40236, 47878, 55520
anti-HIV_cap256-059-091487_VR-Chain	2027	9669, 17311, 24953, 32595, 40237, 47879, 55521
anti-HIV_cap256-059-089812_VR-Chain	2028	9670, 17312, 24954, 32596, 40238, 47880, 55522
anti-HIV_cap256-059-088468_VR-Chain	2029	9671, 17313, 24955, 32597, 40239, 47881, 55523
anti-HIV_cap256-059-088341_VR-Chain	2030	9672, 17314, 24956, 32598, 40240, 47882, 55524
anti-HIV_cap256-059-086533_VR-Chain	2031	9673, 17315, 24957, 32599, 40241, 47883, 55525
anti-HIV_cap256-059-086043_VR-Chain	2032	9674, 17316, 24958, 32600, 40242, 47884, 55526
anti-HIV_cap256-059-084191_VR-Chain	2033	9675, 17317, 24959, 32601, 40243, 47885, 55527
anti-HIV_cap256-059-082135_VR-Chain	2034	9676, 17318, 24960, 32602, 40244, 47886, 55528
anti-HIV_cap256-059-079417_VR-Chain	2035	9677, 17319, 24961, 32603, 40245, 47887, 55529
anti-HIV_cap256-059-076027_VR-Chain	2036	9678, 17320, 24962, 32604, 40246, 47888, 55530
anti-HIV_cap256-059-075082_VR-Chain	2037	9679, 17321, 24963, 32605, 40247, 47889, 55531
anti-HIV_cap256-059-072575_VR-Chain	2038	9680, 17322, 24964, 32606, 40248, 47890, 55532
anti-HIV_cap256-059-071926_VR-Chain	2039	9681, 17323, 24965, 32607, 40249, 47891, 55533

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-059-069638_VR-Chain	2040	9682, 17324, 24966, 32608, 40250, 47892, 55534
anti-HIV_cap256-059-069165_VR-Chain	2041	9683, 17325, 24967, 32609, 40251, 47893, 55535
anti-HIV_cap256-059-068956_VR-Chain	2042	9684, 17326, 24968, 32610, 40252, 47894, 55536
anti-HIV_cap256-059-068876_VR-Chain	2043	9685, 17327, 24969, 32611, 40253, 47895, 55537
anti-HIV_cap256-059-067733_VR-Chain	2044	9686, 17328, 24970, 32612, 40254, 47896, 55538
anti-HIV_cap256-059-067450_VR-Chain	2045	9687, 17329, 24971, 32613, 40255, 47897, 55539
anti-HIV_cap256-059-065694_VR-Chain	2046	9688, 17330, 24972, 32614, 40256, 47898, 55540
anti-HIV_cap256-059-065109_VR-Chain	2047	9689, 17331, 24973, 32615, 40257, 47899, 55541
anti-HIV_cap256-059-065060_VR-Chain	2048	9690, 17332, 24974, 32616, 40258, 47900, 55542
anti-HIV_cap256-059-064001_VR-Chain	2049	9691, 17333, 24975, 32617, 40259, 47901, 55543
anti-HIV_cap256-059-063270_VR-Chain	2050	9692, 17334, 24976, 32618, 40260, 47902, 55544
anti-HIV_cap256-059-061357_VR-Chain	2051	9693, 17335, 24977, 32619, 40261, 47903, 55545
anti-HIV_cap256-059-059834_VR-Chain	2052	9694, 17336, 24978, 32620, 40262, 47904, 55546
anti-HIV_cap256-059-059313_VR-Chain	2053	9695, 17337, 24979, 32621, 40263, 47905, 55547
anti-HIV_cap256-059-057130_VR-Chain	2054	9696, 17338, 24980, 32622, 40264, 47906, 55548
anti-HIV_cap256-059-050520_VR-Chain	2055	9697, 17339, 24981, 32623, 40265, 47907, 55549
anti-HIV_cap256-059-049839_VR-Chain	2056	9698, 17340, 24982, 32624, 40266, 47908, 55550
anti-HIV_cap256-059-048503_VR-Chain	2057	9699, 17341, 24983, 32625, 40267, 47909, 55551
anti-HIV_cap256-059-045516_VR-Chain	2058	9700, 17342, 24984, 32626, 40268, 47910, 55552
anti-HIV_cap256-059-044188_VR-Chain	2059	9701, 17343, 24985, 32627, 40269, 47911, 55553
anti-HIV_cap256-059-044105_VR-Chain	2060	9702, 17344, 24986, 32628, 40270, 47912, 55554
anti-HIV_cap256-059-042100_VR-Chain	2061	9703, 17345, 24987, 32629, 40271, 47913, 55555
anti-HIV_cap256-059-040742_VR-Chain	2062	9704, 17346, 24988, 32630, 40272, 47914, 55556
anti-HIV_cap256-059-040554_VR-Chain	2063	9705, 17347, 24989, 32631, 40273, 47915, 55557
anti-HIV_cap256-059-039660_VR-Chain	2064	9706, 17348, 24990, 32632, 40274, 47916, 55558
anti-HIV_cap256-059-039298_VR-Chain	2065	9707, 17349, 24991, 32633, 40275, 47917, 55559
anti-HIV_cap256-059-037873_VR-Chain	2066	9708, 17350, 24992, 32634, 40276, 47918, 55560
anti-HIV_cap256-059-037633_VR-Chain	2067	9709, 17351, 24993, 32635, 40277, 47919, 55561
anti-HIV_cap256-059-036817_VR-Chain	2068	9710, 17352, 24994, 32636, 40278, 47920, 55562
anti-HIV_cap256-059-032787_VR-Chain	2069	9711, 17353, 24995, 32637, 40279, 47921, 55563
anti-HIV_cap256-059-032427_VR-Chain	2070	9712, 17354, 24996, 32638, 40280, 47922, 55564
anti-HIV_cap256-059-029390_VR-Chain	2071	9713, 17355, 24997, 32639, 40281, 47923, 55565
anti-HIV_cap256-059-027877_VR-Chain	2072	9714, 17356, 24998, 32640, 40282, 47924, 55566

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-059-026640_VR-Chain	2073	9715, 17357, 24999, 32641, 40283, 47925, 55567
anti-HIV_cap256-059-026017_VR-Chain	2074	9716, 17358, 25000, 32642, 40284, 47926, 55568
anti-HIV_cap256-059-024100_VR-Chain	2075	9717, 17359, 25001, 32643, 40285, 47927, 55569
anti-HIV_cap256-059-023966_VR-Chain	2076	9718, 17360, 25002, 32644, 40286, 47928, 55570
anti-HIV_cap256-059-020534_VR-Chain	2077	9719, 17361, 25003, 32645, 40287, 47929, 55571
anti-HIV_cap256-059-019513_VR-Chain	2078	9720, 17362, 25004, 32646, 40288, 47930, 55572
anti-HIV_cap256-059-012963_VR-Chain	2079	9721, 17363, 25005, 32647, 40289, 47931, 55573
anti-HIV_cap256-059-010396_VR-Chain	2080	9722, 17364, 25006, 32648, 40290, 47932, 55574
anti-HIV_cap256-059-008136_VR-Chain	2081	9723, 17365, 25007, 32649, 40291, 47933, 55575
anti-HIV_cap256-059-006147_VR-Chain	2082	9724, 17366, 25008, 32650, 40292, 47934, 55576
anti-HIV_cap256-059-005081_VR-Chain	2083	9725, 17367, 25009, 32651, 40293, 47935, 55577
anti-HIV_cap256-059-005006_VR-Chain	2084	9726, 17368, 25010, 32652, 40294, 47936, 55578
anti-HIV_cap256-059-004451_VR-Chain	2085	9727, 17369, 25011, 32653, 40295, 47937, 55579
anti-HIV_cap256-059-003571_VR-Chain	2086	9728, 17370, 25012, 32654, 40296, 47938, 55580
anti-HIV_cap256-059-003449_VR-Chain	2087	9729, 17371, 25013, 32655, 40297, 47939, 55581
anti-HIV_cap256-059-002712_VR-Chain	2088	9730, 17372, 25014, 32656, 40298, 47940, 55582
anti-HIV_cap256-059-001573_VR-Chain	2089	9731, 17373, 25015, 32657, 40299, 47941, 55583
anti-HIV_cap256-059-001379_VR-Chain	2090	9732, 17374, 25016, 32658, 40300, 47942, 55584
anti-HIV_cap256-059-001029_VR-Chain	2091	9733, 17375, 25017, 32659, 40301, 47943, 55585
anti-HIV_cap256-048-165087_VR-Chain	2092	9734, 17376, 25018, 32660, 40302, 47944, 55586
anti-HIV_cap256-048-158861_VR-Chain	2093	9735, 17377, 25019, 32661, 40303, 47945, 55587
anti-HIV_cap256-048-158280_VR-Chain	2094	9736, 17378, 25020, 32662, 40304, 47946, 55588
anti-HIV_cap256-048-157928_VR-Chain	2095	9737, 17379, 25021, 32663, 40305, 47947, 55589
anti-HIV_cap256-048-157056_VR-Chain	2096	9738, 17380, 25022, 32664, 40306, 47948, 55590
anti-HIV_cap256-048-156422_VR-Chain	2097	9739, 17381, 25023, 32665, 40307, 47949, 55591
anti-HIV_cap256-048-152863_VR-Chain	2098	9740, 17382, 25024, 32666, 40308, 47950, 55592
anti-HIV_cap256-048-152770_VR-Chain	2099	9741, 17383, 25025, 32667, 40309, 47951, 55593
anti-HIV_cap256-048-150027_VR-Chain	2100	9742, 17384, 25026, 32668, 40310, 47952, 55594
anti-HIV_cap256-048-148246_VR-Chain	2101	9743, 17385, 25027, 32669, 40311, 47953, 55595
anti-HIV_cap256-048-147428_VR-Chain	2102	9744, 17386, 25028, 32670, 40312, 47954, 55596
anti-HIV_cap256-048-146603_VR-Chain	2103	9745, 17387, 25029, 32671, 40313, 47955, 55597
anti-HIV_cap256-048-145735_VR-Chain	2104	9746, 17388, 25030, 32672, 40314, 47956, 55598
anti-HIV_cap256-048-145116_VR-Chain	2105	9747, 17389, 25031, 32673, 40315, 47957, 55599

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-048-144077_VR-Chain	2106	9748, 17390, 25032, 32674, 40316, 47958, 55600
anti-HIV_cap256-048-142876_VR-Chain	2107	9749, 17391, 25033, 32675, 40317, 47959, 55601
anti-HIV_cap256-048-140582_VR-Chain	2108	9750, 17392, 25034, 32676, 40318, 47960, 55602
anti-HIV_cap256-048-139355_VR-Chain	2109	9751, 17393, 25035, 32677, 40319, 47961, 55603
anti-HIV_cap256-048-139151_VR-Chain	2110	9752, 17394, 25036, 32678, 40320, 47962, 55604
anti-HIV_cap256-048-137672_VR-Chain	2111	9753, 17395, 25037, 32679, 40321, 47963, 55605
anti-HIV_cap256-048-137506_VR-Chain	2112	9754, 17396, 25038, 32680, 40322, 47964, 55606
anti-HIV_cap256-048-137270_VR-Chain	2113	9755, 17397, 25039, 32681, 40323, 47965, 55607
anti-HIV_cap256-048-135447_VR-Chain	2114	9756, 17398, 25040, 32682, 40324, 47966, 55608
anti-HIV_cap256-048-131966_VR-Chain	2115	9757, 17399, 25041, 32683, 40325, 47967, 55609
anti-HIV_cap256-048-131008_VR-Chain	2116	9758, 17400, 25042, 32684, 40326, 47968, 55610
anti-HIV_cap256-048-129369_VR-Chain	2117	9759, 17401, 25043, 32685, 40327, 47969, 55611
anti-HIV_cap256-048-128476_VR-Chain	2118	9760, 17402, 25044, 32686, 40328, 47970, 55612
anti-HIV_cap256-048-128270_VR-Chain	2119	9761, 17403, 25045, 32687, 40329, 47971, 55613
anti-HIV_cap256-048-126220_VR-Chain	2120	9762, 17404, 25046, 32688, 40330, 47972, 55614
anti-HIV_cap256-048-125713_VR-Chain	2121	9763, 17405, 25047, 32689, 40331, 47973, 55615
anti-HIV_cap256-048-123934_VR-Chain	2122	9764, 17406, 25048, 32690, 40332, 47974, 55616
anti-HIV_cap256-048-122673_VR-Chain	2123	9765, 17407, 25049, 32691, 40333, 47975, 55617
anti-HIV_cap256-048-122208_VR-Chain	2124	9766, 17408, 25050, 32692, 40334, 47976, 55618
anti-HIV_cap256-048-121552_VR-Chain	2125	9767, 17409, 25051, 32693, 40335, 47977, 55619
anti-HIV_cap256-048-120643_VR-Chain	2126	9768, 17410, 25052, 32694, 40336, 47978, 55620
anti-HIV_cap256-048-118458_VR-Chain	2127	9769, 17411, 25053, 32695, 40337, 47979, 55621
anti-HIV_cap256-048-118112_VR-Chain	2128	9770, 17412, 25054, 32696, 40338, 47980, 55622
anti-HIV_cap256-048-116469_VR-Chain	2129	9771, 17413, 25055, 32697, 40339, 47981, 55623
anti-HIV_cap256-048-113917_VR-Chain	2130	9772, 17414, 25056, 32698, 40340, 47982, 55624
anti-HIV_cap256-048-112368_VR-Chain	2131	9773, 17415, 25057, 32699, 40341, 47983, 55625
anti-HIV_cap256-048-112047_VR-Chain	2132	9774, 17416, 25058, 32700, 40342, 47984, 55626
anti-HIV_cap256-048-112029_VR-Chain	2133	9775, 17417, 25059, 32701, 40343, 47985, 55627
anti-HIV_cap256-048-110957_VR-Chain	2134	9776, 17418, 25060, 32702, 40344, 47986, 55628
anti-HIV_cap256-048-110526_VR-Chain	2135	9777, 17419, 25061, 32703, 40345, 47987, 55629
anti-HIV_cap256-048-109336_VR-Chain	2136	9778, 17420, 25062, 32704, 40346, 47988, 55630
anti-HIV_cap256-048-108152_VR-Chain	2137	9779, 17421, 25063, 32705, 40347, 47989, 55631
anti-HIV_cap256-048-107799_VR-Chain	2138	9780, 17422, 25064, 32706, 40348, 47990, 55632

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-048-107384_VR-Chain	2139	9781, 17423, 25065, 32707, 40349, 47991, 55633
anti-HIV_cap256-048-106530_VR-Chain	2140	9782, 17424, 25066, 32708, 40350, 47992, 55634
anti-HIV_cap256-048-106464_VR-Chain	2141	9783, 17425, 25067, 32709, 40351, 47993, 55635
anti-HIV_cap256-048-106411_VR-Chain	2142	9784, 17426, 25068, 32710, 40352, 47994, 55636
anti-HIV_cap256-048-106306_VR-Chain	2143	9785, 17427, 25069, 32711, 40353, 47995, 55637
anti-HIV_cap256-048-104496_VR-Chain	2144	9786, 17428, 25070, 32712, 40354, 47996, 55638
anti-HIV_cap256-048-103074_VR-Chain	2145	9787, 17429, 25071, 32713, 40355, 47997, 55639
anti-HIV_cap256-048-100832_VR-Chain	2146	9788, 17430, 25072, 32714, 40356, 47998, 55640
anti-HIV_cap256-048-100188_VR-Chain	2147	9789, 17431, 25073, 32715, 40357, 47999, 55641
anti-HIV_cap256-048-099645_VR-Chain	2148	9790, 17432, 25074, 32716, 40358, 48000, 55642
anti-HIV_cap256-048-098137_VR-Chain	2149	9791, 17433, 25075, 32717, 40359, 48001, 55643
anti-HIV_cap256-048-097878_VR-Chain	2150	9792, 17434, 25076, 32718, 40360, 48002, 55644
anti-HIV_cap256-048-097510_VR-Chain	2151	9793, 17435, 25077, 32719, 40361, 48003, 55645
anti-HIV_cap256-048-097313_VR-Chain	2152	9794, 17436, 25078, 32720, 40362, 48004, 55646
anti-HIV_cap256-048-096626_VR-Chain	2153	9795, 17437, 25079, 32721, 40363, 48005, 55647
anti-HIV_cap256-048-096483_VR-Chain	2154	9796, 17438, 25080, 32722, 40364, 48006, 55648
anti-HIV_cap256-048-095691_VR-Chain	2155	9797, 17439, 25081, 32723, 40365, 48007, 55649
anti-HIV_cap256-048-095525_VR-Chain	2156	9798, 17440, 25082, 32724, 40366, 48008, 55650
anti-HIV_cap256-048-094783_VR-Chain	2157	9799, 17441, 25083, 32725, 40367, 48009, 55651
anti-HIV_cap256-048-094356_VR-Chain	2158	9800, 17442, 25084, 32726, 40368, 48010, 55652
anti-HIV_cap256-048-090756_VR-Chain	2159	9801, 17443, 25085, 32727, 40369, 48011, 55653
anti-HIV_cap256-048-089065_VR-Chain	2160	9802, 17444, 25086, 32728, 40370, 48012, 55654
anti-HIV_cap256-048-084986_VR-Chain	2161	9803, 17445, 25087, 32729, 40371, 48013, 55655
anti-HIV_cap256-048-083355_VR-Chain	2162	9804, 17446, 25088, 32730, 40372, 48014, 55656
anti-HIV_cap256-048-082462_VR-Chain	2163	9805, 17447, 25089, 32731, 40373, 48015, 55657
anti-HIV_cap256-048-082246_VR-Chain	2164	9806, 17448, 25090, 32732, 40374, 48016, 55658
anti-HIV_cap256-048-080752_VR-Chain	2165	9807, 17449, 25091, 32733, 40375, 48017, 55659
anti-HIV_cap256-048-078409_VR-Chain	2166	9808, 17450, 25092, 32734, 40376, 48018, 55660
anti-HIV_cap256-048-078273_VR-Chain	2167	9809, 17451, 25093, 32735, 40377, 48019, 55661
anti-HIV_cap256-048-078062_VR-Chain	2168	9810, 17452, 25094, 32736, 40378, 48020, 55662
anti-HIV_cap256-048-077798_VR-Chain	2169	9811, 17453, 25095, 32737, 40379, 48021, 55663
anti-HIV_cap256-048-073853_VR-Chain	2170	9812, 17454, 25096, 32738, 40380, 48022, 55664
anti-HIV_cap256-048-071661_VR-Chain	2171	9813, 17455, 25097, 32739, 40381, 48023, 55665

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-048-071360_VR-Chain	2172	9814, 17456, 25098, 32740, 40382, 48024, 55666
anti-HIV_cap256-048-070955_VR-Chain	2173	9815, 17457, 25099, 32741, 40383, 48025, 55667
anti-HIV_cap256-048-070061_VR-Chain	2174	9816, 17458, 25100, 32742, 40384, 48026, 55668
anti-HIV_cap256-048-069669_VR-Chain	2175	9817, 17459, 25101, 32743, 40385, 48027, 55669
anti-HIV_cap256-048-069205_VR-Chain	2176	9818, 17460, 25102, 32744, 40386, 48028, 55670
anti-HIV_cap256-048-068882_VR-Chain	2177	9819, 17461, 25103, 32745, 40387, 48029, 55671
anti-HIV_cap256-048-067764_VR-Chain	2178	9820, 17462, 25104, 32746, 40388, 48030, 55672
anti-HIV_cap256-048-066845_VR-Chain	2179	9821, 17463, 25105, 32747, 40389, 48031, 55673
anti-HIV_cap256-048-065226_VR-Chain	2180	9822, 17464, 25106, 32748, 40390, 48032, 55674
anti-HIV_cap256-048-063717_VR-Chain	2181	9823, 17465, 25107, 32749, 40391, 48033, 55675
anti-HIV_cap256-048-063150_VR-Chain	2182	9824, 17466, 25108, 32750, 40392, 48034, 55676
anti-HIV_cap256-048-062431_VR-Chain	2183	9825, 17467, 25109, 32751, 40393, 48035, 55677
anti-HIV_cap256-048-060745_VR-Chain	2184	9826, 17468, 25110, 32752, 40394, 48036, 55678
anti-HIV_cap256-048-060420_VR-Chain	2185	9827, 17469, 25111, 32753, 40395, 48037, 55679
anti-HIV_cap256-048-060014_VR-Chain	2186	9828, 17470, 25112, 32754, 40396, 48038, 55680
anti-HIV_cap256-048-059747_VR-Chain	2187	9829, 17471, 25113, 32755, 40397, 48039, 55681
anti-HIV_cap256-048-058393_VR-Chain	2188	9830, 17472, 25114, 32756, 40398, 48040, 55682
anti-HIV_cap256-048-058159_VR-Chain	2189	9831, 17473, 25115, 32757, 40399, 48041, 55683
anti-HIV_cap256-048-057127_VR-Chain	2190	9832, 17474, 25116, 32758, 40400, 48042, 55684
anti-HIV_cap256-048-056251_VR-Chain	2191	9833, 17475, 25117, 32759, 40401, 48043, 55685
anti-HIV_cap256-048-055421_VR-Chain	2192	9834, 17476, 25118, 32760, 40402, 48044, 55686
anti-HIV_cap256-048-054989_VR-Chain	2193	9835, 17477, 25119, 32761, 40403, 48045, 55687
anti-HIV_cap256-048-054759_VR-Chain	2194	9836, 17478, 25120, 32762, 40404, 48046, 55688
anti-HIV_cap256-048-052573_VR-Chain	2195	9837, 17479, 25121, 32763, 40405, 48047, 55689
anti-HIV_cap256-048-051477_VR-Chain	2196	9838, 17480, 25122, 32764, 40406, 48048, 55690
anti-HIV_cap256-048-051299_VR-Chain	2197	9839, 17481, 25123, 32765, 40407, 48049, 55691
anti-HIV_cap256-048-050815_VR-Chain	2198	9840, 17482, 25124, 32766, 40408, 48050, 55692
anti-HIV_cap256-048-049884_VR-Chain	2199	9841, 17483, 25125, 32767, 40409, 48051, 55693
anti-HIV_cap256-048-049170_VR-Chain	2200	9842, 17484, 25126, 32768, 40410, 48052, 55694
anti-HIV_cap256-048-048531_VR-Chain	2201	9843, 17485, 25127, 32769, 40411, 48053, 55695
anti-HIV_cap256-048-048259_VR-Chain	2202	9844, 17486, 25128, 32770, 40412, 48054, 55696
anti-HIV_cap256-048-047313_VR-Chain	2203	9845, 17487, 25129, 32771, 40413, 48055, 55697
anti-HIV_cap256-048-046596_VR-Chain	2204	9846, 17488, 25130, 32772, 40414, 48056, 55698

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-048-044781_VR-Chain	2205	9847, 17489, 25131, 32773, 40415, 48057, 55699
anti-HIV_cap256-048-042599_VR-Chain	2206	9848, 17490, 25132, 32774, 40416, 48058, 55700
anti-HIV_cap256-048-041276_VR-Chain	2207	9849, 17491, 25133, 32775, 40417, 48059, 55701
anti-HIV_cap256-048-040200_VR-Chain	2208	9850, 17492, 25134, 32776, 40418, 48060, 55702
anti-HIV_cap256-048-039061_VR-Chain	2209	9851, 17493, 25135, 32777, 40419, 48061, 55703
anti-HIV_cap256-048-038515_VR-Chain	2210	9852, 17494, 25136, 32778, 40420, 48062, 55704
anti-HIV_cap256-048-038255_VR-Chain	2211	9853, 17495, 25137, 32779, 40421, 48063, 55705
anti-HIV_cap256-048-038177_VR-Chain	2212	9854, 17496, 25138, 32780, 40422, 48064, 55706
anti-HIV_cap256-048-035513_VR-Chain	2213	9855, 17497, 25139, 32781, 40423, 48065, 55707
anti-HIV_cap256-048-034112_VR-Chain	2214	9856, 17498, 25140, 32782, 40424, 48066, 55708
anti-HIV_cap256-048-033983_VR-Chain	2215	9857, 17499, 25141, 32783, 40425, 48067, 55709
anti-HIV_cap256-048-032688_VR-Chain	2216	9858, 17500, 25142, 32784, 40426, 48068, 55710
anti-HIV_cap256-048-031092_VR-Chain	2217	9859, 17501, 25143, 32785, 40427, 48069, 55711
anti-HIV_cap256-048-030464_VR-Chain	2218	9860, 17502, 25144, 32786, 40428, 48070, 55712
anti-HIV_cap256-048-030289_VR-Chain	2219	9861, 17503, 25145, 32787, 40429, 48071, 55713
anti-HIV_cap256-048-030261_VR-Chain	2220	9862, 17504, 25146, 32788, 40430, 48072, 55714
anti-HIV_cap256-048-029362_VR-Chain	2221	9863, 17505, 25147, 32789, 40431, 48073, 55715
anti-HIV_cap256-048-027638_VR-Chain	2222	9864, 17506, 25148, 32790, 40432, 48074, 55716
anti-HIV_cap256-048-027613_VR-Chain	2223	9865, 17507, 25149, 32791, 40433, 48075, 55717
anti-HIV_cap256-048-026627_VR-Chain	2224	9866, 17508, 25150, 32792, 40434, 48076, 55718
anti-HIV_cap256-048-026239_VR-Chain	2225	9867, 17509, 25151, 32793, 40435, 48077, 55719
anti-HIV_cap256-048-025518_VR-Chain	2226	9868, 17510, 25152, 32794, 40436, 48078, 55720
anti-HIV_cap256-048-024854_VR-Chain	2227	9869, 17511, 25153, 32795, 40437, 48079, 55721
anti-HIV_cap256-048-024537_VR-Chain	2228	9870, 17512, 25154, 32796, 40438, 48080, 55722
anti-HIV_cap256-048-021781_VR-Chain	2229	9871, 17513, 25155, 32797, 40439, 48081, 55723
anti-HIV_cap256-048-021758_VR-Chain	2230	9872, 17514, 25156, 32798, 40440, 48082, 55724
anti-HIV_cap256-048-020988_VR-Chain	2231	9873, 17515, 25157, 32799, 40441, 48083, 55725
anti-HIV_cap256-048-020663_VR-Chain	2232	9874, 17516, 25158, 32800, 40442, 48084, 55726
anti-HIV_cap256-048-020590_VR-Chain	2233	9875, 17517, 25159, 32801, 40443, 48085, 55727
anti-HIV_cap256-048-019765_VR-Chain	2234	9876, 17518, 25160, 32802, 40444, 48086, 55728
anti-HIV_cap256-048-019254_VR-Chain	2235	9877, 17519, 25161, 32803, 40445, 48087, 55729
anti-HIV_cap256-048-018073_VR-Chain	2236	9878, 17520, 25162, 32804, 40446, 48088, 55730
anti-HIV_cap256-048-016775_VR-Chain	2237	9879, 17521, 25163, 32805, 40447, 48089, 55731

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-048-016069_VR-Chain	2238	9880, 17522, 25164, 32806, 40448, 48090, 55732
anti-HIV_cap256-048-015867_VR-Chain	2239	9881, 17523, 25165, 32807, 40449, 48091, 55733
anti-HIV_cap256-048-015673_VR-Chain	2240	9882, 17524, 25166, 32808, 40450, 48092, 55734
anti-HIV_cap256-048-015156_VR-Chain	2241	9883, 17525, 25167, 32809, 40451, 48093, 55735
anti-HIV_cap256-048-014521_VR-Chain	2242	9884, 17526, 25168, 32810, 40452, 48094, 55736
anti-HIV_cap256-048-014475_VR-Chain	2243	9885, 17527, 25169, 32811, 40453, 48095, 55737
anti-HIV_cap256-048-013798_VR-Chain	2244	9886, 17528, 25170, 32812, 40454, 48096, 55738
anti-HIV_cap256-048-013271_VR-Chain	2245	9887, 17529, 25171, 32813, 40455, 48097, 55739
anti-HIV_cap256-048-013180_VR-Chain	2246	9888, 17530, 25172, 32814, 40456, 48098, 55740
anti-HIV_cap256-048-012148_VR-Chain	2247	9889, 17531, 25173, 32815, 40457, 48099, 55741
anti-HIV_cap256-048-011870_VR-Chain	2248	9890, 17532, 25174, 32816, 40458, 48100, 55742
anti-HIV_cap256-048-011530_VR-Chain	2249	9891, 17533, 25175, 32817, 40459, 48101, 55743
anti-HIV_cap256-048-010968_VR-Chain	2250	9892, 17534, 25176, 32818, 40460, 48102, 55744
anti-HIV_cap256-048-010224_VR-Chain	2251	9893, 17535, 25177, 32819, 40461, 48103, 55745
anti-HIV_cap256-048-009749_VR-Chain	2252	9894, 17536, 25178, 32820, 40462, 48104, 55746
anti-HIV_cap256-048-009623_VR-Chain	2253	9895, 17537, 25179, 32821, 40463, 48105, 55747
anti-HIV_cap256-048-008234_VR-Chain	2254	9896, 17538, 25180, 32822, 40464, 48106, 55748
anti-HIV_cap256-048-008149_VR-Chain	2255	9897, 17539, 25181, 32823, 40465, 48107, 55749
anti-HIV_cap256-048-007301_VR-Chain	2256	9898, 17540, 25182, 32824, 40466, 48108, 55750
anti-HIV_cap256-048-007174_VR-Chain	2257	9899, 17541, 25183, 32825, 40467, 48109, 55751
anti-HIV_cap256-048-007079_VR-Chain	2258	9900, 17542, 25184, 32826, 40468, 48110, 55752
anti-HIV_cap256-048-007033_VR-Chain	2259	9901, 17543, 25185, 32827, 40469, 48111, 55753
anti-HIV_cap256-048-006128_VR-Chain	2260	9902, 17544, 25186, 32828, 40470, 48112, 55754
anti-HIV_cap256-048-005999_VR-Chain	2261	9903, 17545, 25187, 32829, 40471, 48113, 55755
anti-HIV_cap256-048-005394_VR-Chain	2262	9904, 17546, 25188, 32830, 40472, 48114, 55756
anti-HIV_cap256-048-004226_VR-Chain	2263	9905, 17547, 25189, 32831, 40473, 48115, 55757
anti-HIV_cap256-048-004097_VR-Chain	2264	9906, 17548, 25190, 32832, 40474, 48116, 55758
anti-HIV_cap256-048-003289_VR-Chain	2265	9907, 17549, 25191, 32833, 40475, 48117, 55759
anti-HIV_cap256-048-002601_VR-Chain	2266	9908, 17550, 25192, 32834, 40476, 48118, 55760
anti-HIV_cap256-048-002129_VR-Chain	2267	9909, 17551, 25193, 32835, 40477, 48119, 55761
anti-HIV_cap256-048-001875_VR-Chain	2268	9910, 17552, 25194, 32836, 40478, 48120, 55762
anti-HIV_cap256-048-001302_VR-Chain	2269	9911, 17553, 25195, 32837, 40479, 48121, 55763
anti-HIV_cap256-048-001203_VR-Chain	2270	9912, 17554, 25196, 32838, 40480, 48122, 55764

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-048-000383_VR-Chain	2271	9913, 17555, 25197, 32839, 40481, 48123, 55765
anti-HIV_cap256-038-261791_VR-Chain	2272	9914, 17556, 25198, 32840, 40482, 48124, 55766
anti-HIV_cap256-038-241540_VR-Chain	2273	9915, 17557, 25199, 32841, 40483, 48125, 55767
anti-HIV_cap256-038-235677_VR-Chain	2274	9916, 17558, 25200, 32842, 40484, 48126, 55768
anti-HIV_cap256-038-234314_VR-Chain	2275	9917, 17559, 25201, 32843, 40485, 48127, 55769
anti-HIV_cap256-038-234273_VR-Chain	2276	9918, 17560, 25202, 32844, 40486, 48128, 55770
anti-HIV_cap256-038-223164_VR-Chain	2277	9919, 17561, 25203, 32845, 40487, 48129, 55771
anti-HIV_cap256-038-220289_VR-Chain	2278	9920, 17562, 25204, 32846, 40488, 48130, 55772
anti-HIV_cap256-038-220020_VR-Chain	2279	9921, 17563, 25205, 32847, 40489, 48131, 55773
anti-HIV_cap256-038-216853_VR-Chain	2280	9922, 17564, 25206, 32848, 40490, 48132, 55774
anti-HIV_cap256-038-213466_VR-Chain	2281	9923, 17565, 25207, 32849, 40491, 48133, 55775
anti-HIV_cap256-038-213212_VR-Chain	2282	9924, 17566, 25208, 32850, 40492, 48134, 55776
anti-HIV_cap256-038-213120_VR-Chain	2283	9925, 17567, 25209, 32851, 40493, 48135, 55777
anti-HIV_cap256-038-212592_VR-Chain	2284	9926, 17568, 25210, 32852, 40494, 48136, 55778
anti-HIV_cap256-038-211790_VR-Chain	2285	9927, 17569, 25211, 32853, 40495, 48137, 55779
anti-HIV_cap256-038-209916_VR-Chain	2286	9928, 17570, 25212, 32854, 40496, 48138, 55780
anti-HIV_cap256-038-207938_VR-Chain	2287	9929, 17571, 25213, 32855, 40497, 48139, 55781
anti-HIV_cap256-038-202245_VR-Chain	2288	9930, 17572, 25214, 32856, 40498, 48140, 55782
anti-HIV_cap256-038-197721_VR-Chain	2289	9931, 17573, 25215, 32857, 40499, 48141, 55783
anti-HIV_cap256-038-196679_VR-Chain	2290	9932, 17574, 25216, 32858, 40500, 48142, 55784
anti-HIV_cap256-038-196118_VR-Chain	2291	9933, 17575, 25217, 32859, 40501, 48143, 55785
anti-HIV_cap256-038-195382_VR-Chain	2292	9934, 17576, 25218, 32860, 40502, 48144, 55786
anti-HIV_cap256-038-180001_VR-Chain	2293	9935, 17577, 25219, 32861, 40503, 48145, 55787
anti-HIV_cap256-038-178021_VR-Chain	2294	9936, 17578, 25220, 32862, 40504, 48146, 55788
anti-HIV_cap256-038-177104_VR-Chain	2295	9937, 17579, 25221, 32863, 40505, 48147, 55789
anti-HIV_cap256-038-171261_VR-Chain	2296	9938, 17580, 25222, 32864, 40506, 48148, 55790
anti-HIV_cap256-038-169090_VR-Chain	2297	9939, 17581, 25223, 32865, 40507, 48149, 55791
anti-HIV_cap256-038-168705_VR-Chain	2298	9940, 17582, 25224, 32866, 40508, 48150, 55792
anti-HIV_cap256-038-167685_VR-Chain	2299	9941, 17583, 25225, 32867, 40509, 48151, 55793
anti-HIV_cap256-038-158775_VR-Chain	2300	9942, 17584, 25226, 32868, 40510, 48152, 55794
anti-HIV_cap256-038-157318_VR-Chain	2301	9943, 17585, 25227, 32869, 40511, 48153, 55795
anti-HIV_cap256-038-153058_VR-Chain	2302	9944, 17586, 25228, 32870, 40512, 48154, 55796
anti-HIV_cap256-038-150027_VR-Chain	2303	9945, 17587, 25229, 32871, 40513, 48155, 55797

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-038-146372_VR-Chain	2304	9946, 17588, 25230, 32872, 40514, 48156, 55798
anti-HIV_cap256-038-141868_VR-Chain	2305	9947, 17589, 25231, 32873, 40515, 48157, 55799
anti-HIV_cap256-038-141616_VR-Chain	2306	9948, 17590, 25232, 32874, 40516, 48158, 55800
anti-HIV_cap256-038-127989_VR-Chain	2307	9949, 17591, 25233, 32875, 40517, 48159, 55801
anti-HIV_cap256-038-118109_VR-Chain	2308	9950, 17592, 25234, 32876, 40518, 48160, 55802
anti-HIV_cap256-038-112226_VR-Chain	2309	9951, 17593, 25235, 32877, 40519, 48161, 55803
anti-HIV_cap256-038-105918_VR-Chain	2310	9952, 17594, 25236, 32878, 40520, 48162, 55804
anti-HIV_cap256-038-104487_VR-Chain	2311	9953, 17595, 25237, 32879, 40521, 48163, 55805
anti-HIV_cap256-038-102308_VR-Chain	2312	9954, 17596, 25238, 32880, 40522, 48164, 55806
anti-HIV_cap256-038-091115_VR-Chain	2313	9955, 17597, 25239, 32881, 40523, 48165, 55807
anti-HIV_cap256-038-090262_VR-Chain	2314	9956, 17598, 25240, 32882, 40524, 48166, 55808
anti-HIV_cap256-038-083260_VR-Chain	2315	9957, 17599, 25241, 32883, 40525, 48167, 55809
anti-HIV_cap256-038-080981_VR-Chain	2316	9958, 17600, 25242, 32884, 40526, 48168, 55810
anti-HIV_cap256-038-080873_VR-Chain	2317	9959, 17601, 25243, 32885, 40527, 48169, 55811
anti-HIV_cap256-038-074413_VR-Chain	2318	9960, 17602, 25244, 32886, 40528, 48170, 55812
anti-HIV_cap256-038-073153_VR-Chain	2319	9961, 17603, 25245, 32887, 40529, 48171, 55813
anti-HIV_cap256-038-064227_VR-Chain	2320	9962, 17604, 25246, 32888, 40530, 48172, 55814
anti-HIV_cap256-038-061640_VR-Chain	2321	9963, 17605, 25247, 32889, 40531, 48173, 55815
anti-HIV_cap256-038-059482_VR-Chain	2322	9964, 17606, 25248, 32890, 40532, 48174, 55816
anti-HIV_cap256-038-054000_VR-Chain	2323	9965, 17607, 25249, 32891, 40533, 48175, 55817
anti-HIV_cap256-038-050554_VR-Chain	2324	9966, 17608, 25250, 32892, 40534, 48176, 55818
anti-HIV_cap256-038-044256_VR-Chain	2325	9967, 17609, 25251, 32893, 40535, 48177, 55819
anti-HIV_cap256-038-040944_VR-Chain	2326	9968, 17610, 25252, 32894, 40536, 48178, 55820
anti-HIV_cap256-038-040090_VR-Chain	2327	9969, 17611, 25253, 32895, 40537, 48179, 55821
anti-HIV_cap256-038-032874_VR-Chain	2328	9970, 17612, 25254, 32896, 40538, 48180, 55822
anti-HIV_cap256-038-025899_VR-Chain	2329	9971, 17613, 25255, 32897, 40539, 48181, 55823
anti-HIV_cap256-038-024581_VR-Chain	2330	9972, 17614, 25256, 32898, 40540, 48182, 55824
anti-HIV_cap256-038-013345_VR-Chain	2331	9973, 17615, 25257, 32899, 40541, 48183, 55825
anti-HIV_cap256-038-011559_VR-Chain	2332	9974, 17616, 25258, 32900, 40542, 48184, 55826
anti-HIV_cap256-038-009634_VR-Chain	2333	9975, 17617, 25259, 32901, 40543, 48185, 55827
anti-HIV_cap256-038-006730_VR-Chain	2334	9976, 17618, 25260, 32902, 40544, 48186, 55828
anti-HIV_cap256-038-004887_VR-Chain	2335	9977, 17619, 25261, 32903, 40545, 48187, 55829
anti-HIV_cap256-038-004840_VR-Chain	2336	9978, 17620, 25262, 32904, 40546, 48188, 55830

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_cap256-038-002181_VR-Chain	2337	9979, 17621, 25263, 32905, 40547, 48189, 55831
anti-HIV_cap256-038-001902_VR-Chain	2338	9980, 17622, 25264, 32906, 40548, 48190, 55832
anti-HIV_cap256-038-000976_VR-Chain	2339	9981, 17623, 25265, 32907, 40549, 48191, 55833
anti-HIV_cap256-038-000384_VR-Chain	2340	9982, 17624, 25266, 32908, 40550, 48192, 55834
anti-HIV_206-314431_VR-Chain	2341	9983, 17625, 25267, 32909, 40551, 48193, 55835
anti-HIV_206-247594_VR-Chain	2342	9984, 17626, 25268, 32910, 40552, 48194, 55836
anti-HIV_206-116890_VR-Chain	2343	9985, 17627, 25269, 32911, 40553, 48195, 55837
anti-HIV_206-072383_VR-Chain	2344	9986, 17628, 25270, 32912, 40554, 48196, 55838
anti-HIV_206-037527_VR-Chain	2345	9987, 17629, 25271, 32913, 40555, 48197, 55839
anti-HIV_206-009095_VR-Chain	2346	9988, 17630, 25272, 32914, 40556, 48198, 55840
anti-HIV_176-503620_VR-Chain	2347	9989, 17631, 25273, 32915, 40557, 48199, 55841
anti-HIV_176-478726_VR-Chain	2348	9990, 17632, 25274, 32916, 40558, 48200, 55842
anti-HIV_176-245056_VR-Chain	2349	9991, 17633, 25275, 32917, 40559, 48201, 55843
anti-HIV_176-164413_VR-Chain	2350	9992, 17634, 25276, 32918, 40560, 48202, 55844
anti-HIV_176-094308_VR-Chain	2351	9993, 17635, 25277, 32919, 40561, 48203, 55845
anti-HIV_176-065321_VR-Chain	2352	9994, 17636, 25278, 32920, 40562, 48204, 55846
anti-HIV_119-099719_VR-Chain	2353	9995, 17637, 25279, 32921, 40563, 48205, 55847
anti-HIV_119-099536_VR-Chain	2354	9996, 17638, 25280, 32922, 40564, 48206, 55848
anti-HIV_119-098907_VR-Chain	2355	9997, 17639, 25281, 32923, 40565, 48207, 55849
anti-HIV_119-098555_VR-Chain	2356	9998, 17640, 25282, 32924, 40566, 48208, 55850
anti-HIV_119-097828_VR-Chain	2357	9999, 17641, 25283, 32925, 40567, 48209, 55851
anti-HIV_119-096480_VR-Chain	2358	10000, 17642, 25284, 32926, 40568, 48210, 55852
anti-HIV_119-095664_VR-Chain	2359	10001, 17643, 25285, 32927, 40569, 48211, 55853
anti-HIV_119-095212_VR-Chain	2360	10002, 17644, 25286, 32928, 40570, 48212, 55854
anti-HIV_119-094773_VR-Chain	2361	10003, 17645, 25287, 32929, 40571, 48213, 55855
anti-HIV_119-094508_VR-Chain	2362	10004, 17646, 25288, 32930, 40572, 48214, 55856
anti-HIV_119-093795_VR-Chain	2363	10005, 17647, 25289, 32931, 40573, 48215, 55857
anti-HIV_119-093732_VR-Chain	2364	10006, 17648, 25290, 32932, 40574, 48216, 55858
anti-HIV_119-092903_VR-Chain	2365	10007, 17649, 25291, 32933, 40575, 48217, 55859
anti-HIV_119-092284_VR-Chain	2366	10008, 17650, 25292, 32934, 40576, 48218, 55860
anti-HIV_119-091586_VR-Chain	2367	10009, 17651, 25293, 32935, 40577, 48219, 55861
anti-HIV_119-091023_VR-Chain	2368	10010, 17652, 25294, 32936, 40578, 48220, 55862
anti-HIV_119-090334_VR-Chain	2369	10011, 17653, 25295, 32937, 40579, 48221, 55863

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_119-088694_VR-Chain	2370	10012, 17654, 25296, 32938, 40580, 48222, 55864
anti-HIV_119-088499_VR-Chain	2371	10013, 17655, 25297, 32939, 40581, 48223, 55865
anti-HIV_119-088298_VR-Chain	2372	10014, 17656, 25298, 32940, 40582, 48224, 55866
anti-HIV_119-087488_VR-Chain	2373	10015, 17657, 25299, 32941, 40583, 48225, 55867
anti-HIV_119-087423_VR-Chain	2374	10016, 17658, 25300, 32942, 40584, 48226, 55868
anti-HIV_119-087371_VR-Chain	2375	10017, 17659, 25301, 32943, 40585, 48227, 55869
anti-HIV_119-087279_VR-Chain	2376	10018, 17660, 25302, 32944, 40586, 48228, 55870
anti-HIV_119-087146_VR-Chain	2377	10019, 17661, 25303, 32945, 40587, 48229, 55871
anti-HIV_119-087048_VR-Chain	2378	10020, 17662, 25304, 32946, 40588, 48230, 55872
anti-HIV_119-085802_VR-Chain	2379	10021, 17663, 25305, 32947, 40589, 48231, 55873
anti-HIV_119-085784_VR-Chain	2380	10022, 17664, 25306, 32948, 40590, 48232, 55874
anti-HIV_119-085370_VR-Chain	2381	10023, 17665, 25307, 32949, 40591, 48233, 55875
anti-HIV_119-085276_VR-Chain	2382	10024, 17666, 25308, 32950, 40592, 48234, 55876
anti-HIV_119-084885_VR-Chain	2383	10025, 17667, 25309, 32951, 40593, 48235, 55877
anti-HIV_119-084874_VR-Chain	2384	10026, 17668, 25310, 32952, 40594, 48236, 55878
anti-HIV_119-084691_VR-Chain	2385	10027, 17669, 25311, 32953, 40595, 48237, 55879
anti-HIV_119-083793_VR-Chain	2386	10028, 17670, 25312, 32954, 40596, 48238, 55880
anti-HIV_119-083163_VR-Chain	2387	10029, 17671, 25313, 32955, 40597, 48239, 55881
anti-HIV_119-082331_VR-Chain	2388	10030, 17672, 25314, 32956, 40598, 48240, 55882
anti-HIV_119-082070_VR-Chain	2389	10031, 17673, 25315, 32957, 40599, 48241, 55883
anti-HIV_119-081512_VR-Chain	2390	10032, 17674, 25316, 32958, 40600, 48242, 55884
anti-HIV_119-080816_VR-Chain	2391	10033, 17675, 25317, 32959, 40601, 48243, 55885
anti-HIV_119-079302_VR-Chain	2392	10034, 17676, 25318, 32960, 40602, 48244, 55886
anti-HIV_119-079292_VR-Chain	2393	10035, 17677, 25319, 32961, 40603, 48245, 55887
anti-HIV_119-079289_VR-Chain	2394	10036, 17678, 25320, 32962, 40604, 48246, 55888
anti-HIV_119-078935_VR-Chain	2395	10037, 17679, 25321, 32963, 40605, 48247, 55889
anti-HIV_119-078702_VR-Chain	2396	10038, 17680, 25322, 32964, 40606, 48248, 55890
anti-HIV_119-078593_VR-Chain	2397	10039, 17681, 25323, 32965, 40607, 48249, 55891
anti-HIV_119-077708_VR-Chain	2398	10040, 17682, 25324, 32966, 40608, 48250, 55892
anti-HIV_119-076904_VR-Chain	2399	10041, 17683, 25325, 32967, 40609, 48251, 55893
anti-HIV_119-075862_VR-Chain	2400	10042, 17684, 25326, 32968, 40610, 48252, 55894
anti-HIV_119-075465_VR-Chain	2401	10043, 17685, 25327, 32969, 40611, 48253, 55895
anti-HIV_119-074822_VR-Chain	2402	10044, 17686, 25328, 32970, 40612, 48254, 55896

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_119-074629_VR-Chain	2403	10045, 17687, 25329, 32971, 40613, 48255, 55897
anti-HIV_119-074500_VR-Chain	2404	10046, 17688, 25330, 32972, 40614, 48256, 55898
anti-HIV_119-073911_VR-Chain	2405	10047, 17689, 25331, 32973, 40615, 48257, 55899
anti-HIV_119-072765_VR-Chain	2406	10048, 17690, 25332, 32974, 40616, 48258, 55900
anti-HIV_119-072313_VR-Chain	2407	10049, 17691, 25333, 32975, 40617, 48259, 55901
anti-HIV_119-072280_VR-Chain	2408	10050, 17692, 25334, 32976, 40618, 48260, 55902
anti-HIV_119-071693_VR-Chain	2409	10051, 17693, 25335, 32977, 40619, 48261, 55903
anti-HIV_119-071353_VR-Chain	2410	10052, 17694, 25336, 32978, 40620, 48262, 55904
anti-HIV_119-069711_VR-Chain	2411	10053, 17695, 25337, 32979, 40621, 48263, 55905
anti-HIV_119-069061_VR-Chain	2412	10054, 17696, 25338, 32980, 40622, 48264, 55906
anti-HIV_119-068202_VR-Chain	2413	10055, 17697, 25339, 32981, 40623, 48265, 55907
anti-HIV_119-068063_VR-Chain	2414	10056, 17698, 25340, 32982, 40624, 48266, 55908
anti-HIV_119-067980_VR-Chain	2415	10057, 17699, 25341, 32983, 40625, 48267, 55909
anti-HIV_119-067866_VR-Chain	2416	10058, 17700, 25342, 32984, 40626, 48268, 55910
anti-HIV_119-067756_VR-Chain	2417	10059, 17701, 25343, 32985, 40627, 48269, 55911
anti-HIV_119-066859_VR-Chain	2418	10060, 17702, 25344, 32986, 40628, 48270, 55912
anti-HIV_119-065821_VR-Chain	2419	10061, 17703, 25345, 32987, 40629, 48271, 55913
anti-HIV_119-065191_VR-Chain	2420	10062, 17704, 25346, 32988, 40630, 48272, 55914
anti-HIV_119-064667_VR-Chain	2421	10063, 17705, 25347, 32989, 40631, 48273, 55915
anti-HIV_119-063791_VR-Chain	2422	10064, 17706, 25348, 32990, 40632, 48274, 55916
anti-HIV_119-062989_VR-Chain	2423	10065, 17707, 25349, 32991, 40633, 48275, 55917
anti-HIV_119-062286_VR-Chain	2424	10066, 17708, 25350, 32992, 40634, 48276, 55918
anti-HIV_119-061416_VR-Chain	2425	10067, 17709, 25351, 32993, 40635, 48277, 55919
anti-HIV_119-061344_VR-Chain	2426	10068, 17710, 25352, 32994, 40636, 48278, 55920
anti-HIV_119-060240_VR-Chain	2427	10069, 17711, 25353, 32995, 40637, 48279, 55921
anti-HIV_119-060184_VR-Chain	2428	10070, 17712, 25354, 32996, 40638, 48280, 55922
anti-HIV_119-058035_VR-Chain	2429	10071, 17713, 25355, 32997, 40639, 48281, 55923
anti-HIV_119-057858_VR-Chain	2430	10072, 17714, 25356, 32998, 40640, 48282, 55924
anti-HIV_119-057473_VR-Chain	2431	10073, 17715, 25357, 32999, 40641, 48283, 55925
anti-HIV_119-057090_VR-Chain	2432	10074, 17716, 25358, 33000, 40642, 48284, 55926
anti-HIV_119-055754_VR-Chain	2433	10075, 17717, 25359, 33001, 40643, 48285, 55927
anti-HIV_119-054899_VR-Chain	2434	10076, 17718, 25360, 33002, 40644, 48286, 55928
anti-HIV_119-054501_VR-Chain	2435	10077, 17719, 25361, 33003, 40645, 48287, 55929

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_119-051867_VR-Chain	2436	10078, 17720, 25362, 33004, 40646, 48288, 55930
anti-HIV_119-051814_VR-Chain	2437	10079, 17721, 25363, 33005, 40647, 48289, 55931
anti-HIV_119-051567_VR-Chain	2438	10080, 17722, 25364, 33006, 40648, 48290, 55932
anti-HIV_119-051483_VR-Chain	2439	10081, 17723, 25365, 33007, 40649, 48291, 55933
anti-HIV_119-050913_VR-Chain	2440	10082, 17724, 25366, 33008, 40650, 48292, 55934
anti-HIV_119-050187_VR-Chain	2441	10083, 17725, 25367, 33009, 40651, 48293, 55935
anti-HIV_119-049069_VR-Chain	2442	10084, 17726, 25368, 33010, 40652, 48294, 55936
anti-HIV_119-048517_VR-Chain	2443	10085, 17727, 25369, 33011, 40653, 48295, 55937
anti-HIV_119-048470_VR-Chain	2444	10086, 17728, 25370, 33012, 40654, 48296, 55938
anti-HIV_119-048303_VR-Chain	2445	10087, 17729, 25371, 33013, 40655, 48297, 55939
anti-HIV_119-048021_VR-Chain	2446	10088, 17730, 25372, 33014, 40656, 48298, 55940
anti-HIV_119-047928_VR-Chain	2447	10089, 17731, 25373, 33015, 40657, 48299, 55941
anti-HIV_119-047384_VR-Chain	2448	10090, 17732, 25374, 33016, 40658, 48300, 55942
anti-HIV_119-047145_VR-Chain	2449	10091, 17733, 25375, 33017, 40659, 48301, 55943
anti-HIV_119-046752_VR-Chain	2450	10092, 17734, 25376, 33018, 40660, 48302, 55944
anti-HIV_119-046660_VR-Chain	2451	10093, 17735, 25377, 33019, 40661, 48303, 55945
anti-HIV_119-046202_VR-Chain	2452	10094, 17736, 25378, 33020, 40662, 48304, 55946
anti-HIV_119-045790_VR-Chain	2453	10095, 17737, 25379, 33021, 40663, 48305, 55947
anti-HIV_119-044670_VR-Chain	2454	10096, 17738, 25380, 33022, 40664, 48306, 55948
anti-HIV_119-044140_VR-Chain	2455	10097, 17739, 25381, 33023, 40665, 48307, 55949
anti-HIV_119-042776_VR-Chain	2456	10098, 17740, 25382, 33024, 40666, 48308, 55950
anti-HIV_119-042581_VR-Chain	2457	10099, 17741, 25383, 33025, 40667, 48309, 55951
anti-HIV_119-040905_VR-Chain	2458	10100, 17742, 25384, 33026, 40668, 48310, 55952
anti-HIV_119-040322_VR-Chain	2459	10101, 17743, 25385, 33027, 40669, 48311, 55953
anti-HIV_119-039892_VR-Chain	2460	10102, 17744, 25386, 33028, 40670, 48312, 55954
anti-HIV_119-039764_VR-Chain	2461	10103, 17745, 25387, 33029, 40671, 48313, 55955
anti-HIV_119-039188_VR-Chain	2462	10104, 17746, 25388, 33030, 40672, 48314, 55956
anti-HIV_119-039058_VR-Chain	2463	10105, 17747, 25389, 33031, 40673, 48315, 55957
anti-HIV_119-038837_VR-Chain	2464	10106, 17748, 25390, 33032, 40674, 48316, 55958
anti-HIV_119-038396_VR-Chain	2465	10107, 17749, 25391, 33033, 40675, 48317, 55959
anti-HIV_119-036918_VR-Chain	2466	10108, 17750, 25392, 33034, 40676, 48318, 55960
anti-HIV_119-036592_VR-Chain	2467	10109, 17751, 25393, 33035, 40677, 48319, 55961
anti-HIV_119-036310_VR-Chain	2468	10110, 17752, 25394, 33036, 40678, 48320, 55962

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_119-035618_VR-Chain	2469	10111, 17753, 25395, 33037, 40679, 48321, 55963
anti-HIV_119-035569_VR-Chain	2470	10112, 17754, 25396, 33038, 40680, 48322, 55964
anti-HIV_119-035466_VR-Chain	2471	10113, 17755, 25397, 33039, 40681, 48323, 55965
anti-HIV_119-035157_VR-Chain	2472	10114, 17756, 25398, 33040, 40682, 48324, 55966
anti-HIV_119-035121_VR-Chain	2473	10115, 17757, 25399, 33041, 40683, 48325, 55967
anti-HIV_119-035046_VR-Chain	2474	10116, 17758, 25400, 33042, 40684, 48326, 55968
anti-HIV_119-034754_VR-Chain	2475	10117, 17759, 25401, 33043, 40685, 48327, 55969
anti-HIV_119-034318_VR-Chain	2476	10118, 17760, 25402, 33044, 40686, 48328, 55970
anti-HIV_119-033780_VR-Chain	2477	10119, 17761, 25403, 33045, 40687, 48329, 55971
anti-HIV_119-033632_VR-Chain	2478	10120, 17762, 25404, 33046, 40688, 48330, 55972
anti-HIV_119-033183_VR-Chain	2479	10121, 17763, 25405, 33047, 40689, 48331, 55973
anti-HIV_119-030696_VR-Chain	2480	10122, 17764, 25406, 33048, 40690, 48332, 55974
anti-HIV_119-030059_VR-Chain	2481	10123, 17765, 25407, 33049, 40691, 48333, 55975
anti-HIV_119-029589_VR-Chain	2482	10124, 17766, 25408, 33050, 40692, 48334, 55976
anti-HIV_119-029448_VR-Chain	2483	10125, 17767, 25409, 33051, 40693, 48335, 55977
anti-HIV_119-029220_VR-Chain	2484	10126, 17768, 25410, 33052, 40694, 48336, 55978
anti-HIV_119-028317_VR-Chain	2485	10127, 17769, 25411, 33053, 40695, 48337, 55979
anti-HIV_119-028165_VR-Chain	2486	10128, 17770, 25412, 33054, 40696, 48338, 55980
anti-HIV_119-027147_VR-Chain	2487	10129, 17771, 25413, 33055, 40697, 48339, 55981
anti-HIV_119-026743_VR-Chain	2488	10130, 17772, 25414, 33056, 40698, 48340, 55982
anti-HIV_119-026508_VR-Chain	2489	10131, 17773, 25415, 33057, 40699, 48341, 55983
anti-HIV_119-025683_VR-Chain	2490	10132, 17774, 25416, 33058, 40700, 48342, 55984
anti-HIV_119-025614_VR-Chain	2491	10133, 17775, 25417, 33059, 40701, 48343, 55985
anti-HIV_119-025548_VR-Chain	2492	10134, 17776, 25418, 33060, 40702, 48344, 55986
anti-HIV_119-025526_VR-Chain	2493	10135, 17777, 25419, 33061, 40703, 48345, 55987
anti-HIV_119-023552_VR-Chain	2494	10136, 17778, 25420, 33062, 40704, 48346, 55988
anti-HIV_119-023092_VR-Chain	2495	10137, 17779, 25421, 33063, 40705, 48347, 55989
anti-HIV_119-022793_VR-Chain	2496	10138, 17780, 25422, 33064, 40706, 48348, 55990
anti-HIV_119-022395_VR-Chain	2497	10139, 17781, 25423, 33065, 40707, 48349, 55991
anti-HIV_119-022334_VR-Chain	2498	10140, 17782, 25424, 33066, 40708, 48350, 55992
anti-HIV_119-021866_VR-Chain	2499	10141, 17783, 25425, 33067, 40709, 48351, 55993
anti-HIV_119-021278_VR-Chain	2500	10142, 17784, 25426, 33068, 40710, 48352, 55994
anti-HIV_119-021183_VR-Chain	2501	10143, 17785, 25427, 33069, 40711, 48353, 55995

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_119-019376_VR-Chain	2502	10144, 17786, 25428, 33070, 40712, 48354, 55996
anti-HIV_119-019238_VR-Chain	2503	10145, 17787, 25429, 33071, 40713, 48355, 55997
anti-HIV_119-018500_VR-Chain	2504	10146, 17788, 25430, 33072, 40714, 48356, 55998
anti-HIV_119-018318_VR-Chain	2505	10147, 17789, 25431, 33073, 40715, 48357, 55999
anti-HIV_119-018218_VR-Chain	2506	10148, 17790, 25432, 33074, 40716, 48358, 56000
anti-HIV_119-017876_VR-Chain	2507	10149, 17791, 25433, 33075, 40717, 48359, 56001
anti-HIV_119-017740_VR-Chain	2508	10150, 17792, 25434, 33076, 40718, 48360, 56002
anti-HIV_119-017128_VR-Chain	2509	10151, 17793, 25435, 33077, 40719, 48361, 56003
anti-HIV_119-017044_VR-Chain	2510	10152, 17794, 25436, 33078, 40720, 48362, 56004
anti-HIV_119-016644_VR-Chain	2511	10153, 17795, 25437, 33079, 40721, 48363, 56005
anti-HIV_119-015878_VR-Chain	2512	10154, 17796, 25438, 33080, 40722, 48364, 56006
anti-HIV_119-015538_VR-Chain	2513	10155, 17797, 25439, 33081, 40723, 48365, 56007
anti-HIV_119-015455_VR-Chain	2514	10156, 17798, 25440, 33082, 40724, 48366, 56008
anti-HIV_119-014425_VR-Chain	2515	10157, 17799, 25441, 33083, 40725, 48367, 56009
anti-HIV_119-013582_VR-Chain	2516	10158, 17800, 25442, 33084, 40726, 48368, 56010
anti-HIV_119-013364_VR-Chain	2517	10159, 17801, 25443, 33085, 40727, 48369, 56011
anti-HIV_119-012886_VR-Chain	2518	10160, 17802, 25444, 33086, 40728, 48370, 56012
anti-HIV_119-012249_VR-Chain	2519	10161, 17803, 25445, 33087, 40729, 48371, 56013
anti-HIV_119-012161_VR-Chain	2520	10162, 17804, 25446, 33088, 40730, 48372, 56014
anti-HIV_119-012110_VR-Chain	2521	10163, 17805, 25447, 33089, 40731, 48373, 56015
anti-HIV_119-012100_VR-Chain	2522	10164, 17806, 25448, 33090, 40732, 48374, 56016
anti-HIV_119-011651_VR-Chain	2523	10165, 17807, 25449, 33091, 40733, 48375, 56017
anti-HIV_119-011479_VR-Chain	2524	10166, 17808, 25450, 33092, 40734, 48376, 56018
anti-HIV_119-011232_VR-Chain	2525	10167, 17809, 25451, 33093, 40735, 48377, 56019
anti-HIV_119-011175_VR-Chain	2526	10168, 17810, 25452, 33094, 40736, 48378, 56020
anti-HIV_119-008396_VR-Chain	2527	10169, 17811, 25453, 33095, 40737, 48379, 56021
anti-HIV_119-007148_VR-Chain	2528	10170, 17812, 25454, 33096, 40738, 48380, 56022
anti-HIV_119-007029_VR-Chain	2529	10171, 17813, 25455, 33097, 40739, 48381, 56023
anti-HIV_119-004707_VR-Chain	2530	10172, 17814, 25456, 33098, 40740, 48382, 56024
anti-HIV_119-003910_VR-Chain	2531	10173, 17815, 25457, 33099, 40741, 48383, 56025
anti-HIV_119-002450_VR-Chain	2532	10174, 17816, 25458, 33100, 40742, 48384, 56026
anti-HIV_119-001552_VR-Chain	2533	10175, 17817, 25459, 33101, 40743, 48385, 56027
anti-HIV_059-188169_VR-Chain	2534	10176, 17818, 25460, 33102, 40744, 48386, 56028

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_059-183739_VR-Chain	2535	10177, 17819, 25461, 33103, 40745, 48387, 56029
anti-HIV_059-182376_VR-Chain	2536	10178, 17820, 25462, 33104, 40746, 48388, 56030
anti-HIV_059-182199_VR-Chain	2537	10179, 17821, 25463, 33105, 40747, 48389, 56031
anti-HIV_059-169202_VR-Chain	2538	10180, 17822, 25464, 33106, 40748, 48390, 56032
anti-HIV_059-155645_VR-Chain	2539	10181, 17823, 25465, 33107, 40749, 48391, 56033
anti-HIV_059-151619_VR-Chain	2540	10182, 17824, 25466, 33108, 40750, 48392, 56034
anti-HIV_059-146503_VR-Chain	2541	10183, 17825, 25467, 33109, 40751, 48393, 56035
anti-HIV_059-136098_VR-Chain	2542	10184, 17826, 25468, 33110, 40752, 48394, 56036
anti-HIV_059-105516_VR-Chain	2543	10185, 17827, 25469, 33111, 40753, 48395, 56037
anti-HIV_059-095709_VR-Chain	2544	10186, 17828, 25470, 33112, 40754, 48396, 56038
anti-HIV_059-069468_VR-Chain	2545	10187, 17829, 25471, 33113, 40755, 48397, 56039
anti-HIV_059-060026_VR-Chain	2546	10188, 17830, 25472, 33114, 40756, 48398, 56040
anti-HIV_059-053668_VR-Chain	2547	10189, 17831, 25473, 33115, 40757, 48399, 56041
anti-HIV_059-052864_VR-Chain	2548	10190, 17832, 25474, 33116, 40758, 48400, 56042
anti-HIV_059-050968_VR-Chain	2549	10191, 17833, 25475, 33117, 40759, 48401, 56043
anti-HIV_059-046422_VR-Chain	2550	10192, 17834, 25476, 33118, 40760, 48402, 56044
anti-HIV_059-045120_VR-Chain	2551	10193, 17835, 25477, 33119, 40761, 48403, 56045
anti-HIV_059-039932_VR-Chain	2552	10194, 17836, 25478, 33120, 40762, 48404, 56046
anti-HIV_059-038595_VR-Chain	2553	10195, 17837, 25479, 33121, 40763, 48405, 56047
anti-HIV_059-035082_VR-Chain	2554	10196, 17838, 25480, 33122, 40764, 48406, 56048
anti-HIV_059-029204_VR-Chain	2555	10197, 17839, 25481, 33123, 40765, 48407, 56049
anti-HIV_059-025235_VR-Chain	2556	10198, 17840, 25482, 33124, 40766, 48408, 56050
anti-HIV_059-015192_VR-Chain	2557	10199, 17841, 25483, 33125, 40767, 48409, 56051
anti-HIV_059-007060_VR-Chain	2558	10200, 17842, 25484, 33126, 40768, 48410, 56052
anti-HIV_059-006953_VR-Chain	2559	10201, 17843, 25485, 33127, 40769, 48411, 56053
anti-HIV_059-005953_VR-Chain	2560	10202, 17844, 25486, 33128, 40770, 48412, 56054
anti-HIV_059-003725_VR-Chain	2561	10203, 17845, 25487, 33129, 40771, 48413, 56055
anti-HIV_059-002618_VR-Chain	2562	10204, 17846, 25488, 33130, 40772, 48414, 56056
anti-HIV_059-001522_VR-Chain	2563	10205, 17847, 25489, 33131, 40773, 48415, 56057
anti-HIV_059-000731_VR-Chain	2564	10206, 17848, 25490, 33132, 40774, 48416, 56058
anti-HIV_059-000634_VR-Chain	2565	10207, 17849, 25491, 33133, 40775, 48417, 56059
anti-HIV_048-250757_VR-Chain	2566	10208, 17850, 25492, 33134, 40776, 48418, 56060
anti-HIV_048-250716_VR-Chain	2567	10209, 17851, 25493, 33135, 40777, 48419, 56061

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_048-250463_VR-Chain	2568	10210, 17852, 25494, 33136, 40778, 48420, 56062
anti-HIV_048-248153_VR-Chain	2569	10211, 17853, 25495, 33137, 40779, 48421, 56063
anti-HIV_048-247532_VR-Chain	2570	10212, 17854, 25496, 33138, 40780, 48422, 56064
anti-HIV_048-245846_VR-Chain	2571	10213, 17855, 25497, 33139, 40781, 48423, 56065
anti-HIV_048-244016_VR-Chain	2572	10214, 17856, 25498, 33140, 40782, 48424, 56066
anti-HIV_048-243682_VR-Chain	2573	10215, 17857, 25499, 33141, 40783, 48425, 56067
anti-HIV_048-243588_VR-Chain	2574	10216, 17858, 25500, 33142, 40784, 48426, 56068
anti-HIV_048-241775_VR-Chain	2575	10217, 17859, 25501, 33143, 40785, 48427, 56069
anti-HIV_048-237996_VR-Chain	2576	10218, 17860, 25502, 33144, 40786, 48428, 56070
anti-HIV_048-237730_VR-Chain	2577	10219, 17861, 25503, 33145, 40787, 48429, 56071
anti-HIV_048-237253_VR-Chain	2578	10220, 17862, 25504, 33146, 40788, 48430, 56072
anti-HIV_048-234100_VR-Chain	2579	10221, 17863, 25505, 33147, 40789, 48431, 56073
anti-HIV_048-230882_VR-Chain	2580	10222, 17864, 25506, 33148, 40790, 48432, 56074
anti-HIV_048-229473_VR-Chain	2581	10223, 17865, 25507, 33149, 40791, 48433, 56075
anti-HIV_048-228238_VR-Chain	2582	10224, 17866, 25508, 33150, 40792, 48434, 56076
anti-HIV_048-228027_VR-Chain	2583	10225, 17867, 25509, 33151, 40793, 48435, 56077
anti-HIV_048-227795_VR-Chain	2584	10226, 17868, 25510, 33152, 40794, 48436, 56078
anti-HIV_048-227770_VR-Chain	2585	10227, 17869, 25511, 33153, 40795, 48437, 56079
anti-HIV_048-225298_VR-Chain	2586	10228, 17870, 25512, 33154, 40796, 48438, 56080
anti-HIV_048-225090_VR-Chain	2587	10229, 17871, 25513, 33155, 40797, 48439, 56081
anti-HIV_048-224187_VR-Chain	2588	10230, 17872, 25514, 33156, 40798, 48440, 56082
anti-HIV_048-223055_VR-Chain	2589	10231, 17873, 25515, 33157, 40799, 48441, 56083
anti-HIV_048-222711_VR-Chain	2590	10232, 17874, 25516, 33158, 40800, 48442, 56084
anti-HIV_048-221209_VR-Chain	2591	10233, 17875, 25517, 33159, 40801, 48443, 56085
anti-HIV_048-220629_VR-Chain	2592	10234, 17876, 25518, 33160, 40802, 48444, 56086
anti-HIV_048-219430_VR-Chain	2593	10235, 17877, 25519, 33161, 40803, 48445, 56087
anti-HIV_048-216250_VR-Chain	2594	10236, 17878, 25520, 33162, 40804, 48446, 56088
anti-HIV_048-216133_VR-Chain	2595	10237, 17879, 25521, 33163, 40805, 48447, 56089
anti-HIV_048-214886_VR-Chain	2596	10238, 17880, 25522, 33164, 40806, 48448, 56090
anti-HIV_048-214709_VR-Chain	2597	10239, 17881, 25523, 33165, 40807, 48449, 56091
anti-HIV_048-214001_VR-Chain	2598	10240, 17882, 25524, 33166, 40808, 48450, 56092
anti-HIV_048-213230_VR-Chain	2599	10241, 17883, 25525, 33167, 40809, 48451, 56093
anti-HIV_048-212574_VR-Chain	2600	10242, 17884, 25526, 33168, 40810, 48452, 56094

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_048-212207_VR-Chain	2601	10243, 17885, 25527, 33169, 40811, 48453, 56095
anti-HIV_048-209146_VR-Chain	2602	10244, 17886, 25528, 33170, 40812, 48454, 56096
anti-HIV_048-208206_VR-Chain	2603	10245, 17887, 25529, 33171, 40813, 48455, 56097
anti-HIV_048-208194_VR-Chain	2604	10246, 17888, 25530, 33172, 40814, 48456, 56098
anti-HIV_048-207744_VR-Chain	2605	10247, 17889, 25531, 33173, 40815, 48457, 56099
anti-HIV_048-206501_VR-Chain	2606	10248, 17890, 25532, 33174, 40816, 48458, 56100
anti-HIV_048-204221_VR-Chain	2607	10249, 17891, 25533, 33175, 40817, 48459, 56101
anti-HIV_048-204015_VR-Chain	2608	10250, 17892, 25534, 33176, 40818, 48460, 56102
anti-HIV_048-201240_VR-Chain	2609	10251, 17893, 25535, 33177, 40819, 48461, 56103
anti-HIV_048-200455_VR-Chain	2610	10252, 17894, 25536, 33178, 40820, 48462, 56104
anti-HIV_048-200319_VR-Chain	2611	10253, 17895, 25537, 33179, 40821, 48463, 56105
anti-HIV_048-197896_VR-Chain	2612	10254, 17896, 25538, 33180, 40822, 48464, 56106
anti-HIV_048-193813_VR-Chain	2613	10255, 17897, 25539, 33181, 40823, 48465, 56107
anti-HIV_048-192098_VR-Chain	2614	10256, 17898, 25540, 33182, 40824, 48466, 56108
anti-HIV_048-191786_VR-Chain	2615	10257, 17899, 25541, 33183, 40825, 48467, 56109
anti-HIV_048-188746_VR-Chain	2616	10258, 17900, 25542, 33184, 40826, 48468, 56110
anti-HIV_048-185937_VR-Chain	2617	10259, 17901, 25543, 33185, 40827, 48469, 56111
anti-HIV_048-184849_VR-Chain	2618	10260, 17902, 25544, 33186, 40828, 48470, 56112
anti-HIV_048-183089_VR-Chain	2619	10261, 17903, 25545, 33187, 40829, 48471, 56113
anti-HIV_048-181509_VR-Chain	2620	10262, 17904, 25546, 33188, 40830, 48472, 56114
anti-HIV_048-180990_VR-Chain	2621	10263, 17905, 25547, 33189, 40831, 48473, 56115
anti-HIV_048-177532_VR-Chain	2622	10264, 17906, 25548, 33190, 40832, 48474, 56116
anti-HIV_048-177426_VR-Chain	2623	10265, 17907, 25549, 33191, 40833, 48475, 56117
anti-HIV_048-177389_VR-Chain	2624	10266, 17908, 25550, 33192, 40834, 48476, 56118
anti-HIV_048-174266_VR-Chain	2625	10267, 17909, 25551, 33193, 40835, 48477, 56119
anti-HIV_048-172847_VR-Chain	2626	10268, 17910, 25552, 33194, 40836, 48478, 56120
anti-HIV_048-172845_VR-Chain	2627	10269, 17911, 25553, 33195, 40837, 48479, 56121
anti-HIV_048-172363_VR-Chain	2628	10270, 17912, 25554, 33196, 40838, 48480, 56122
anti-HIV_048-171609_VR-Chain	2629	10271, 17913, 25555, 33197, 40839, 48481, 56123
anti-HIV_048-170705_VR-Chain	2630	10272, 17914, 25556, 33198, 40840, 48482, 56124
anti-HIV_048-168381_VR-Chain	2631	10273, 17915, 25557, 33199, 40841, 48483, 56125
anti-HIV_048-166619_VR-Chain	2632	10274, 17916, 25558, 33200, 40842, 48484, 56126
anti-HIV_048-162036_VR-Chain	2633	10275, 17917, 25559, 33201, 40843, 48485, 56127

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_048-160042_VR-Chain	2634	10276, 17918, 25560, 33202, 40844, 48486, 56128
anti-HIV_048-159676_VR-Chain	2635	10277, 17919, 25561, 33203, 40845, 48487, 56129
anti-HIV_048-159500_VR-Chain	2636	10278, 17920, 25562, 33204, 40846, 48488, 56130
anti-HIV_048-159421_VR-Chain	2637	10279, 17921, 25563, 33205, 40847, 48489, 56131
anti-HIV_048-159333_VR-Chain	2638	10280, 17922, 25564, 33206, 40848, 48490, 56132
anti-HIV_048-158932_VR-Chain	2639	10281, 17923, 25565, 33207, 40849, 48491, 56133
anti-HIV_048-155811_VR-Chain	2640	10282, 17924, 25566, 33208, 40850, 48492, 56134
anti-HIV_048-155464_VR-Chain	2641	10283, 17925, 25567, 33209, 40851, 48493, 56135
anti-HIV_048-155392_VR-Chain	2642	10284, 17926, 25568, 33210, 40852, 48494, 56136
anti-HIV_048-155389_VR-Chain	2643	10285, 17927, 25569, 33211, 40853, 48495, 56137
anti-HIV_048-154449_VR-Chain	2644	10286, 17928, 25570, 33212, 40854, 48496, 56138
anti-HIV_048-153379_VR-Chain	2645	10287, 17929, 25571, 33213, 40855, 48497, 56139
anti-HIV_048-153171_VR-Chain	2646	10288, 17930, 25572, 33214, 40856, 48498, 56140
anti-HIV_048-152324_VR-Chain	2647	10289, 17931, 25573, 33215, 40857, 48499, 56141
anti-HIV_048-146102_VR-Chain	2648	10290, 17932, 25574, 33216, 40858, 48500, 56142
anti-HIV_048-145984_VR-Chain	2649	10291, 17933, 25575, 33217, 40859, 48501, 56143
anti-HIV_048-145371_VR-Chain	2650	10292, 17934, 25576, 33218, 40860, 48502, 56144
anti-HIV_048-144907_VR-Chain	2651	10293, 17935, 25577, 33219, 40861, 48503, 56145
anti-HIV_048-142298_VR-Chain	2652	10294, 17936, 25578, 33220, 40862, 48504, 56146
anti-HIV_048-142277_VR-Chain	2653	10295, 17937, 25579, 33221, 40863, 48505, 56147
anti-HIV_048-141934_VR-Chain	2654	10296, 17938, 25580, 33222, 40864, 48506, 56148
anti-HIV_048-141207_VR-Chain	2655	10297, 17939, 25581, 33223, 40865, 48507, 56149
anti-HIV_048-140796_VR-Chain	2656	10298, 17940, 25582, 33224, 40866, 48508, 56150
anti-HIV_048-139893_VR-Chain	2657	10299, 17941, 25583, 33225, 40867, 48509, 56151
anti-HIV_048-138820_VR-Chain	2658	10300, 17942, 25584, 33226, 40868, 48510, 56152
anti-HIV_048-135858_VR-Chain	2659	10301, 17943, 25585, 33227, 40869, 48511, 56153
anti-HIV_048-134968_VR-Chain	2660	10302, 17944, 25586, 33228, 40870, 48512, 56154
anti-HIV_048-134312_VR-Chain	2661	10303, 17945, 25587, 33229, 40871, 48513, 56155
anti-HIV_048-132253_VR-Chain	2662	10304, 17946, 25588, 33230, 40872, 48514, 56156
anti-HIV_048-130710_VR-Chain	2663	10305, 17947, 25589, 33231, 40873, 48515, 56157
anti-HIV_048-128564_VR-Chain	2664	10306, 17948, 25590, 33232, 40874, 48516, 56158
anti-HIV_048-126702_VR-Chain	2665	10307, 17949, 25591, 33233, 40875, 48517, 56159
anti-HIV_048-124521_VR-Chain	2666	10308, 17950, 25592, 33234, 40876, 48518, 56160

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_048-122740_VR-Chain	2667	10309, 17951, 25593, 33235, 40877, 48519, 56161
anti-HIV_048-119536_VR-Chain	2668	10310, 17952, 25594, 33236, 40878, 48520, 56162
anti-HIV_048-116929_VR-Chain	2669	10311, 17953, 25595, 33237, 40879, 48521, 56163
anti-HIV_048-116577_VR-Chain	2670	10312, 17954, 25596, 33238, 40880, 48522, 56164
anti-HIV_048-116046_VR-Chain	2671	10313, 17955, 25597, 33239, 40881, 48523, 56165
anti-HIV_048-115875_VR-Chain	2672	10314, 17956, 25598, 33240, 40882, 48524, 56166
anti-HIV_048-115599_VR-Chain	2673	10315, 17957, 25599, 33241, 40883, 48525, 56167
anti-HIV_048-113988_VR-Chain	2674	10316, 17958, 25600, 33242, 40884, 48526, 56168
anti-HIV_048-112989_VR-Chain	2675	10317, 17959, 25601, 33243, 40885, 48527, 56169
anti-HIV_048-112435_VR-Chain	2676	10318, 17960, 25602, 33244, 40886, 48528, 56170
anti-HIV_048-111339_VR-Chain	2677	10319, 17961, 25603, 33245, 40887, 48529, 56171
anti-HIV_048-111055_VR-Chain	2678	10320, 17962, 25604, 33246, 40888, 48530, 56172
anti-HIV_048-111027_VR-Chain	2679	10321, 17963, 25605, 33247, 40889, 48531, 56173
anti-HIV_048-109721_VR-Chain	2680	10322, 17964, 25606, 33248, 40890, 48532, 56174
anti-HIV_048-109666_VR-Chain	2681	10323, 17965, 25607, 33249, 40891, 48533, 56175
anti-HIV_048-109196_VR-Chain	2682	10324, 17966, 25608, 33250, 40892, 48534, 56176
anti-HIV_048-109051_VR-Chain	2683	10325, 17967, 25609, 33251, 40893, 48535, 56177
anti-HIV_048-108570_VR-Chain	2684	10326, 17968, 25610, 33252, 40894, 48536, 56178
anti-HIV_048-108033_VR-Chain	2685	10327, 17969, 25611, 33253, 40895, 48537, 56179
anti-HIV_048-107279_VR-Chain	2686	10328, 17970, 25612, 33254, 40896, 48538, 56180
anti-HIV_048-106271_VR-Chain	2687	10329, 17971, 25613, 33255, 40897, 48539, 56181
anti-HIV_048-106054_VR-Chain	2688	10330, 17972, 25614, 33256, 40898, 48540, 56182
anti-HIV_048-104848_VR-Chain	2689	10331, 17973, 25615, 33257, 40899, 48541, 56183
anti-HIV_048-104638_VR-Chain	2690	10332, 17974, 25616, 33258, 40900, 48542, 56184
anti-HIV_048-104567_VR-Chain	2691	10333, 17975, 25617, 33259, 40901, 48543, 56185
anti-HIV_048-102804_VR-Chain	2692	10334, 17976, 25618, 33260, 40902, 48544, 56186
anti-HIV_048-101676_VR-Chain	2693	10335, 17977, 25619, 33261, 40903, 48545, 56187
anti-HIV_048-097603_VR-Chain	2694	10336, 17978, 25620, 33262, 40904, 48546, 56188
anti-HIV_048-097107_VR-Chain	2695	10337, 17979, 25621, 33263, 40905, 48547, 56189
anti-HIV_048-096871_VR-Chain	2696	10338, 17980, 25622, 33264, 40906, 48548, 56190
anti-HIV_048-096668_VR-Chain	2697	10339, 17981, 25623, 33265, 40907, 48549, 56191
anti-HIV_048-095236_VR-Chain	2698	10340, 17982, 25624, 33266, 40908, 48550, 56192
anti-HIV_048-094155_VR-Chain	2699	10341, 17983, 25625, 33267, 40909, 48551, 56193

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_048-093219_VR-Chain	2700	10342, 17984, 25626, 33268, 40910, 48552, 56194
anti-HIV_048-092976_VR-Chain	2701	10343, 17985, 25627, 33269, 40911, 48553, 56195
anti-HIV_048-090866_VR-Chain	2702	10344, 17986, 25628, 33270, 40912, 48554, 56196
anti-HIV_048-090650_VR-Chain	2703	10345, 17987, 25629, 33271, 40913, 48555, 56197
anti-HIV_048-089009_VR-Chain	2704	10346, 17988, 25630, 33272, 40914, 48556, 56198
anti-HIV_048-088654_VR-Chain	2705	10347, 17989, 25631, 33273, 40915, 48557, 56199
anti-HIV_048-086513_VR-Chain	2706	10348, 17990, 25632, 33274, 40916, 48558, 56200
anti-HIV_048-086024_VR-Chain	2707	10349, 17991, 25633, 33275, 40917, 48559, 56201
anti-HIV_048-085857_VR-Chain	2708	10350, 17992, 25634, 33276, 40918, 48560, 56202
anti-HIV_048-084277_VR-Chain	2709	10351, 17993, 25635, 33277, 40919, 48561, 56203
anti-HIV_048-084245_VR-Chain	2710	10352, 17994, 25636, 33278, 40920, 48562, 56204
anti-HIV_048-082487_VR-Chain	2711	10353, 17995, 25637, 33279, 40921, 48563, 56205
anti-HIV_048-081787_VR-Chain	2712	10354, 17996, 25638, 33280, 40922, 48564, 56206
anti-HIV_048-081062_VR-Chain	2713	10355, 17997, 25639, 33281, 40923, 48565, 56207
anti-HIV_048-079639_VR-Chain	2714	10356, 17998, 25640, 33282, 40924, 48566, 56208
anti-HIV_048-079126_VR-Chain	2715	10357, 17999, 25641, 33283, 40925, 48567, 56209
anti-HIV_048-073118_VR-Chain	2716	10358, 18000, 25642, 33284, 40926, 48568, 56210
anti-HIV_048-070264_VR-Chain	2717	10359, 18001, 25643, 33285, 40927, 48569, 56211
anti-HIV_048-069426_VR-Chain	2718	10360, 18002, 25644, 33286, 40928, 48570, 56212
anti-HIV_048-068564_VR-Chain	2719	10361, 18003, 25645, 33287, 40929, 48571, 56213
anti-HIV_048-068345_VR-Chain	2720	10362, 18004, 25646, 33288, 40930, 48572, 56214
anti-HIV_048-067337_VR-Chain	2721	10363, 18005, 25647, 33289, 40931, 48573, 56215
anti-HIV_048-067180_VR-Chain	2722	10364, 18006, 25648, 33290, 40932, 48574, 56216
anti-HIV_048-063017_VR-Chain	2723	10365, 18007, 25649, 33291, 40933, 48575, 56217
anti-HIV_048-061885_VR-Chain	2724	10366, 18008, 25650, 33292, 40934, 48576, 56218
anti-HIV_048-061671_VR-Chain	2725	10367, 18009, 25651, 33293, 40935, 48577, 56219
anti-HIV_048-060700_VR-Chain	2726	10368, 18010, 25652, 33294, 40936, 48578, 56220
anti-HIV_048-060592_VR-Chain	2727	10369, 18011, 25653, 33295, 40937, 48579, 56221
anti-HIV_048-060300_VR-Chain	2728	10370, 18012, 25654, 33296, 40938, 48580, 56222
anti-HIV_048-059141_VR-Chain	2729	10371, 18013, 25655, 33297, 40939, 48581, 56223
anti-HIV_048-057777_VR-Chain	2730	10372, 18014, 25656, 33298, 40940, 48582, 56224
anti-HIV_048-056928_VR-Chain	2731	10373, 18015, 25657, 33299, 40941, 48583, 56225
anti-HIV_048-056131_VR-Chain	2732	10374, 18016, 25658, 33300, 40942, 48584, 56226

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_048-055864_VR-Chain	2733	10375, 18017, 25659, 33301, 40943, 48585, 56227
anti-HIV_048-055094_VR-Chain	2734	10376, 18018, 25660, 33302, 40944, 48586, 56228
anti-HIV_048-054343_VR-Chain	2735	10377, 18019, 25661, 33303, 40945, 48587, 56229
anti-HIV_048-054193_VR-Chain	2736	10378, 18020, 25662, 33304, 40946, 48588, 56230
anti-HIV_048-052521_VR-Chain	2737	10379, 18021, 25663, 33305, 40947, 48589, 56231
anti-HIV_048-049037_VR-Chain	2738	10380, 18022, 25664, 33306, 40948, 48590, 56232
anti-HIV_048-048720_VR-Chain	2739	10381, 18023, 25665, 33307, 40949, 48591, 56233
anti-HIV_048-048542_VR-Chain	2740	10382, 18024, 25666, 33308, 40950, 48592, 56234
anti-HIV_048-047777_VR-Chain	2741	10383, 18025, 25667, 33309, 40951, 48593, 56235
anti-HIV_048-046841_VR-Chain	2742	10384, 18026, 25668, 33310, 40952, 48594, 56236
anti-HIV_048-046202_VR-Chain	2743	10385, 18027, 25669, 33311, 40953, 48595, 56237
anti-HIV_048-046059_VR-Chain	2744	10386, 18028, 25670, 33312, 40954, 48596, 56238
anti-HIV_048-043568_VR-Chain	2745	10387, 18029, 25671, 33313, 40955, 48597, 56239
anti-HIV_048-042713_VR-Chain	2746	10388, 18030, 25672, 33314, 40956, 48598, 56240
anti-HIV_048-042440_VR-Chain	2747	10389, 18031, 25673, 33315, 40957, 48599, 56241
anti-HIV_048-040511_VR-Chain	2748	10390, 18032, 25674, 33316, 40958, 48600, 56242
anti-HIV_048-039195_VR-Chain	2749	10391, 18033, 25675, 33317, 40959, 48601, 56243
anti-HIV_048-036935_VR-Chain	2750	10392, 18034, 25676, 33318, 40960, 48602, 56244
anti-HIV_048-034478_VR-Chain	2751	10393, 18035, 25677, 33319, 40961, 48603, 56245
anti-HIV_048-031641_VR-Chain	2752	10394, 18036, 25678, 33320, 40962, 48604, 56246
anti-HIV_048-029760_VR-Chain	2753	10395, 18037, 25679, 33321, 40963, 48605, 56247
anti-HIV_048-027970_VR-Chain	2754	10396, 18038, 25680, 33322, 40964, 48606, 56248
anti-HIV_048-027337_VR-Chain	2755	10397, 18039, 25681, 33323, 40965, 48607, 56249
anti-HIV_048-027217_VR-Chain	2756	10398, 18040, 25682, 33324, 40966, 48608, 56250
anti-HIV_048-026760_VR-Chain	2757	10399, 18041, 25683, 33325, 40967, 48609, 56251
anti-HIV_048-024800_VR-Chain	2758	10400, 18042, 25684, 33326, 40968, 48610, 56252
anti-HIV_048-024313_VR-Chain	2759	10401, 18043, 25685, 33327, 40969, 48611, 56253
anti-HIV_048-021748_VR-Chain	2760	10402, 18044, 25686, 33328, 40970, 48612, 56254
anti-HIV_048-020991_VR-Chain	2761	10403, 18045, 25687, 33329, 40971, 48613, 56255
anti-HIV_048-020340_VR-Chain	2762	10404, 18046, 25688, 33330, 40972, 48614, 56256
anti-HIV_048-019993_VR-Chain	2763	10405, 18047, 25689, 33331, 40973, 48615, 56257
anti-HIV_048-019947_VR-Chain	2764	10406, 18048, 25690, 33332, 40974, 48616, 56258
anti-HIV_048-017871_VR-Chain	2765	10407, 18049, 25691, 33333, 40975, 48617, 56259

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_048-015931_VR-Chain	2766	10408, 18050, 25692, 33334, 40976, 48618, 56260
anti-HIV_048-015920_VR-Chain	2767	10409, 18051, 25693, 33335, 40977, 48619, 56261
anti-HIV_048-013898_VR-Chain	2768	10410, 18052, 25694, 33336, 40978, 48620, 56262
anti-HIV_048-013429_VR-Chain	2769	10411, 18053, 25695, 33337, 40979, 48621, 56263
anti-HIV_048-012358_VR-Chain	2770	10412, 18054, 25696, 33338, 40980, 48622, 56264
anti-HIV_048-011158_VR-Chain	2771	10413, 18055, 25697, 33339, 40981, 48623, 56265
anti-HIV_048-010720_VR-Chain	2772	10414, 18056, 25698, 33340, 40982, 48624, 56266
anti-HIV_048-009445_VR-Chain	2773	10415, 18057, 25699, 33341, 40983, 48625, 56267
anti-HIV_048-006126_VR-Chain	2774	10416, 18058, 25700, 33342, 40984, 48626, 56268
anti-HIV_048-005652_VR-Chain	2775	10417, 18059, 25701, 33343, 40985, 48627, 56269
anti-HIV_048-005532_VR-Chain	2776	10418, 18060, 25702, 33344, 40986, 48628, 56270
anti-HIV_048-005189_VR-Chain	2777	10419, 18061, 25703, 33345, 40987, 48629, 56271
anti-HIV_048-005088_VR-Chain	2778	10420, 18062, 25704, 33346, 40988, 48630, 56272
anti-HIV_048-004023_VR-Chain	2779	10421, 18063, 25705, 33347, 40989, 48631, 56273
anti-HIV_048-001580_VR-Chain	2780	10422, 18064, 25706, 33348, 40990, 48632, 56274
anti-HIV_038-221120_VR-Chain	2781	10423, 18065, 25707, 33349, 40991, 48633, 56275
anti-HIV_038-197677_VR-Chain	2782	10424, 18066, 25708, 33350, 40992, 48634, 56276
anti-HIV_038-196765_VR-Chain	2783	10425, 18067, 25709, 33351, 40993, 48635, 56277
anti-HIV_038-186200_VR-Chain	2784	10426, 18068, 25710, 33352, 40994, 48636, 56278
anti-HIV_038-126170_VR-Chain	2785	10427, 18069, 25711, 33353, 40995, 48637, 56279
anti-HIV_038-108545_VR-Chain	2786	10428, 18070, 25712, 33354, 40996, 48638, 56280
anti-HIV_038-107263_VR-Chain	2787	10429, 18071, 25713, 33355, 40997, 48639, 56281
anti-HIV_038-104530_VR-Chain	2788	10430, 18072, 25714, 33356, 40998, 48640, 56282
anti-HIV_038-099169_VR-Chain	2789	10431, 18073, 25715, 33357, 40999, 48641, 56283
anti-HIV_038-075067_VR-Chain	2790	10432, 18074, 25716, 33358, 41000, 48642, 56284
anti-HIV_038-072368_VR-Chain	2791	10433, 18075, 25717, 33359, 41001, 48643, 56285
anti-HIV_038-068503_VR-Chain	2792	10434, 18076, 25718, 33360, 41002, 48644, 56286
anti-HIV_038-068016_VR-Chain	2793	10435, 18077, 25719, 33361, 41003, 48645, 56287
anti-HIV_038-063958_VR-Chain	2794	10436, 18078, 25720, 33362, 41004, 48646, 56288
anti-HIV_038-033733_VR-Chain	2795	10437, 18079, 25721, 33363, 41005, 48647, 56289
anti-HIV_038-030557_VR-Chain	2796	10438, 18080, 25722, 33364, 41006, 48648, 56290
anti-HIV_038-024298_VR-Chain	2797	10439, 18081, 25723, 33365, 41007, 48649, 56291
anti-HIV_038-011154_VR-Chain	2798	10440, 18082, 25724, 33366, 41008, 48650, 56292

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_LightChain	2799	10441, 18083, 25725, 33367, 41009, 48651, 56293
anti-HIV-1_LightChain	2800	10442, 18084, 25726, 33368, 41010, 48652, 56294
anti-HIV-1_LightChain	2801	10443, 18085, 25727, 33369, 41011, 48653, 56295
anti-HIV-1_LightChain	2802	10444, 18086, 25728, 33370, 41012, 48654, 56296
anti-HIV-1_LightChain	2803	10445, 18087, 25729, 33371, 41013, 48655, 56297
anti-HIV-1_LightChain	2804	10446, 18088, 25730, 33372, 41014, 48656, 56298
anti-HIV-1_LightChain	2805	10447, 18089, 25731, 33373, 41015, 48657, 56299
anti-HIV-1_LightChain	2806	10448, 18090, 25732, 33374, 41016, 48658, 56300
anti-HIV-1_LightChain	2807	10449, 18091, 25733, 33375, 41017, 48659, 56301
anti-HIV-1_LightChain	2808	10450, 18092, 25734, 33376, 41018, 48660, 56302
anti-HIV-1_LightChain	2809	10451, 18093, 25735, 33377, 41019, 48661, 56303
anti-HIV-1_LightChain	2810	10452, 18094, 25736, 33378, 41020, 48662, 56304
anti-HIV-1_LightChain	2811	10453, 18095, 25737, 33379, 41021, 48663, 56305
anti-HIV-1_LightChain	2812	10454, 18096, 25738, 33380, 41022, 48664, 56306
anti-HIV-1_LightChain	2813	10455, 18097, 25739, 33381, 41023, 48665, 56307
anti-HIV-1_LightChain	2814	10456, 18098, 25740, 33382, 41024, 48666, 56308
anti-HIV-1_LightChain	2815	10457, 18099, 25741, 33383, 41025, 48667, 56309
anti-HIV-1_LightChain	2816	10458, 18100, 25742, 33384, 41026, 48668, 56310
anti-HIV-1_LightChain	2817	10459, 18101, 25743, 33385, 41027, 48669, 56311
anti-HIV-1_LightChain	2818	10460, 18102, 25744, 33386, 41028, 48670, 56312
anti-HIV-1_LightChain	2819	10461, 18103, 25745, 33387, 41029, 48671, 56313
anti-HIV-1_LightChain	2820	10462, 18104, 25746, 33388, 41030, 48672, 56314
anti-HIV-1_HeavyChain	2821	10463, 18105, 25747, 33389, 41031, 48673, 56315
anti-HIV-1_HeavyChain	2822	10464, 18106, 25748, 33390, 41032, 48674, 56316
anti-HIV-1_HeavyChain	2823	10465, 18107, 25749, 33391, 41033, 48675, 56317
anti-HIV-1_HeavyChain	2824	10466, 18108, 25750, 33392, 41034, 48676, 56318
anti-HIV-1_HeavyChain	2825	10467, 18109, 25751, 33393, 41035, 48677, 56319
anti-HIV-1_HeavyChain	2826	10468, 18110, 25752, 33394, 41036, 48678, 56320
anti-HIV-1_HeavyChain	2827	10469, 18111, 25753, 33395, 41037, 48679, 56321
anti-HIV-1_HeavyChain	2828	10470, 18112, 25754, 33396, 41038, 48680, 56322
anti-HIV-1_HeavyChain	2829	10471, 18113, 25755, 33397, 41039, 48681, 56323
anti-HIV-1_HeavyChain	2830	10472, 18114, 25756, 33398, 41040, 48682, 56324
anti-HIV-1_HeavyChain	2831	10473, 18115, 25757, 33399, 41041, 48683, 56325

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	2832	10474, 18116, 25758, 33400, 41042, 48684, 56326
anti-HIV-1_HeavyChain	2833	10475, 18117, 25759, 33401, 41043, 48685, 56327
anti-HIV-1_HeavyChain	2834	10476, 18118, 25760, 33402, 41044, 48686, 56328
anti-HIV-1_HeavyChain	2835	10477, 18119, 25761, 33403, 41045, 48687, 56329
anti-HIV-1_HeavyChain	2836	10478, 18120, 25762, 33404, 41046, 48688, 56330
anti-HIV-1_HeavyChain	2837	10479, 18121, 25763, 33405, 41047, 48689, 56331
anti-HIV-1_HeavyChain	2838	10480, 18122, 25764, 33406, 41048, 48690, 56332
anti-HIV-1_HeavyChain	2839	10481, 18123, 25765, 33407, 41049, 48691, 56333
anti-HIV-1_HeavyChain	2840	10482, 18124, 25766, 33408, 41050, 48692, 56334
anti-HIV-1_HeavyChain	2841	10483, 18125, 25767, 33409, 41051, 48693, 56335
anti-HIV-1_HeavyChain	2842	10484, 18126, 25768, 33410, 41052, 48694, 56336
anti-HIV-1_HeavyChain	2843	10485, 18127, 25769, 33411, 41053, 48695, 56337
anti-HIV-1_HeavyChain	2844	10486, 18128, 25770, 33412, 41054, 48696, 56338
anti-HIV-1_HeavyChain	2845	10487, 18129, 25771, 33413, 41055, 48697, 56339
anti-HIV-1_HeavyChain	2846	10488, 18130, 25772, 33414, 41056, 48698, 56340
anti-HIV-1_HeavyChain	2847	10489, 18131, 25773, 33415, 41057, 48699, 56341
anti-HIV-1_LightChain	2848	10490, 18132, 25774, 33416, 41058, 48700, 56342
anti-HIV-1_HeavyChain	2849	10491, 18133, 25775, 33417, 41059, 48701, 56343
anti-HIV-1_HeavyChain	2850	10492, 18134, 25776, 33418, 41060, 48702, 56344
anti-HIV-1_HeavyChain	2851	10493, 18135, 25777, 33419, 41061, 48703, 56345
anti-HIV-1_HeavyChain	2852	10494, 18136, 25778, 33420, 41062, 48704, 56346
anti-HIV-1_HeavyChain	2853	10495, 18137, 25779, 33421, 41063, 48705, 56347
anti-HIV-1_HeavyChain	2854	10496, 18138, 25780, 33422, 41064, 48706, 56348
anti-HIV-1_HeavyChain	2855	10497, 18139, 25781, 33423, 41065, 48707, 56349
anti-HIV-1_HeavyChain	2856	10498, 18140, 25782, 33424, 41066, 48708, 56350
anti-HIV-1_HeavyChain	2857	10499, 18141, 25783, 33425, 41067, 48709, 56351
anti-HIV-1_HeavyChain	2858	10500, 18142, 25784, 33426, 41068, 48710, 56352
anti-HIV-1_HeavyChain	2859	10501, 18143, 25785, 33427, 41069, 48711, 56353
anti-HIV-1_HeavyChain	2860	10502, 18144, 25786, 33428, 41070, 48712, 56354
anti-HIV-1_HeavyChain	2861	10503, 18145, 25787, 33429, 41071, 48713, 56355
anti-HIV-1_HeavyChain	2862	10504, 18146, 25788, 33430, 41072, 48714, 56356
anti-HIV-1_HeavyChain	2863	10505, 18147, 25789, 33431, 41073, 48715, 56357
anti-HIV-1_HeavyChain	2864	10506, 18148, 25790, 33432, 41074, 48716, 56358

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	2865	10507, 18149, 25791, 33433, 41075, 48717, 56359
anti-HIV-1_HeavyChain	2866	10508, 18150, 25792, 33434, 41076, 48718, 56360
anti-HIV-1_HeavyChain	2867	10509, 18151, 25793, 33435, 41077, 48719, 56361
anti-HIV-1_HeavyChain	2868	10510, 18152, 25794, 33436, 41078, 48720, 56362
anti-HIV-1_HeavyChain	2869	10511, 18153, 25795, 33437, 41079, 48721, 56363
anti-HIV-1_HeavyChain	2870	10512, 18154, 25796, 33438, 41080, 48722, 56364
anti-HIV-1_HeavyChain	2871	10513, 18155, 25797, 33439, 41081, 48723, 56365
anti-HIV-1_HeavyChain	2872	10514, 18156, 25798, 33440, 41082, 48724, 56366
anti-HIV-1_HeavyChain	2873	10515, 18157, 25799, 33441, 41083, 48725, 56367
anti-HIV-1_HeavyChain	2874	10516, 18158, 25800, 33442, 41084, 48726, 56368
anti-HIV-1_HeavyChain	2875	10517, 18159, 25801, 33443, 41085, 48727, 56369
anti-HIV-1_HeavyChain	2876	10518, 18160, 25802, 33444, 41086, 48728, 56370
anti-HIV-1_HeavyChain	2877	10519, 18161, 25803, 33445, 41087, 48729, 56371
anti-HIV-1_HeavyChain	2878	10520, 18162, 25804, 33446, 41088, 48730, 56372
anti-HIV-1_HeavyChain	2879	10521, 18163, 25805, 33447, 41089, 48731, 56373
anti-HIV-1_HeavyChain	2880	10522, 18164, 25806, 33448, 41090, 48732, 56374
anti-HIV-1_HeavyChain	2881	10523, 18165, 25807, 33449, 41091, 48733, 56375
anti-HIV-1_HeavyChain	2882	10524, 18166, 25808, 33450, 41092, 48734, 56376
anti-HIV-1_HeavyChain	2883	10525, 18167, 25809, 33451, 41093, 48735, 56377
anti-HIV-1_HeavyChain	2884	10526, 18168, 25810, 33452, 41094, 48736, 56378
anti-HIV-1_HeavyChain	2885	10527, 18169, 25811, 33453, 41095, 48737, 56379
anti-HIV-1_HeavyChain	2886	10528, 18170, 25812, 33454, 41096, 48738, 56380
anti-HIV-1_HeavyChain	2887	10529, 18171, 25813, 33455, 41097, 48739, 56381
anti-HIV-1_HeavyChain	2888	10530, 18172, 25814, 33456, 41098, 48740, 56382
anti-HIV-1_HeavyChain	2889	10531, 18173, 25815, 33457, 41099, 48741, 56383
anti-HIV-1_HeavyChain	2890	10532, 18174, 25816, 33458, 41100, 48742, 56384
anti-HIV-1_HeavyChain	2891	10533, 18175, 25817, 33459, 41101, 48743, 56385
anti-HIV-1_HeavyChain	2892	10534, 18176, 25818, 33460, 41102, 48744, 56386
anti-HIV-1_HeavyChain	2893	10535, 18177, 25819, 33461, 41103, 48745, 56387
anti-HIV-1_HeavyChain	2894	10536, 18178, 25820, 33462, 41104, 48746, 56388
anti-HIV-1_HeavyChain	2895	10537, 18179, 25821, 33463, 41105, 48747, 56389
anti-HIV-1_HeavyChain	2896	10538, 18180, 25822, 33464, 41106, 48748, 56390
anti-HIV-1_HeavyChain	2897	10539, 18181, 25823, 33465, 41107, 48749, 56391

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	2898	10540, 18182, 25824, 33466, 41108, 48750, 56392
anti-HIV-1_HeavyChain	2899	10541, 18183, 25825, 33467, 41109, 48751, 56393
anti-HIV-1_HeavyChain	2900	10542, 18184, 25826, 33468, 41110, 48752, 56394
anti-HIV-1_HeavyChain	2901	10543, 18185, 25827, 33469, 41111, 48753, 56395
anti-HIV-1_HeavyChain	2902	10544, 18186, 25828, 33470, 41112, 48754, 56396
anti-HIV-1_HeavyChain	2903	10545, 18187, 25829, 33471, 41113, 48755, 56397
anti-HIV-1_HeavyChain	2904	10546, 18188, 25830, 33472, 41114, 48756, 56398
anti-HIV-1_HeavyChain	2905	10547, 18189, 25831, 33473, 41115, 48757, 56399
anti-HIV-1_HeavyChain	2906	10548, 18190, 25832, 33474, 41116, 48758, 56400
anti-HIV-1_HeavyChain	2907	10549, 18191, 25833, 33475, 41117, 48759, 56401
anti-HIV-1_HeavyChain	2908	10550, 18192, 25834, 33476, 41118, 48760, 56402
anti-HIV-1_HeavyChain	2909	10551, 18193, 25835, 33477, 41119, 48761, 56403
anti-HIV-1_HeavyChain	2910	10552, 18194, 25836, 33478, 41120, 48762, 56404
anti-HIV-1_HeavyChain	2911	10553, 18195, 25837, 33479, 41121, 48763, 56405
anti-HIV-1_HeavyChain	2912	10554, 18196, 25838, 33480, 41122, 48764, 56406
anti-HIV-1_HeavyChain	2913	10555, 18197, 25839, 33481, 41123, 48765, 56407
anti-HIV-1_HeavyChain	2914	10556, 18198, 25840, 33482, 41124, 48766, 56408
anti-HIV-1_HeavyChain	2915	10557, 18199, 25841, 33483, 41125, 48767, 56409
anti-HIV-1_HeavyChain	2916	10558, 18200, 25842, 33484, 41126, 48768, 56410
anti-HIV-1_HeavyChain	2917	10559, 18201, 25843, 33485, 41127, 48769, 56411
anti-HIV-1_HeavyChain	2918	10560, 18202, 25844, 33486, 41128, 48770, 56412
anti-HIV-1_HeavyChain	2919	10561, 18203, 25845, 33487, 41129, 48771, 56413
anti-HIV-1_HeavyChain	2920	10562, 18204, 25846, 33488, 41130, 48772, 56414
anti-HIV-1_HeavyChain	2921	10563, 18205, 25847, 33489, 41131, 48773, 56415
anti-HIV-1_HeavyChain	2922	10564, 18206, 25848, 33490, 41132, 48774, 56416
anti-HIV-1_HeavyChain	2923	10565, 18207, 25849, 33491, 41133, 48775, 56417
anti-HIV-1_HeavyChain	2924	10566, 18208, 25850, 33492, 41134, 48776, 56418
anti-HIV-1_HeavyChain	2925	10567, 18209, 25851, 33493, 41135, 48777, 56419
anti-HIV-1_HeavyChain	2926	10568, 18210, 25852, 33494, 41136, 48778, 56420
anti-HIV-1_HeavyChain	2927	10569, 18211, 25853, 33495, 41137, 48779, 56421
anti-HIV-1_HeavyChain	2928	10570, 18212, 25854, 33496, 41138, 48780, 56422
anti-HIV-1_HeavyChain	2929	10571, 18213, 25855, 33497, 41139, 48781, 56423
anti-HIV-1_HeavyChain	2930	10572, 18214, 25856, 33498, 41140, 48782, 56424

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	2931	10573, 18215, 25857, 33499, 41141, 48783, 56425
anti-HIV-1_HeavyChain	2932	10574, 18216, 25858, 33500, 41142, 48784, 56426
anti-HIV-1_HeavyChain	2933	10575, 18217, 25859, 33501, 41143, 48785, 56427
anti-HIV-1_HeavyChain	2934	10576, 18218, 25860, 33502, 41144, 48786, 56428
anti-HIV-1_HeavyChain	2935	10577, 18219, 25861, 33503, 41145, 48787, 56429
anti-HIV-1_HeavyChain	2936	10578, 18220, 25862, 33504, 41146, 48788, 56430
anti-HIV-1_HeavyChain	2937	10579, 18221, 25863, 33505, 41147, 48789, 56431
anti-HIV-1_HeavyChain	2938	10580, 18222, 25864, 33506, 41148, 48790, 56432
anti-HIV-1_HeavyChain	2939	10581, 18223, 25865, 33507, 41149, 48791, 56433
anti-HIV-1_HeavyChain	2940	10582, 18224, 25866, 33508, 41150, 48792, 56434
anti-HIV-1_HeavyChain	2941	10583, 18225, 25867, 33509, 41151, 48793, 56435
anti-HIV-1_HeavyChain	2942	10584, 18226, 25868, 33510, 41152, 48794, 56436
anti-HIV-1_HeavyChain	2943	10585, 18227, 25869, 33511, 41153, 48795, 56437
anti-HIV-1_HeavyChain	2944	10586, 18228, 25870, 33512, 41154, 48796, 56438
anti-HIV-1_HeavyChain	2945	10587, 18229, 25871, 33513, 41155, 48797, 56439
anti-HIV-1_HeavyChain	2946	10588, 18230, 25872, 33514, 41156, 48798, 56440
anti-HIV-1_HeavyChain	2947	10589, 18231, 25873, 33515, 41157, 48799, 56441
anti-HIV-1_HeavyChain	2948	10590, 18232, 25874, 33516, 41158, 48800, 56442
anti-HIV-1_HeavyChain	2949	10591, 18233, 25875, 33517, 41159, 48801, 56443
anti-HIV-1_HeavyChain	2950	10592, 18234, 25876, 33518, 41160, 48802, 56444
anti-HIV-1_HeavyChain	2951	10593, 18235, 25877, 33519, 41161, 48803, 56445
anti-HIV-1_HeavyChain	2952	10594, 18236, 25878, 33520, 41162, 48804, 56446
anti-HIV-1_HeavyChain	2953	10595, 18237, 25879, 33521, 41163, 48805, 56447
anti-HIV-1_HeavyChain	2954	10596, 18238, 25880, 33522, 41164, 48806, 56448
anti-HIV-1_HeavyChain	2955	10597, 18239, 25881, 33523, 41165, 48807, 56449
anti-HIV-1_HeavyChain	2956	10598, 18240, 25882, 33524, 41166, 48808, 56450
anti-HIV-1_HeavyChain	2957	10599, 18241, 25883, 33525, 41167, 48809, 56451
anti-HIV-1_HeavyChain	2958	10600, 18242, 25884, 33526, 41168, 48810, 56452
anti-HIV-1_HeavyChain	2959	10601, 18243, 25885, 33527, 41169, 48811, 56453
anti-HIV-1_HeavyChain	2960	10602, 18244, 25886, 33528, 41170, 48812, 56454
anti-HIV-1_HeavyChain	2961	10603, 18245, 25887, 33529, 41171, 48813, 56455
anti-HIV-1_HeavyChain	2962	10604, 18246, 25888, 33530, 41172, 48814, 56456
anti-HIV-1_HeavyChain	2963	10605, 18247, 25889, 33531, 41173, 48815, 56457

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	2964	10606, 18248, 25890, 33532, 41174, 48816, 56458
anti-HIV-1_HeavyChain	2965	10607, 18249, 25891, 33533, 41175, 48817, 56459
anti-HIV-1_HeavyChain	2966	10608, 18250, 25892, 33534, 41176, 48818, 56460
anti-HIV-1_HeavyChain	2967	10609, 18251, 25893, 33535, 41177, 48819, 56461
anti-HIV-1_HeavyChain	2968	10610, 18252, 25894, 33536, 41178, 48820, 56462
anti-HIV-1_HeavyChain	2969	10611, 18253, 25895, 33537, 41179, 48821, 56463
anti-HIV-1_HeavyChain	2970	10612, 18254, 25896, 33538, 41180, 48822, 56464
anti-HIV-1_HeavyChain	2971	10613, 18255, 25897, 33539, 41181, 48823, 56465
anti-HIV-1_HeavyChain	2972	10614, 18256, 25898, 33540, 41182, 48824, 56466
anti-HIV-1_HeavyChain	2973	10615, 18257, 25899, 33541, 41183, 48825, 56467
anti-HIV-1_HeavyChain	2974	10616, 18258, 25900, 33542, 41184, 48826, 56468
anti-HIV-1_HeavyChain	2975	10617, 18259, 25901, 33543, 41185, 48827, 56469
anti-HIV-1_HeavyChain	2976	10618, 18260, 25902, 33544, 41186, 48828, 56470
anti-HIV-1_HeavyChain	2977	10619, 18261, 25903, 33545, 41187, 48829, 56471
anti-HIV-1_HeavyChain	2978	10620, 18262, 25904, 33546, 41188, 48830, 56472
anti-HIV-1_HeavyChain	2979	10621, 18263, 25905, 33547, 41189, 48831, 56473
anti-HIV-1_HeavyChain	2980	10622, 18264, 25906, 33548, 41190, 48832, 56474
anti-HIV-1_HeavyChain	2981	10623, 18265, 25907, 33549, 41191, 48833, 56475
anti-HIV-1_HeavyChain	2982	10624, 18266, 25908, 33550, 41192, 48834, 56476
anti-HIV-1_HeavyChain	2983	10625, 18267, 25909, 33551, 41193, 48835, 56477
anti-HIV-1_HeavyChain	2984	10626, 18268, 25910, 33552, 41194, 48836, 56478
anti-HIV-1_HeavyChain	2985	10627, 18269, 25911, 33553, 41195, 48837, 56479
anti-HIV-1_HeavyChain	2986	10628, 18270, 25912, 33554, 41196, 48838, 56480
anti-HIV-1_HeavyChain	2987	10629, 18271, 25913, 33555, 41197, 48839, 56481
anti-HIV-1_HeavyChain	2988	10630, 18272, 25914, 33556, 41198, 48840, 56482
anti-HIV-1_HeavyChain	2989	10631, 18273, 25915, 33557, 41199, 48841, 56483
anti-HIV-1_HeavyChain	2990	10632, 18274, 25916, 33558, 41200, 48842, 56484
anti-HIV-1_HeavyChain	2991	10633, 18275, 25917, 33559, 41201, 48843, 56485
anti-HIV-1_HeavyChain	2992	10634, 18276, 25918, 33560, 41202, 48844, 56486
anti-HIV-1_HeavyChain	2993	10635, 18277, 25919, 33561, 41203, 48845, 56487
anti-HIV-1_HeavyChain	2994	10636, 18278, 25920, 33562, 41204, 48846, 56488
anti-HIV-1_HeavyChain	2995	10637, 18279, 25921, 33563, 41205, 48847, 56489
anti-HIV-1_HeavyChain	2996	10638, 18280, 25922, 33564, 41206, 48848, 56490

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	2997	10639, 18281, 25923, 33565, 41207, 48849, 56491
anti-HIV-1_HeavyChain	2998	10640, 18282, 25924, 33566, 41208, 48850, 56492
anti-HIV-1_HeavyChain	2999	10641, 18283, 25925, 33567, 41209, 48851, 56493
anti-HIV-1_HeavyChain	3000	10642, 18284, 25926, 33568, 41210, 48852, 56494
anti-HIV-1_HeavyChain	3001	10643, 18285, 25927, 33569, 41211, 48853, 56495
anti-HIV-1_HeavyChain	3002	10644, 18286, 25928, 33570, 41212, 48854, 56496
anti-HIV-1_HeavyChain	3003	10645, 18287, 25929, 33571, 41213, 48855, 56497
anti-HIV-1_HeavyChain	3004	10646, 18288, 25930, 33572, 41214, 48856, 56498
anti-HIV-1_HeavyChain	3005	10647, 18289, 25931, 33573, 41215, 48857, 56499
anti-HIV-1_HeavyChain	3006	10648, 18290, 25932, 33574, 41216, 48858, 56500
anti-HIV-1_HeavyChain	3007	10649, 18291, 25933, 33575, 41217, 48859, 56501
anti-HIV-1_HeavyChain	3008	10650, 18292, 25934, 33576, 41218, 48860, 56502
anti-HIV-1_HeavyChain	3009	10651, 18293, 25935, 33577, 41219, 48861, 56503
anti-HIV-1_HeavyChain	3010	10652, 18294, 25936, 33578, 41220, 48862, 56504
anti-HIV-1_HeavyChain	3011	10653, 18295, 25937, 33579, 41221, 48863, 56505
anti-HIV-1_HeavyChain	3012	10654, 18296, 25938, 33580, 41222, 48864, 56506
anti-HIV-1_HeavyChain	3013	10655, 18297, 25939, 33581, 41223, 48865, 56507
anti-HIV-1_HeavyChain	3014	10656, 18298, 25940, 33582, 41224, 48866, 56508
anti-HIV-1_HeavyChain	3015	10657, 18299, 25941, 33583, 41225, 48867, 56509
anti-HIV-1_HeavyChain	3016	10658, 18300, 25942, 33584, 41226, 48868, 56510
anti-HIV-1_HeavyChain	3017	10659, 18301, 25943, 33585, 41227, 48869, 56511
anti-HIV-1_HeavyChain	3018	10660, 18302, 25944, 33586, 41228, 48870, 56512
anti-HIV-1_HeavyChain	3019	10661, 18303, 25945, 33587, 41229, 48871, 56513
anti-HIV-1_HeavyChain	3020	10662, 18304, 25946, 33588, 41230, 48872, 56514
anti-HIV-1_HeavyChain	3021	10663, 18305, 25947, 33589, 41231, 48873, 56515
anti-HIV-1_HeavyChain	3022	10664, 18306, 25948, 33590, 41232, 48874, 56516
anti-HIV-1_HeavyChain	3023	10665, 18307, 25949, 33591, 41233, 48875, 56517
anti-HIV-1_HeavyChain	3024	10666, 18308, 25950, 33592, 41234, 48876, 56518
anti-HIV-1_HeavyChain	3025	10667, 18309, 25951, 33593, 41235, 48877, 56519
anti-HIV-1_HeavyChain	3026	10668, 18310, 25952, 33594, 41236, 48878, 56520
anti-HIV-1_HeavyChain	3027	10669, 18311, 25953, 33595, 41237, 48879, 56521
anti-HIV-1_HeavyChain	3028	10670, 18312, 25954, 33596, 41238, 48880, 56522
anti-HIV-1_HeavyChain	3029	10671, 18313, 25955, 33597, 41239, 48881, 56523

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3030	10672, 18314, 25956, 33598, 41240, 48882, 56524
anti-HIV-1_HeavyChain	3031	10673, 18315, 25957, 33599, 41241, 48883, 56525
anti-HIV-1_HeavyChain	3032	10674, 18316, 25958, 33600, 41242, 48884, 56526
anti-HIV-1_HeavyChain	3033	10675, 18317, 25959, 33601, 41243, 48885, 56527
anti-HIV-1_HeavyChain	3034	10676, 18318, 25960, 33602, 41244, 48886, 56528
anti-HIV-1_HeavyChain	3035	10677, 18319, 25961, 33603, 41245, 48887, 56529
anti-HIV-1_HeavyChain	3036	10678, 18320, 25962, 33604, 41246, 48888, 56530
anti-HIV-1_HeavyChain	3037	10679, 18321, 25963, 33605, 41247, 48889, 56531
anti-HIV-1_HeavyChain	3038	10680, 18322, 25964, 33606, 41248, 48890, 56532
anti-HIV-1_HeavyChain	3039	10681, 18323, 25965, 33607, 41249, 48891, 56533
anti-HIV-1_HeavyChain	3040	10682, 18324, 25966, 33608, 41250, 48892, 56534
anti-HIV-1_HeavyChain	3041	10683, 18325, 25967, 33609, 41251, 48893, 56535
anti-HIV-1_HeavyChain	3042	10684, 18326, 25968, 33610, 41252, 48894, 56536
anti-HIV-1_HeavyChain	3043	10685, 18327, 25969, 33611, 41253, 48895, 56537
anti-HIV-1_HeavyChain	3044	10686, 18328, 25970, 33612, 41254, 48896, 56538
anti-HIV-1_HeavyChain	3045	10687, 18329, 25971, 33613, 41255, 48897, 56539
anti-HIV-1_HeavyChain	3046	10688, 18330, 25972, 33614, 41256, 48898, 56540
anti-HIV-1_HeavyChain	3047	10689, 18331, 25973, 33615, 41257, 48899, 56541
anti-HIV-1_HeavyChain	3048	10690, 18332, 25974, 33616, 41258, 48900, 56542
anti-HIV-1_HeavyChain	3049	10691, 18333, 25975, 33617, 41259, 48901, 56543
anti-HIV-1_HeavyChain	3050	10692, 18334, 25976, 33618, 41260, 48902, 56544
anti-HIV-1_HeavyChain	3051	10693, 18335, 25977, 33619, 41261, 48903, 56545
anti-HIV-1_HeavyChain	3052	10694, 18336, 25978, 33620, 41262, 48904, 56546
anti-HIV-1_HeavyChain	3053	10695, 18337, 25979, 33621, 41263, 48905, 56547
anti-HIV-1_HeavyChain	3054	10696, 18338, 25980, 33622, 41264, 48906, 56548
anti-HIV-1_HeavyChain	3055	10697, 18339, 25981, 33623, 41265, 48907, 56549
anti-HIV-1_HeavyChain	3056	10698, 18340, 25982, 33624, 41266, 48908, 56550
anti-HIV-1_HeavyChain	3057	10699, 18341, 25983, 33625, 41267, 48909, 56551
anti-HIV-1_HeavyChain	3058	10700, 18342, 25984, 33626, 41268, 48910, 56552
anti-HIV-1_HeavyChain	3059	10701, 18343, 25985, 33627, 41269, 48911, 56553
anti-HIV-1_HeavyChain	3060	10702, 18344, 25986, 33628, 41270, 48912, 56554
anti-HIV-1_HeavyChain	3061	10703, 18345, 25987, 33629, 41271, 48913, 56555
anti-HIV-1_HeavyChain	3062	10704, 18346, 25988, 33630, 41272, 48914, 56556

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3063	10705, 18347, 25989, 33631, 41273, 48915, 56557
anti-HIV-1_HeavyChain	3064	10706, 18348, 25990, 33632, 41274, 48916, 56558
anti-HIV-1_HeavyChain	3065	10707, 18349, 25991, 33633, 41275, 48917, 56559
anti-HIV-1_HeavyChain	3066	10708, 18350, 25992, 33634, 41276, 48918, 56560
anti-HIV-1_HeavyChain	3067	10709, 18351, 25993, 33635, 41277, 48919, 56561
anti-HIV-1_HeavyChain	3068	10710, 18352, 25994, 33636, 41278, 48920, 56562
anti-HIV-1_HeavyChain	3069	10711, 18353, 25995, 33637, 41279, 48921, 56563
anti-HIV-1_HeavyChain	3070	10712, 18354, 25996, 33638, 41280, 48922, 56564
anti-HIV-1_HeavyChain	3071	10713, 18355, 25997, 33639, 41281, 48923, 56565
anti-HIV-1_HeavyChain	3072	10714, 18356, 25998, 33640, 41282, 48924, 56566
anti-HIV-1_HeavyChain	3073	10715, 18357, 25999, 33641, 41283, 48925, 56567
anti-HIV-1_HeavyChain	3074	10716, 18358, 26000, 33642, 41284, 48926, 56568
anti-HIV-1_HeavyChain	3075	10717, 18359, 26001, 33643, 41285, 48927, 56569
anti-HIV-1_HeavyChain	3076	10718, 18360, 26002, 33644, 41286, 48928, 56570
anti-HIV-1_HeavyChain	3077	10719, 18361, 26003, 33645, 41287, 48929, 56571
anti-HIV-1_HeavyChain	3078	10720, 18362, 26004, 33646, 41288, 48930, 56572
anti-HIV-1_HeavyChain	3079	10721, 18363, 26005, 33647, 41289, 48931, 56573
anti-HIV-1_HeavyChain	3080	10722, 18364, 26006, 33648, 41290, 48932, 56574
anti-HIV-1_HeavyChain	3081	10723, 18365, 26007, 33649, 41291, 48933, 56575
anti-HIV-1_HeavyChain	3082	10724, 18366, 26008, 33650, 41292, 48934, 56576
anti-HIV-1_HeavyChain	3083	10725, 18367, 26009, 33651, 41293, 48935, 56577
anti-HIV-1_HeavyChain	3084	10726, 18368, 26010, 33652, 41294, 48936, 56578
anti-HIV-1_HeavyChain	3085	10727, 18369, 26011, 33653, 41295, 48937, 56579
anti-HIV-1_HeavyChain	3086	10728, 18370, 26012, 33654, 41296, 48938, 56580
anti-HIV-1_HeavyChain	3087	10729, 18371, 26013, 33655, 41297, 48939, 56581
anti-HIV-1_HeavyChain	3088	10730, 18372, 26014, 33656, 41298, 48940, 56582
anti-HIV-1_HeavyChain	3089	10731, 18373, 26015, 33657, 41299, 48941, 56583
anti-HIV-1_HeavyChain	3090	10732, 18374, 26016, 33658, 41300, 48942, 56584
anti-HIV-1_HeavyChain	3091	10733, 18375, 26017, 33659, 41301, 48943, 56585
anti-HIV-1_HeavyChain	3092	10734, 18376, 26018, 33660, 41302, 48944, 56586
anti-HIV-1_HeavyChain	3093	10735, 18377, 26019, 33661, 41303, 48945, 56587
anti-HIV-1_HeavyChain	3094	10736, 18378, 26020, 33662, 41304, 48946, 56588
anti-HIV-1_HeavyChain	3095	10737, 18379, 26021, 33663, 41305, 48947, 56589

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3096	10738, 18380, 26022, 33664, 41306, 48948, 56590
anti-HIV-1_HeavyChain	3097	10739, 18381, 26023, 33665, 41307, 48949, 56591
anti-HIV-1_HeavyChain	3098	10740, 18382, 26024, 33666, 41308, 48950, 56592
anti-HIV-1_HeavyChain	3099	10741, 18383, 26025, 33667, 41309, 48951, 56593
anti-HIV-1_HeavyChain	3100	10742, 18384, 26026, 33668, 41310, 48952, 56594
anti-HIV-1_HeavyChain	3101	10743, 18385, 26027, 33669, 41311, 48953, 56595
anti-HIV-1_HeavyChain	3102	10744, 18386, 26028, 33670, 41312, 48954, 56596
anti-HIV-1_HeavyChain	3103	10745, 18387, 26029, 33671, 41313, 48955, 56597
anti-HIV-1_HeavyChain	3104	10746, 18388, 26030, 33672, 41314, 48956, 56598
anti-HIV-1_HeavyChain	3105	10747, 18389, 26031, 33673, 41315, 48957, 56599
anti-HIV-1_HeavyChain	3106	10748, 18390, 26032, 33674, 41316, 48958, 56600
anti-HIV-1_HeavyChain	3107	10749, 18391, 26033, 33675, 41317, 48959, 56601
anti-HIV-1_HeavyChain	3108	10750, 18392, 26034, 33676, 41318, 48960, 56602
anti-HIV-1_HeavyChain	3109	10751, 18393, 26035, 33677, 41319, 48961, 56603
anti-HIV-1_HeavyChain	3110	10752, 18394, 26036, 33678, 41320, 48962, 56604
anti-HIV-1_HeavyChain	3111	10753, 18395, 26037, 33679, 41321, 48963, 56605
anti-HIV-1_HeavyChain	3112	10754, 18396, 26038, 33680, 41322, 48964, 56606
anti-HIV-1_HeavyChain	3113	10755, 18397, 26039, 33681, 41323, 48965, 56607
anti-HIV-1_HeavyChain	3114	10756, 18398, 26040, 33682, 41324, 48966, 56608
anti-HIV-1_HeavyChain	3115	10757, 18399, 26041, 33683, 41325, 48967, 56609
anti-HIV-1_HeavyChain	3116	10758, 18400, 26042, 33684, 41326, 48968, 56610
anti-HIV-1_HeavyChain	3117	10759, 18401, 26043, 33685, 41327, 48969, 56611
anti-HIV-1_HeavyChain	3118	10760, 18402, 26044, 33686, 41328, 48970, 56612
anti-HIV-1_HeavyChain	3119	10761, 18403, 26045, 33687, 41329, 48971, 56613
anti-HIV-1_HeavyChain	3120	10762, 18404, 26046, 33688, 41330, 48972, 56614
anti-HIV-1_HeavyChain	3121	10763, 18405, 26047, 33689, 41331, 48973, 56615
anti-HIV-1_HeavyChain	3122	10764, 18406, 26048, 33690, 41332, 48974, 56616
anti-HIV-1_HeavyChain	3123	10765, 18407, 26049, 33691, 41333, 48975, 56617
anti-HIV-1_HeavyChain	3124	10766, 18408, 26050, 33692, 41334, 48976, 56618
anti-HIV-1_HeavyChain	3125	10767, 18409, 26051, 33693, 41335, 48977, 56619
anti-HIV-1_HeavyChain	3126	10768, 18410, 26052, 33694, 41336, 48978, 56620
anti-HIV-1_HeavyChain	3127	10769, 18411, 26053, 33695, 41337, 48979, 56621
anti-HIV-1_HeavyChain	3128	10770, 18412, 26054, 33696, 41338, 48980, 56622

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3129	10771, 18413, 26055, 33697, 41339, 48981, 56623
anti-HIV-1_HeavyChain	3130	10772, 18414, 26056, 33698, 41340, 48982, 56624
anti-HIV-1_HeavyChain	3131	10773, 18415, 26057, 33699, 41341, 48983, 56625
anti-HIV-1_HeavyChain	3132	10774, 18416, 26058, 33700, 41342, 48984, 56626
anti-HIV-1_HeavyChain	3133	10775, 18417, 26059, 33701, 41343, 48985, 56627
anti-HIV-1_HeavyChain	3134	10776, 18418, 26060, 33702, 41344, 48986, 56628
anti-HIV-1_HeavyChain	3135	10777, 18419, 26061, 33703, 41345, 48987, 56629
anti-HIV-1_HeavyChain	3136	10778, 18420, 26062, 33704, 41346, 48988, 56630
anti-HIV-1_HeavyChain	3137	10779, 18421, 26063, 33705, 41347, 48989, 56631
anti-HIV-1_HeavyChain	3138	10780, 18422, 26064, 33706, 41348, 48990, 56632
anti-HIV-1_HeavyChain	3139	10781, 18423, 26065, 33707, 41349, 48991, 56633
anti-HIV-1_HeavyChain	3140	10782, 18424, 26066, 33708, 41350, 48992, 56634
anti-HIV-1_HeavyChain	3141	10783, 18425, 26067, 33709, 41351, 48993, 56635
anti-HIV-1_HeavyChain	3142	10784, 18426, 26068, 33710, 41352, 48994, 56636
anti-HIV-1_HeavyChain	3143	10785, 18427, 26069, 33711, 41353, 48995, 56637
anti-HIV-1_HeavyChain	3144	10786, 18428, 26070, 33712, 41354, 48996, 56638
anti-HIV-1_HeavyChain	3145	10787, 18429, 26071, 33713, 41355, 48997, 56639
anti-HIV-1_HeavyChain	3146	10788, 18430, 26072, 33714, 41356, 48998, 56640
anti-HIV-1_HeavyChain	3147	10789, 18431, 26073, 33715, 41357, 48999, 56641
anti-HIV-1_HeavyChain	3148	10790, 18432, 26074, 33716, 41358, 49000, 56642
anti-HIV-1_HeavyChain	3149	10791, 18433, 26075, 33717, 41359, 49001, 56643
anti-HIV-1_HeavyChain	3150	10792, 18434, 26076, 33718, 41360, 49002, 56644
anti-HIV-1_HeavyChain	3151	10793, 18435, 26077, 33719, 41361, 49003, 56645
anti-HIV-1_HeavyChain	3152	10794, 18436, 26078, 33720, 41362, 49004, 56646
anti-HIV-1_HeavyChain	3153	10795, 18437, 26079, 33721, 41363, 49005, 56647
anti-HIV-1_HeavyChain	3154	10796, 18438, 26080, 33722, 41364, 49006, 56648
anti-HIV-1_HeavyChain	3155	10797, 18439, 26081, 33723, 41365, 49007, 56649
anti-HIV-1_HeavyChain	3156	10798, 18440, 26082, 33724, 41366, 49008, 56650
anti-HIV-1_HeavyChain	3157	10799, 18441, 26083, 33725, 41367, 49009, 56651
anti-HIV-1_HeavyChain	3158	10800, 18442, 26084, 33726, 41368, 49010, 56652
anti-HIV-1_HeavyChain	3159	10801, 18443, 26085, 33727, 41369, 49011, 56653
anti-HIV-1_HeavyChain	3160	10802, 18444, 26086, 33728, 41370, 49012, 56654
anti-HIV-1_HeavyChain	3161	10803, 18445, 26087, 33729, 41371, 49013, 56655

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3162	10804, 18446, 26088, 33730, 41372, 49014, 56656
anti-HIV-1_HeavyChain	3163	10805, 18447, 26089, 33731, 41373, 49015, 56657
anti-HIV-1_HeavyChain	3164	10806, 18448, 26090, 33732, 41374, 49016, 56658
anti-HIV-1_HeavyChain	3165	10807, 18449, 26091, 33733, 41375, 49017, 56659
anti-HIV-1_HeavyChain	3166	10808, 18450, 26092, 33734, 41376, 49018, 56660
anti-HIV-1_HeavyChain	3167	10809, 18451, 26093, 33735, 41377, 49019, 56661
anti-HIV-1_HeavyChain	3168	10810, 18452, 26094, 33736, 41378, 49020, 56662
anti-HIV-1_HeavyChain	3169	10811, 18453, 26095, 33737, 41379, 49021, 56663
anti-HIV-1_HeavyChain	3170	10812, 18454, 26096, 33738, 41380, 49022, 56664
anti-HIV-1_HeavyChain	3171	10813, 18455, 26097, 33739, 41381, 49023, 56665
anti-HIV-1_HeavyChain	3172	10814, 18456, 26098, 33740, 41382, 49024, 56666
anti-HIV-1_HeavyChain	3173	10815, 18457, 26099, 33741, 41383, 49025, 56667
anti-HIV-1_HeavyChain	3174	10816, 18458, 26100, 33742, 41384, 49026, 56668
anti-HIV-1_HeavyChain	3175	10817, 18459, 26101, 33743, 41385, 49027, 56669
anti-HIV-1_HeavyChain	3176	10818, 18460, 26102, 33744, 41386, 49028, 56670
anti-HIV-1_HeavyChain	3177	10819, 18461, 26103, 33745, 41387, 49029, 56671
anti-HIV-1_HeavyChain	3178	10820, 18462, 26104, 33746, 41388, 49030, 56672
anti-HIV-1_HeavyChain	3179	10821, 18463, 26105, 33747, 41389, 49031, 56673
anti-HIV-1_HeavyChain	3180	10822, 18464, 26106, 33748, 41390, 49032, 56674
anti-HIV-1_HeavyChain	3181	10823, 18465, 26107, 33749, 41391, 49033, 56675
anti-HIV-1_HeavyChain	3182	10824, 18466, 26108, 33750, 41392, 49034, 56676
anti-HIV-1_HeavyChain	3183	10825, 18467, 26109, 33751, 41393, 49035, 56677
anti-HIV-1_HeavyChain	3184	10826, 18468, 26110, 33752, 41394, 49036, 56678
anti-HIV-1_HeavyChain	3185	10827, 18469, 26111, 33753, 41395, 49037, 56679
anti-HIV-1_HeavyChain	3186	10828, 18470, 26112, 33754, 41396, 49038, 56680
anti-HIV-1_HeavyChain	3187	10829, 18471, 26113, 33755, 41397, 49039, 56681
anti-HIV-1_HeavyChain	3188	10830, 18472, 26114, 33756, 41398, 49040, 56682
anti-HIV-1_HeavyChain	3189	10831, 18473, 26115, 33757, 41399, 49041, 56683
anti-HIV-1_HeavyChain	3190	10832, 18474, 26116, 33758, 41400, 49042, 56684
anti-HIV-1_HeavyChain	3191	10833, 18475, 26117, 33759, 41401, 49043, 56685
anti-HIV-1_HeavyChain	3192	10834, 18476, 26118, 33760, 41402, 49044, 56686
anti-HIV-1_HeavyChain	3193	10835, 18477, 26119, 33761, 41403, 49045, 56687
anti-HIV-1_HeavyChain	3194	10836, 18478, 26120, 33762, 41404, 49046, 56688

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3195	10837, 18479, 26121, 33763, 41405, 49047, 56689
anti-HIV-1_HeavyChain	3196	10838, 18480, 26122, 33764, 41406, 49048, 56690
anti-HIV-1_HeavyChain	3197	10839, 18481, 26123, 33765, 41407, 49049, 56691
anti-HIV-1_HeavyChain	3198	10840, 18482, 26124, 33766, 41408, 49050, 56692
anti-HIV-1_HeavyChain	3199	10841, 18483, 26125, 33767, 41409, 49051, 56693
anti-HIV-1_HeavyChain	3200	10842, 18484, 26126, 33768, 41410, 49052, 56694
anti-HIV-1_HeavyChain	3201	10843, 18485, 26127, 33769, 41411, 49053, 56695
anti-HIV-1_HeavyChain	3202	10844, 18486, 26128, 33770, 41412, 49054, 56696
anti-HIV-1_HeavyChain	3203	10845, 18487, 26129, 33771, 41413, 49055, 56697
anti-HIV-1_HeavyChain	3204	10846, 18488, 26130, 33772, 41414, 49056, 56698
anti-HIV-1_HeavyChain	3205	10847, 18489, 26131, 33773, 41415, 49057, 56699
anti-HIV-1_HeavyChain	3206	10848, 18490, 26132, 33774, 41416, 49058, 56700
anti-HIV-1_HeavyChain	3207	10849, 18491, 26133, 33775, 41417, 49059, 56701
anti-HIV-1_HeavyChain	3208	10850, 18492, 26134, 33776, 41418, 49060, 56702
anti-HIV-1_HeavyChain	3209	10851, 18493, 26135, 33777, 41419, 49061, 56703
anti-HIV-1_HeavyChain	3210	10852, 18494, 26136, 33778, 41420, 49062, 56704
anti-HIV-1_HeavyChain	3211	10853, 18495, 26137, 33779, 41421, 49063, 56705
anti-HIV-1_HeavyChain	3212	10854, 18496, 26138, 33780, 41422, 49064, 56706
anti-HIV-1_HeavyChain	3213	10855, 18497, 26139, 33781, 41423, 49065, 56707
anti-HIV-1_HeavyChain	3214	10856, 18498, 26140, 33782, 41424, 49066, 56708
anti-HIV-1_HeavyChain	3215	10857, 18499, 26141, 33783, 41425, 49067, 56709
anti-HIV-1_HeavyChain	3216	10858, 18500, 26142, 33784, 41426, 49068, 56710
anti-HIV-1_HeavyChain	3217	10859, 18501, 26143, 33785, 41427, 49069, 56711
anti-HIV-1_HeavyChain	3218	10860, 18502, 26144, 33786, 41428, 49070, 56712
anti-HIV-1_HeavyChain	3219	10861, 18503, 26145, 33787, 41429, 49071, 56713
anti-HIV-1_HeavyChain	3220	10862, 18504, 26146, 33788, 41430, 49072, 56714
anti-HIV-1_HeavyChain	3221	10863, 18505, 26147, 33789, 41431, 49073, 56715
anti-HIV-1_HeavyChain	3222	10864, 18506, 26148, 33790, 41432, 49074, 56716
anti-HIV-1_HeavyChain	3223	10865, 18507, 26149, 33791, 41433, 49075, 56717
anti-HIV-1_HeavyChain	3224	10866, 18508, 26150, 33792, 41434, 49076, 56718
anti-HIV-1_HeavyChain	3225	10867, 18509, 26151, 33793, 41435, 49077, 56719
anti-HIV-1_HeavyChain	3226	10868, 18510, 26152, 33794, 41436, 49078, 56720
anti-HIV-1_HeavyChain	3227	10869, 18511, 26153, 33795, 41437, 49079, 56721

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3228	10870, 18512, 26154, 33796, 41438, 49080, 56722
anti-HIV-1_HeavyChain	3229	10871, 18513, 26155, 33797, 41439, 49081, 56723
anti-HIV-1_HeavyChain	3230	10872, 18514, 26156, 33798, 41440, 49082, 56724
anti-HIV-1_HeavyChain	3231	10873, 18515, 26157, 33799, 41441, 49083, 56725
anti-HIV-1_HeavyChain	3232	10874, 18516, 26158, 33800, 41442, 49084, 56726
anti-HIV-1_HeavyChain	3233	10875, 18517, 26159, 33801, 41443, 49085, 56727
anti-HIV-1_HeavyChain	3234	10876, 18518, 26160, 33802, 41444, 49086, 56728
anti-HIV-1_HeavyChain	3235	10877, 18519, 26161, 33803, 41445, 49087, 56729
anti-HIV-1_HeavyChain	3236	10878, 18520, 26162, 33804, 41446, 49088, 56730
anti-HIV-1_HeavyChain	3237	10879, 18521, 26163, 33805, 41447, 49089, 56731
anti-HIV-1_HeavyChain	3238	10880, 18522, 26164, 33806, 41448, 49090, 56732
anti-HIV-1_HeavyChain	3239	10881, 18523, 26165, 33807, 41449, 49091, 56733
anti-HIV-1_HeavyChain	3240	10882, 18524, 26166, 33808, 41450, 49092, 56734
anti-HIV-1_HeavyChain	3241	10883, 18525, 26167, 33809, 41451, 49093, 56735
anti-HIV-1_HeavyChain	3242	10884, 18526, 26168, 33810, 41452, 49094, 56736
anti-HIV-1_HeavyChain	3243	10885, 18527, 26169, 33811, 41453, 49095, 56737
anti-HIV-1_HeavyChain	3244	10886, 18528, 26170, 33812, 41454, 49096, 56738
anti-HIV-1_HeavyChain	3245	10887, 18529, 26171, 33813, 41455, 49097, 56739
anti-HIV-1_HeavyChain	3246	10888, 18530, 26172, 33814, 41456, 49098, 56740
anti-HIV-1_HeavyChain	3247	10889, 18531, 26173, 33815, 41457, 49099, 56741
anti-HIV-1_HeavyChain	3248	10890, 18532, 26174, 33816, 41458, 49100, 56742
anti-HIV-1_HeavyChain	3249	10891, 18533, 26175, 33817, 41459, 49101, 56743
anti-HIV-1_HeavyChain	3250	10892, 18534, 26176, 33818, 41460, 49102, 56744
anti-HIV-1_HeavyChain	3251	10893, 18535, 26177, 33819, 41461, 49103, 56745
anti-HIV-1_HeavyChain	3252	10894, 18536, 26178, 33820, 41462, 49104, 56746
anti-HIV-1_HeavyChain	3253	10895, 18537, 26179, 33821, 41463, 49105, 56747
anti-HIV-1_HeavyChain	3254	10896, 18538, 26180, 33822, 41464, 49106, 56748
anti-HIV-1_HeavyChain	3255	10897, 18539, 26181, 33823, 41465, 49107, 56749
anti-HIV-1_HeavyChain	3256	10898, 18540, 26182, 33824, 41466, 49108, 56750
anti-HIV-1_HeavyChain	3257	10899, 18541, 26183, 33825, 41467, 49109, 56751
anti-HIV-1_HeavyChain	3258	10900, 18542, 26184, 33826, 41468, 49110, 56752
anti-HIV-1_HeavyChain	3259	10901, 18543, 26185, 33827, 41469, 49111, 56753
anti-HIV-1_HeavyChain	3260	10902, 18544, 26186, 33828, 41470, 49112, 56754

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3261	10903, 18545, 26187, 33829, 41471, 49113, 56755
anti-HIV-1_HeavyChain	3262	10904, 18546, 26188, 33830, 41472, 49114, 56756
anti-HIV-1_HeavyChain	3263	10905, 18547, 26189, 33831, 41473, 49115, 56757
anti-HIV-1_HeavyChain	3264	10906, 18548, 26190, 33832, 41474, 49116, 56758
anti-HIV-1_HeavyChain	3265	10907, 18549, 26191, 33833, 41475, 49117, 56759
anti-HIV-1_HeavyChain	3266	10908, 18550, 26192, 33834, 41476, 49118, 56760
anti-HIV-1_HeavyChain	3267	10909, 18551, 26193, 33835, 41477, 49119, 56761
anti-HIV-1_HeavyChain	3268	10910, 18552, 26194, 33836, 41478, 49120, 56762
anti-HIV-1_HeavyChain	3269	10911, 18553, 26195, 33837, 41479, 49121, 56763
anti-HIV-1_HeavyChain	3270	10912, 18554, 26196, 33838, 41480, 49122, 56764
anti-HIV-1_HeavyChain	3271	10913, 18555, 26197, 33839, 41481, 49123, 56765
anti-HIV-1_HeavyChain	3272	10914, 18556, 26198, 33840, 41482, 49124, 56766
anti-HIV-1_HeavyChain	3273	10915, 18557, 26199, 33841, 41483, 49125, 56767
anti-HIV-1_HeavyChain	3274	10916, 18558, 26200, 33842, 41484, 49126, 56768
anti-HIV-1_HeavyChain	3275	10917, 18559, 26201, 33843, 41485, 49127, 56769
anti-HIV-1_HeavyChain	3276	10918, 18560, 26202, 33844, 41486, 49128, 56770
anti-HIV-1_HeavyChain	3277	10919, 18561, 26203, 33845, 41487, 49129, 56771
anti-HIV-1_HeavyChain	3278	10920, 18562, 26204, 33846, 41488, 49130, 56772
anti-HIV-1_HeavyChain	3279	10921, 18563, 26205, 33847, 41489, 49131, 56773
anti-HIV-1_HeavyChain	3280	10922, 18564, 26206, 33848, 41490, 49132, 56774
anti-HIV-1_HeavyChain	3281	10923, 18565, 26207, 33849, 41491, 49133, 56775
anti-HIV-1_HeavyChain	3282	10924, 18566, 26208, 33850, 41492, 49134, 56776
anti-HIV-1_HeavyChain	3283	10925, 18567, 26209, 33851, 41493, 49135, 56777
anti-HIV-1_HeavyChain	3284	10926, 18568, 26210, 33852, 41494, 49136, 56778
anti-HIV-1_HeavyChain	3285	10927, 18569, 26211, 33853, 41495, 49137, 56779
anti-HIV-1_HeavyChain	3286	10928, 18570, 26212, 33854, 41496, 49138, 56780
anti-HIV-1_HeavyChain	3287	10929, 18571, 26213, 33855, 41497, 49139, 56781
anti-HIV-1_HeavyChain	3288	10930, 18572, 26214, 33856, 41498, 49140, 56782
anti-HIV-1_HeavyChain	3289	10931, 18573, 26215, 33857, 41499, 49141, 56783
anti-HIV-1_HeavyChain	3290	10932, 18574, 26216, 33858, 41500, 49142, 56784
anti-HIV-1_HeavyChain	3291	10933, 18575, 26217, 33859, 41501, 49143, 56785
anti-HIV-1_HeavyChain	3292	10934, 18576, 26218, 33860, 41502, 49144, 56786
anti-HIV-1_HeavyChain	3293	10935, 18577, 26219, 33861, 41503, 49145, 56787

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3294	10936, 18578, 26220, 33862, 41504, 49146, 56788
anti-HIV-1_HeavyChain	3295	10937, 18579, 26221, 33863, 41505, 49147, 56789
anti-HIV-1_HeavyChain	3296	10938, 18580, 26222, 33864, 41506, 49148, 56790
anti-HIV-1_HeavyChain	3297	10939, 18581, 26223, 33865, 41507, 49149, 56791
anti-HIV-1_HeavyChain	3298	10940, 18582, 26224, 33866, 41508, 49150, 56792
anti-HIV-1_HeavyChain	3299	10941, 18583, 26225, 33867, 41509, 49151, 56793
anti-HIV-1_HeavyChain	3300	10942, 18584, 26226, 33868, 41510, 49152, 56794
anti-HIV-1_HeavyChain	3301	10943, 18585, 26227, 33869, 41511, 49153, 56795
anti-HIV-1_HeavyChain	3302	10944, 18586, 26228, 33870, 41512, 49154, 56796
anti-HIV-1_HeavyChain	3303	10945, 18587, 26229, 33871, 41513, 49155, 56797
anti-HIV-1_HeavyChain	3304	10946, 18588, 26230, 33872, 41514, 49156, 56798
anti-HIV-1_HeavyChain	3305	10947, 18589, 26231, 33873, 41515, 49157, 56799
anti-HIV-1_HeavyChain	3306	10948, 18590, 26232, 33874, 41516, 49158, 56800
anti-HIV-1_HeavyChain	3307	10949, 18591, 26233, 33875, 41517, 49159, 56801
anti-HIV-1_HeavyChain	3308	10950, 18592, 26234, 33876, 41518, 49160, 56802
anti-HIV-1_HeavyChain	3309	10951, 18593, 26235, 33877, 41519, 49161, 56803
anti-HIV-1_HeavyChain	3310	10952, 18594, 26236, 33878, 41520, 49162, 56804
anti-HIV-1_HeavyChain	3311	10953, 18595, 26237, 33879, 41521, 49163, 56805
anti-HIV-1_HeavyChain	3312	10954, 18596, 26238, 33880, 41522, 49164, 56806
anti-HIV-1_HeavyChain	3313	10955, 18597, 26239, 33881, 41523, 49165, 56807
anti-HIV-1_HeavyChain	3314	10956, 18598, 26240, 33882, 41524, 49166, 56808
anti-HIV-1_HeavyChain	3315	10957, 18599, 26241, 33883, 41525, 49167, 56809
anti-HIV-1_HeavyChain	3316	10958, 18600, 26242, 33884, 41526, 49168, 56810
anti-HIV-1_HeavyChain	3317	10959, 18601, 26243, 33885, 41527, 49169, 56811
anti-HIV-1_HeavyChain	3318	10960, 18602, 26244, 33886, 41528, 49170, 56812
anti-HIV-1_HeavyChain	3319	10961, 18603, 26245, 33887, 41529, 49171, 56813
anti-HIV-1_HeavyChain	3320	10962, 18604, 26246, 33888, 41530, 49172, 56814
anti-HIV-1_HeavyChain	3321	10963, 18605, 26247, 33889, 41531, 49173, 56815
anti-HIV-1_HeavyChain	3322	10964, 18606, 26248, 33890, 41532, 49174, 56816
anti-HIV-1_HeavyChain	3323	10965, 18607, 26249, 33891, 41533, 49175, 56817
anti-HIV-1_HeavyChain	3324	10966, 18608, 26250, 33892, 41534, 49176, 56818
anti-HIV-1_HeavyChain	3325	10967, 18609, 26251, 33893, 41535, 49177, 56819
anti-HIV-1_HeavyChain	3326	10968, 18610, 26252, 33894, 41536, 49178, 56820

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3327	10969, 18611, 26253, 33895, 41537, 49179, 56821
anti-HIV-1_HeavyChain	3328	10970, 18612, 26254, 33896, 41538, 49180, 56822
anti-HIV-1_HeavyChain	3329	10971, 18613, 26255, 33897, 41539, 49181, 56823
anti-HIV-1_HeavyChain	3330	10972, 18614, 26256, 33898, 41540, 49182, 56824
anti-HIV-1_HeavyChain	3331	10973, 18615, 26257, 33899, 41541, 49183, 56825
anti-HIV-1_HeavyChain	3332	10974, 18616, 26258, 33900, 41542, 49184, 56826
anti-HIV-1_HeavyChain	3333	10975, 18617, 26259, 33901, 41543, 49185, 56827
anti-HIV-1_HeavyChain	3334	10976, 18618, 26260, 33902, 41544, 49186, 56828
anti-HIV-1_HeavyChain	3335	10977, 18619, 26261, 33903, 41545, 49187, 56829
anti-HIV-1_HeavyChain	3336	10978, 18620, 26262, 33904, 41546, 49188, 56830
anti-HIV-1_HeavyChain	3337	10979, 18621, 26263, 33905, 41547, 49189, 56831
anti-HIV-1_HeavyChain	3338	10980, 18622, 26264, 33906, 41548, 49190, 56832
anti-HIV-1_HeavyChain	3339	10981, 18623, 26265, 33907, 41549, 49191, 56833
anti-HIV-1_HeavyChain	3340	10982, 18624, 26266, 33908, 41550, 49192, 56834
anti-HIV-1_HeavyChain	3341	10983, 18625, 26267, 33909, 41551, 49193, 56835
anti-HIV-1_HeavyChain	3342	10984, 18626, 26268, 33910, 41552, 49194, 56836
anti-HIV-1_HeavyChain	3343	10985, 18627, 26269, 33911, 41553, 49195, 56837
anti-HIV-1_HeavyChain	3344	10986, 18628, 26270, 33912, 41554, 49196, 56838
anti-HIV-1_HeavyChain	3345	10987, 18629, 26271, 33913, 41555, 49197, 56839
anti-HIV-1_HeavyChain	3346	10988, 18630, 26272, 33914, 41556, 49198, 56840
anti-HIV-1_HeavyChain	3347	10989, 18631, 26273, 33915, 41557, 49199, 56841
anti-HIV-1_HeavyChain	3348	10990, 18632, 26274, 33916, 41558, 49200, 56842
anti-HIV-1_HeavyChain	3349	10991, 18633, 26275, 33917, 41559, 49201, 56843
anti-HIV-1_HeavyChain	3350	10992, 18634, 26276, 33918, 41560, 49202, 56844
anti-HIV-1_HeavyChain	3351	10993, 18635, 26277, 33919, 41561, 49203, 56845
anti-HIV-1_HeavyChain	3352	10994, 18636, 26278, 33920, 41562, 49204, 56846
anti-HIV-1_HeavyChain	3353	10995, 18637, 26279, 33921, 41563, 49205, 56847
anti-HIV-1_HeavyChain	3354	10996, 18638, 26280, 33922, 41564, 49206, 56848
anti-HIV-1_HeavyChain	3355	10997, 18639, 26281, 33923, 41565, 49207, 56849
anti-HIV-1_HeavyChain	3356	10998, 18640, 26282, 33924, 41566, 49208, 56850
anti-HIV-1_HeavyChain	3357	10999, 18641, 26283, 33925, 41567, 49209, 56851
anti-HIV-1_HeavyChain	3358	11000, 18642, 26284, 33926, 41568, 49210, 56852
anti-HIV-1_HeavyChain	3359	11001, 18643, 26285, 33927, 41569, 49211, 56853

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3360	11002, 18644, 26286, 33928, 41570, 49212, 56854
anti-HIV-1_HeavyChain	3361	11003, 18645, 26287, 33929, 41571, 49213, 56855
anti-HIV-1_HeavyChain	3362	11004, 18646, 26288, 33930, 41572, 49214, 56856
anti-HIV-1_HeavyChain	3363	11005, 18647, 26289, 33931, 41573, 49215, 56857
anti-HIV-1_HeavyChain	3364	11006, 18648, 26290, 33932, 41574, 49216, 56858
anti-HIV-1_HeavyChain	3365	11007, 18649, 26291, 33933, 41575, 49217, 56859
anti-HIV-1_HeavyChain	3366	11008, 18650, 26292, 33934, 41576, 49218, 56860
anti-HIV-1_HeavyChain	3367	11009, 18651, 26293, 33935, 41577, 49219, 56861
anti-HIV-1_HeavyChain	3368	11010, 18652, 26294, 33936, 41578, 49220, 56862
anti-HIV-1_HeavyChain	3369	11011, 18653, 26295, 33937, 41579, 49221, 56863
anti-HIV-1_HeavyChain	3370	11012, 18654, 26296, 33938, 41580, 49222, 56864
anti-HIV-1_HeavyChain	3371	11013, 18655, 26297, 33939, 41581, 49223, 56865
anti-HIV-1_HeavyChain	3372	11014, 18656, 26298, 33940, 41582, 49224, 56866
anti-HIV-1_HeavyChain	3373	11015, 18657, 26299, 33941, 41583, 49225, 56867
anti-HIV-1_HeavyChain	3374	11016, 18658, 26300, 33942, 41584, 49226, 56868
anti-HIV-1_HeavyChain	3375	11017, 18659, 26301, 33943, 41585, 49227, 56869
anti-HIV-1_HeavyChain	3376	11018, 18660, 26302, 33944, 41586, 49228, 56870
anti-HIV-1_HeavyChain	3377	11019, 18661, 26303, 33945, 41587, 49229, 56871
anti-HIV-1_HeavyChain	3378	11020, 18662, 26304, 33946, 41588, 49230, 56872
anti-HIV-1_HeavyChain	3379	11021, 18663, 26305, 33947, 41589, 49231, 56873
anti-HIV-1_HeavyChain	3380	11022, 18664, 26306, 33948, 41590, 49232, 56874
anti-HIV-1_HeavyChain	3381	11023, 18665, 26307, 33949, 41591, 49233, 56875
anti-HIV-1_HeavyChain	3382	11024, 18666, 26308, 33950, 41592, 49234, 56876
anti-HIV-1_HeavyChain	3383	11025, 18667, 26309, 33951, 41593, 49235, 56877
anti-HIV-1_HeavyChain	3384	11026, 18668, 26310, 33952, 41594, 49236, 56878
anti-HIV-1_HeavyChain	3385	11027, 18669, 26311, 33953, 41595, 49237, 56879
anti-HIV-1_HeavyChain	3386	11028, 18670, 26312, 33954, 41596, 49238, 56880
anti-HIV-1_HeavyChain	3387	11029, 18671, 26313, 33955, 41597, 49239, 56881
anti-HIV-1_HeavyChain	3388	11030, 18672, 26314, 33956, 41598, 49240, 56882
anti-HIV-1_HeavyChain	3389	11031, 18673, 26315, 33957, 41599, 49241, 56883
anti-HIV-1_HeavyChain	3390	11032, 18674, 26316, 33958, 41600, 49242, 56884
anti-HIV-1_HeavyChain	3391	11033, 18675, 26317, 33959, 41601, 49243, 56885
anti-HIV-1_HeavyChain	3392	11034, 18676, 26318, 33960, 41602, 49244, 56886

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3393	11035, 18677, 26319, 33961, 41603, 49245, 56887
anti-HIV-1_HeavyChain	3394	11036, 18678, 26320, 33962, 41604, 49246, 56888
anti-HIV-1_HeavyChain	3395	11037, 18679, 26321, 33963, 41605, 49247, 56889
anti-HIV-1_HeavyChain	3396	11038, 18680, 26322, 33964, 41606, 49248, 56890
anti-HIV-1_HeavyChain	3397	11039, 18681, 26323, 33965, 41607, 49249, 56891
anti-HIV-1_HeavyChain	3398	11040, 18682, 26324, 33966, 41608, 49250, 56892
anti-HIV-1_HeavyChain	3399	11041, 18683, 26325, 33967, 41609, 49251, 56893
anti-HIV-1_HeavyChain	3400	11042, 18684, 26326, 33968, 41610, 49252, 56894
anti-HIV-1_HeavyChain	3401	11043, 18685, 26327, 33969, 41611, 49253, 56895
anti-HIV-1_HeavyChain	3402	11044, 18686, 26328, 33970, 41612, 49254, 56896
anti-HIV-1_HeavyChain	3403	11045, 18687, 26329, 33971, 41613, 49255, 56897
anti-HIV-1_HeavyChain	3404	11046, 18688, 26330, 33972, 41614, 49256, 56898
anti-HIV-1_HeavyChain	3405	11047, 18689, 26331, 33973, 41615, 49257, 56899
anti-HIV-1_HeavyChain	3406	11048, 18690, 26332, 33974, 41616, 49258, 56900
anti-HIV-1_HeavyChain	3407	11049, 18691, 26333, 33975, 41617, 49259, 56901
anti-HIV-1_HeavyChain	3408	11050, 18692, 26334, 33976, 41618, 49260, 56902
anti-HIV-1_HeavyChain	3409	11051, 18693, 26335, 33977, 41619, 49261, 56903
anti-HIV-1_HeavyChain	3410	11052, 18694, 26336, 33978, 41620, 49262, 56904
anti-HIV-1_HeavyChain	3411	11053, 18695, 26337, 33979, 41621, 49263, 56905
anti-HIV-1_HeavyChain	3412	11054, 18696, 26338, 33980, 41622, 49264, 56906
anti-HIV-1_HeavyChain	3413	11055, 18697, 26339, 33981, 41623, 49265, 56907
anti-HIV-1_HeavyChain	3414	11056, 18698, 26340, 33982, 41624, 49266, 56908
anti-HIV-1_HeavyChain	3415	11057, 18699, 26341, 33983, 41625, 49267, 56909
anti-HIV-1_HeavyChain	3416	11058, 18700, 26342, 33984, 41626, 49268, 56910
anti-HIV-1_HeavyChain	3417	11059, 18701, 26343, 33985, 41627, 49269, 56911
anti-HIV-1_HeavyChain	3418	11060, 18702, 26344, 33986, 41628, 49270, 56912
anti-HIV-1_HeavyChain	3419	11061, 18703, 26345, 33987, 41629, 49271, 56913
anti-HIV-1_HeavyChain	3420	11062, 18704, 26346, 33988, 41630, 49272, 56914
anti-HIV-1_HeavyChain	3421	11063, 18705, 26347, 33989, 41631, 49273, 56915
anti-HIV-1_HeavyChain	3422	11064, 18706, 26348, 33990, 41632, 49274, 56916
anti-HIV-1_HeavyChain	3423	11065, 18707, 26349, 33991, 41633, 49275, 56917
anti-HIV-1_HeavyChain	3424	11066, 18708, 26350, 33992, 41634, 49276, 56918
anti-HIV-1_HeavyChain	3425	11067, 18709, 26351, 33993, 41635, 49277, 56919

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3426	11068, 18710, 26352, 33994, 41636, 49278, 56920
anti-HIV-1_HeavyChain	3427	11069, 18711, 26353, 33995, 41637, 49279, 56921
anti-HIV-1_HeavyChain	3428	11070, 18712, 26354, 33996, 41638, 49280, 56922
anti-HIV-1_HeavyChain	3429	11071, 18713, 26355, 33997, 41639, 49281, 56923
anti-HIV-1_HeavyChain	3430	11072, 18714, 26356, 33998, 41640, 49282, 56924
anti-HIV-1_HeavyChain	3431	11073, 18715, 26357, 33999, 41641, 49283, 56925
anti-HIV-1_HeavyChain	3432	11074, 18716, 26358, 34000, 41642, 49284, 56926
anti-HIV-1_HeavyChain	3433	11075, 18717, 26359, 34001, 41643, 49285, 56927
anti-HIV-1_HeavyChain	3434	11076, 18718, 26360, 34002, 41644, 49286, 56928
anti-HIV-1_HeavyChain	3435	11077, 18719, 26361, 34003, 41645, 49287, 56929
anti-HIV-1_HeavyChain	3436	11078, 18720, 26362, 34004, 41646, 49288, 56930
anti-HIV-1_HeavyChain	3437	11079, 18721, 26363, 34005, 41647, 49289, 56931
anti-HIV-1_HeavyChain	3438	11080, 18722, 26364, 34006, 41648, 49290, 56932
anti-HIV-1_HeavyChain	3439	11081, 18723, 26365, 34007, 41649, 49291, 56933
anti-HIV-1_HeavyChain	3440	11082, 18724, 26366, 34008, 41650, 49292, 56934
anti-HIV-1_HeavyChain	3441	11083, 18725, 26367, 34009, 41651, 49293, 56935
anti-HIV-1_HeavyChain	3442	11084, 18726, 26368, 34010, 41652, 49294, 56936
anti-HIV-1_HeavyChain	3443	11085, 18727, 26369, 34011, 41653, 49295, 56937
anti-HIV-1_HeavyChain	3444	11086, 18728, 26370, 34012, 41654, 49296, 56938
anti-HIV-1_HeavyChain	3445	11087, 18729, 26371, 34013, 41655, 49297, 56939
anti-HIV-1_HeavyChain	3446	11088, 18730, 26372, 34014, 41656, 49298, 56940
anti-HIV-1_HeavyChain	3447	11089, 18731, 26373, 34015, 41657, 49299, 56941
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anti-HIV-1_HeavyChain	3449	11091, 18733, 26375, 34017, 41659, 49301, 56943
anti-HIV-1_HeavyChain	3450	11092, 18734, 26376, 34018, 41660, 49302, 56944
anti-HIV-1_HeavyChain	3451	11093, 18735, 26377, 34019, 41661, 49303, 56945
anti-HIV-1_HeavyChain	3452	11094, 18736, 26378, 34020, 41662, 49304, 56946
anti-HIV-1_HeavyChain	3453	11095, 18737, 26379, 34021, 41663, 49305, 56947
anti-HIV-1_HeavyChain	3454	11096, 18738, 26380, 34022, 41664, 49306, 56948
anti-HIV-1_HeavyChain	3455	11097, 18739, 26381, 34023, 41665, 49307, 56949
anti-HIV-1_HeavyChain	3456	11098, 18740, 26382, 34024, 41666, 49308, 56950
anti-HIV-1_HeavyChain	3457	11099, 18741, 26383, 34025, 41667, 49309, 56951
anti-HIV-1_HeavyChain	3458	11100, 18742, 26384, 34026, 41668, 49310, 56952

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3459	11101, 18743, 26385, 34027, 41669, 49311, 56953
anti-HIV-1_HeavyChain	3460	11102, 18744, 26386, 34028, 41670, 49312, 56954
anti-HIV-1_HeavyChain	3461	11103, 18745, 26387, 34029, 41671, 49313, 56955
anti-HIV-1_HeavyChain	3462	11104, 18746, 26388, 34030, 41672, 49314, 56956
anti-HIV-1_HeavyChain	3463	11105, 18747, 26389, 34031, 41673, 49315, 56957
anti-HIV-1_HeavyChain	3464	11106, 18748, 26390, 34032, 41674, 49316, 56958
anti-HIV-1_HeavyChain	3465	11107, 18749, 26391, 34033, 41675, 49317, 56959
anti-HIV-1_HeavyChain	3466	11108, 18750, 26392, 34034, 41676, 49318, 56960
anti-HIV-1_HeavyChain	3467	11109, 18751, 26393, 34035, 41677, 49319, 56961
anti-HIV-1_HeavyChain	3468	11110, 18752, 26394, 34036, 41678, 49320, 56962
anti-HIV-1_HeavyChain	3469	11111, 18753, 26395, 34037, 41679, 49321, 56963
anti-HIV-1_HeavyChain	3470	11112, 18754, 26396, 34038, 41680, 49322, 56964
anti-HIV-1_HeavyChain	3471	11113, 18755, 26397, 34039, 41681, 49323, 56965
anti-HIV-1_HeavyChain	3472	11114, 18756, 26398, 34040, 41682, 49324, 56966
anti-HIV-1_HeavyChain	3473	11115, 18757, 26399, 34041, 41683, 49325, 56967
anti-HIV-1_HeavyChain	3474	11116, 18758, 26400, 34042, 41684, 49326, 56968
anti-HIV-1_HeavyChain	3475	11117, 18759, 26401, 34043, 41685, 49327, 56969
anti-HIV-1_HeavyChain	3476	11118, 18760, 26402, 34044, 41686, 49328, 56970
anti-HIV-1_HeavyChain	3477	11119, 18761, 26403, 34045, 41687, 49329, 56971
anti-HIV-1_HeavyChain	3478	11120, 18762, 26404, 34046, 41688, 49330, 56972
anti-HIV-1_HeavyChain	3479	11121, 18763, 26405, 34047, 41689, 49331, 56973
anti-HIV-1_HeavyChain	3480	11122, 18764, 26406, 34048, 41690, 49332, 56974
anti-HIV-1_HeavyChain	3481	11123, 18765, 26407, 34049, 41691, 49333, 56975
anti-HIV-1_HeavyChain	3482	11124, 18766, 26408, 34050, 41692, 49334, 56976
anti-HIV-1_HeavyChain	3483	11125, 18767, 26409, 34051, 41693, 49335, 56977
anti-HIV-1_HeavyChain	3484	11126, 18768, 26410, 34052, 41694, 49336, 56978
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anti-HIV-1_HeavyChain	3486	11128, 18770, 26412, 34054, 41696, 49338, 56980
anti-HIV-1_HeavyChain	3487	11129, 18771, 26413, 34055, 41697, 49339, 56981
anti-HIV-1_HeavyChain	3488	11130, 18772, 26414, 34056, 41698, 49340, 56982
anti-HIV-1_HeavyChain	3489	11131, 18773, 26415, 34057, 41699, 49341, 56983
anti-HIV-1_HeavyChain	3490	11132, 18774, 26416, 34058, 41700, 49342, 56984
anti-HIV-1_HeavyChain	3491	11133, 18775, 26417, 34059, 41701, 49343, 56985

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3492	11134, 18776, 26418, 34060, 41702, 49344, 56986
anti-HIV-1_HeavyChain	3493	11135, 18777, 26419, 34061, 41703, 49345, 56987
anti-HIV-1_HeavyChain	3494	11136, 18778, 26420, 34062, 41704, 49346, 56988
anti-HIV-1_HeavyChain	3495	11137, 18779, 26421, 34063, 41705, 49347, 56989
anti-HIV-1_HeavyChain	3496	11138, 18780, 26422, 34064, 41706, 49348, 56990
anti-HIV-1_HeavyChain	3497	11139, 18781, 26423, 34065, 41707, 49349, 56991
anti-HIV-1_HeavyChain	3498	11140, 18782, 26424, 34066, 41708, 49350, 56992
anti-HIV-1_HeavyChain	3499	11141, 18783, 26425, 34067, 41709, 49351, 56993
anti-HIV-1_HeavyChain	3500	11142, 18784, 26426, 34068, 41710, 49352, 56994
anti-HIV-1_HeavyChain	3501	11143, 18785, 26427, 34069, 41711, 49353, 56995
anti-HIV-1_HeavyChain	3502	11144, 18786, 26428, 34070, 41712, 49354, 56996
anti-HIV-1_HeavyChain	3503	11145, 18787, 26429, 34071, 41713, 49355, 56997
anti-HIV-1_HeavyChain	3504	11146, 18788, 26430, 34072, 41714, 49356, 56998
anti-HIV-1_HeavyChain	3505	11147, 18789, 26431, 34073, 41715, 49357, 56999
anti-HIV-1_HeavyChain	3506	11148, 18790, 26432, 34074, 41716, 49358, 57000
anti-HIV-1_HeavyChain	3507	11149, 18791, 26433, 34075, 41717, 49359, 57001
anti-HIV-1_HeavyChain	3508	11150, 18792, 26434, 34076, 41718, 49360, 57002
anti-HIV-1_HeavyChain	3509	11151, 18793, 26435, 34077, 41719, 49361, 57003
anti-HIV-1_HeavyChain	3510	11152, 18794, 26436, 34078, 41720, 49362, 57004
anti-HIV-1_HeavyChain	3511	11153, 18795, 26437, 34079, 41721, 49363, 57005
anti-HIV-1_HeavyChain	3512	11154, 18796, 26438, 34080, 41722, 49364, 57006
anti-HIV-1_HeavyChain	3513	11155, 18797, 26439, 34081, 41723, 49365, 57007
anti-HIV-1_HeavyChain	3514	11156, 18798, 26440, 34082, 41724, 49366, 57008
anti-HIV-1_HeavyChain	3515	11157, 18799, 26441, 34083, 41725, 49367, 57009
anti-HIV-1_HeavyChain	3516	11158, 18800, 26442, 34084, 41726, 49368, 57010
anti-HIV-1_HeavyChain	3517	11159, 18801, 26443, 34085, 41727, 49369, 57011
anti-HIV-1_HeavyChain	3518	11160, 18802, 26444, 34086, 41728, 49370, 57012
anti-HIV-1_HeavyChain	3519	11161, 18803, 26445, 34087, 41729, 49371, 57013
anti-HIV-1_HeavyChain	3520	11162, 18804, 26446, 34088, 41730, 49372, 57014
anti-HIV-1_HeavyChain	3521	11163, 18805, 26447, 34089, 41731, 49373, 57015
anti-HIV-1_HeavyChain	3522	11164, 18806, 26448, 34090, 41732, 49374, 57016
anti-HIV-1_HeavyChain	3523	11165, 18807, 26449, 34091, 41733, 49375, 57017
anti-HIV-1_HeavyChain	3524	11166, 18808, 26450, 34092, 41734, 49376, 57018

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3525	11167, 18809, 26451, 34093, 41735, 49377, 57019
anti-HIV-1_HeavyChain	3526	11168, 18810, 26452, 34094, 41736, 49378, 57020
anti-HIV-1_HeavyChain	3527	11169, 18811, 26453, 34095, 41737, 49379, 57021
anti-HIV-1_HeavyChain	3528	11170, 18812, 26454, 34096, 41738, 49380, 57022
anti-HIV-1_HeavyChain	3529	11171, 18813, 26455, 34097, 41739, 49381, 57023
anti-HIV-1_HeavyChain	3530	11172, 18814, 26456, 34098, 41740, 49382, 57024
anti-HIV-1_HeavyChain	3531	11173, 18815, 26457, 34099, 41741, 49383, 57025
anti-HIV-1_HeavyChain	3532	11174, 18816, 26458, 34100, 41742, 49384, 57026
anti-HIV-1_HeavyChain	3533	11175, 18817, 26459, 34101, 41743, 49385, 57027
anti-HIV-1_HeavyChain	3534	11176, 18818, 26460, 34102, 41744, 49386, 57028
anti-HIV-1_HeavyChain	3535	11177, 18819, 26461, 34103, 41745, 49387, 57029
anti-HIV-1_HeavyChain	3536	11178, 18820, 26462, 34104, 41746, 49388, 57030
anti-HIV-1_HeavyChain	3537	11179, 18821, 26463, 34105, 41747, 49389, 57031
anti-HIV-1_HeavyChain	3538	11180, 18822, 26464, 34106, 41748, 49390, 57032
anti-HIV-1_HeavyChain	3539	11181, 18823, 26465, 34107, 41749, 49391, 57033
anti-HIV-1_HeavyChain	3540	11182, 18824, 26466, 34108, 41750, 49392, 57034
anti-HIV-1_HeavyChain	3541	11183, 18825, 26467, 34109, 41751, 49393, 57035
anti-HIV-1_HeavyChain	3542	11184, 18826, 26468, 34110, 41752, 49394, 57036
anti-HIV-1_HeavyChain	3543	11185, 18827, 26469, 34111, 41753, 49395, 57037
anti-HIV-1_HeavyChain	3544	11186, 18828, 26470, 34112, 41754, 49396, 57038
anti-HIV-1_HeavyChain	3545	11187, 18829, 26471, 34113, 41755, 49397, 57039
anti-HIV-1_HeavyChain	3546	11188, 18830, 26472, 34114, 41756, 49398, 57040
anti-HIV-1_HeavyChain	3547	11189, 18831, 26473, 34115, 41757, 49399, 57041
anti-HIV-1_HeavyChain	3548	11190, 18832, 26474, 34116, 41758, 49400, 57042
anti-HIV-1_HeavyChain	3549	11191, 18833, 26475, 34117, 41759, 49401, 57043
anti-HIV-1_HeavyChain	3550	11192, 18834, 26476, 34118, 41760, 49402, 57044
anti-HIV-1_HeavyChain	3551	11193, 18835, 26477, 34119, 41761, 49403, 57045
anti-HIV-1_HeavyChain	3552	11194, 18836, 26478, 34120, 41762, 49404, 57046
anti-HIV-1_HeavyChain	3553	11195, 18837, 26479, 34121, 41763, 49405, 57047
anti-HIV-1_HeavyChain	3554	11196, 18838, 26480, 34122, 41764, 49406, 57048
anti-HIV-1_HeavyChain	3555	11197, 18839, 26481, 34123, 41765, 49407, 57049
anti-HIV-1_HeavyChain	3556	11198, 18840, 26482, 34124, 41766, 49408, 57050
anti-HIV-1_HeavyChain	3557	11199, 18841, 26483, 34125, 41767, 49409, 57051

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3558	11200, 18842, 26484, 34126, 41768, 49410, 57052
anti-HIV-1_HeavyChain	3559	11201, 18843, 26485, 34127, 41769, 49411, 57053
anti-HIV-1_HeavyChain	3560	11202, 18844, 26486, 34128, 41770, 49412, 57054
anti-HIV-1_HeavyChain	3561	11203, 18845, 26487, 34129, 41771, 49413, 57055
anti-HIV-1_HeavyChain	3562	11204, 18846, 26488, 34130, 41772, 49414, 57056
anti-HIV-1_HeavyChain	3563	11205, 18847, 26489, 34131, 41773, 49415, 57057
anti-HIV-1_HeavyChain	3564	11206, 18848, 26490, 34132, 41774, 49416, 57058
anti-HIV-1_HeavyChain	3565	11207, 18849, 26491, 34133, 41775, 49417, 57059
anti-HIV-1_HeavyChain	3566	11208, 18850, 26492, 34134, 41776, 49418, 57060
anti-HIV-1_HeavyChain	3567	11209, 18851, 26493, 34135, 41777, 49419, 57061
anti-HIV-1_HeavyChain	3568	11210, 18852, 26494, 34136, 41778, 49420, 57062
anti-HIV-1_HeavyChain	3569	11211, 18853, 26495, 34137, 41779, 49421, 57063
anti-HIV-1_HeavyChain	3570	11212, 18854, 26496, 34138, 41780, 49422, 57064
anti-HIV-1_HeavyChain	3571	11213, 18855, 26497, 34139, 41781, 49423, 57065
anti-HIV-1_HeavyChain	3572	11214, 18856, 26498, 34140, 41782, 49424, 57066
anti-HIV-1_HeavyChain	3573	11215, 18857, 26499, 34141, 41783, 49425, 57067
anti-HIV-1_HeavyChain	3574	11216, 18858, 26500, 34142, 41784, 49426, 57068
anti-HIV-1_HeavyChain	3575	11217, 18859, 26501, 34143, 41785, 49427, 57069
anti-HIV-1_HeavyChain	3576	11218, 18860, 26502, 34144, 41786, 49428, 57070
anti-HIV-1_HeavyChain	3577	11219, 18861, 26503, 34145, 41787, 49429, 57071
anti-HIV-1_HeavyChain	3578	11220, 18862, 26504, 34146, 41788, 49430, 57072
anti-HIV-1_HeavyChain	3579	11221, 18863, 26505, 34147, 41789, 49431, 57073
anti-HIV-1_HeavyChain	3580	11222, 18864, 26506, 34148, 41790, 49432, 57074
anti-HIV-1_HeavyChain	3581	11223, 18865, 26507, 34149, 41791, 49433, 57075
anti-HIV-1_HeavyChain	3582	11224, 18866, 26508, 34150, 41792, 49434, 57076
anti-HIV-1_HeavyChain	3583	11225, 18867, 26509, 34151, 41793, 49435, 57077
anti-HIV-1_HeavyChain	3584	11226, 18868, 26510, 34152, 41794, 49436, 57078
anti-HIV-1_HeavyChain	3585	11227, 18869, 26511, 34153, 41795, 49437, 57079
anti-HIV-1_HeavyChain	3586	11228, 18870, 26512, 34154, 41796, 49438, 57080
anti-HIV-1_HeavyChain	3587	11229, 18871, 26513, 34155, 41797, 49439, 57081
anti-HIV-1_HeavyChain	3588	11230, 18872, 26514, 34156, 41798, 49440, 57082
anti-HIV-1_HeavyChain	3589	11231, 18873, 26515, 34157, 41799, 49441, 57083
anti-HIV-1_HeavyChain	3590	11232, 18874, 26516, 34158, 41800, 49442, 57084

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3591	11233, 18875, 26517, 34159, 41801, 49443, 57085
anti-HIV-1_HeavyChain	3592	11234, 18876, 26518, 34160, 41802, 49444, 57086
anti-HIV-1_HeavyChain	3593	11235, 18877, 26519, 34161, 41803, 49445, 57087
anti-HIV-1_HeavyChain	3594	11236, 18878, 26520, 34162, 41804, 49446, 57088
anti-HIV-1_HeavyChain	3595	11237, 18879, 26521, 34163, 41805, 49447, 57089
anti-HIV-1_HeavyChain	3596	11238, 18880, 26522, 34164, 41806, 49448, 57090
anti-HIV-1_HeavyChain	3597	11239, 18881, 26523, 34165, 41807, 49449, 57091
anti-HIV-1_HeavyChain	3598	11240, 18882, 26524, 34166, 41808, 49450, 57092
anti-HIV-1_HeavyChain	3599	11241, 18883, 26525, 34167, 41809, 49451, 57093
anti-HIV-1_HeavyChain	3600	11242, 18884, 26526, 34168, 41810, 49452, 57094
anti-HIV-1_HeavyChain	3601	11243, 18885, 26527, 34169, 41811, 49453, 57095
anti-HIV-1_HeavyChain	3602	11244, 18886, 26528, 34170, 41812, 49454, 57096
anti-HIV-1_HeavyChain	3603	11245, 18887, 26529, 34171, 41813, 49455, 57097
anti-HIV-1_HeavyChain	3604	11246, 18888, 26530, 34172, 41814, 49456, 57098
anti-HIV-1_HeavyChain	3605	11247, 18889, 26531, 34173, 41815, 49457, 57099
anti-HIV-1_HeavyChain	3606	11248, 18890, 26532, 34174, 41816, 49458, 57100
anti-HIV-1_HeavyChain	3607	11249, 18891, 26533, 34175, 41817, 49459, 57101
anti-HIV-1_HeavyChain	3608	11250, 18892, 26534, 34176, 41818, 49460, 57102
anti-HIV-1_HeavyChain	3609	11251, 18893, 26535, 34177, 41819, 49461, 57103
anti-HIV-1_HeavyChain	3610	11252, 18894, 26536, 34178, 41820, 49462, 57104
anti-HIV-1_HeavyChain	3611	11253, 18895, 26537, 34179, 41821, 49463, 57105
anti-HIV-1_HeavyChain	3612	11254, 18896, 26538, 34180, 41822, 49464, 57106
anti-HIV-1_HeavyChain	3613	11255, 18897, 26539, 34181, 41823, 49465, 57107
anti-HIV-1_HeavyChain	3614	11256, 18898, 26540, 34182, 41824, 49466, 57108
anti-HIV-1_HeavyChain	3615	11257, 18899, 26541, 34183, 41825, 49467, 57109
anti-HIV-1_HeavyChain	3616	11258, 18900, 26542, 34184, 41826, 49468, 57110
anti-HIV-1_HeavyChain	3617	11259, 18901, 26543, 34185, 41827, 49469, 57111
anti-HIV-1_HeavyChain	3618	11260, 18902, 26544, 34186, 41828, 49470, 57112
anti-HIV-1_HeavyChain	3619	11261, 18903, 26545, 34187, 41829, 49471, 57113
anti-HIV-1_HeavyChain	3620	11262, 18904, 26546, 34188, 41830, 49472, 57114
anti-HIV-1_HeavyChain	3621	11263, 18905, 26547, 34189, 41831, 49473, 57115
anti-HIV-1_HeavyChain	3622	11264, 18906, 26548, 34190, 41832, 49474, 57116
anti-HIV-1_HeavyChain	3623	11265, 18907, 26549, 34191, 41833, 49475, 57117

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3624	11266, 18908, 26550, 34192, 41834, 49476, 57118
anti-HIV-1_HeavyChain	3625	11267, 18909, 26551, 34193, 41835, 49477, 57119
anti-HIV-1_HeavyChain	3626	11268, 18910, 26552, 34194, 41836, 49478, 57120
anti-HIV-1_HeavyChain	3627	11269, 18911, 26553, 34195, 41837, 49479, 57121
anti-HIV-1_HeavyChain	3628	11270, 18912, 26554, 34196, 41838, 49480, 57122
anti-HIV-1_HeavyChain	3629	11271, 18913, 26555, 34197, 41839, 49481, 57123
anti-HIV-1_HeavyChain	3630	11272, 18914, 26556, 34198, 41840, 49482, 57124
anti-HIV-1_HeavyChain	3631	11273, 18915, 26557, 34199, 41841, 49483, 57125
anti-HIV-1_HeavyChain	3632	11274, 18916, 26558, 34200, 41842, 49484, 57126
anti-HIV-1_HeavyChain	3633	11275, 18917, 26559, 34201, 41843, 49485, 57127
anti-HIV-1_HeavyChain	3634	11276, 18918, 26560, 34202, 41844, 49486, 57128
anti-HIV-1_HeavyChain	3635	11277, 18919, 26561, 34203, 41845, 49487, 57129
anti-HIV-1_HeavyChain	3636	11278, 18920, 26562, 34204, 41846, 49488, 57130
anti-HIV-1_HeavyChain	3637	11279, 18921, 26563, 34205, 41847, 49489, 57131
anti-HIV-1_HeavyChain	3638	11280, 18922, 26564, 34206, 41848, 49490, 57132
anti-HIV-1_HeavyChain	3639	11281, 18923, 26565, 34207, 41849, 49491, 57133
anti-HIV-1_HeavyChain	3640	11282, 18924, 26566, 34208, 41850, 49492, 57134
anti-HIV-1_HeavyChain	3641	11283, 18925, 26567, 34209, 41851, 49493, 57135
anti-HIV-1_HeavyChain	3642	11284, 18926, 26568, 34210, 41852, 49494, 57136
anti-HIV-1_HeavyChain	3643	11285, 18927, 26569, 34211, 41853, 49495, 57137
anti-HIV-1_HeavyChain	3644	11286, 18928, 26570, 34212, 41854, 49496, 57138
anti-HIV-1_HeavyChain	3645	11287, 18929, 26571, 34213, 41855, 49497, 57139
anti-HIV-1_HeavyChain	3646	11288, 18930, 26572, 34214, 41856, 49498, 57140
anti-HIV-1_HeavyChain	3647	11289, 18931, 26573, 34215, 41857, 49499, 57141
anti-HIV-1_HeavyChain	3648	11290, 18932, 26574, 34216, 41858, 49500, 57142
anti-HIV-1_HeavyChain	3649	11291, 18933, 26575, 34217, 41859, 49501, 57143
anti-HIV-1_HeavyChain	3650	11292, 18934, 26576, 34218, 41860, 49502, 57144
anti-HIV-1_HeavyChain	3651	11293, 18935, 26577, 34219, 41861, 49503, 57145
anti-HIV-1_HeavyChain	3652	11294, 18936, 26578, 34220, 41862, 49504, 57146
anti-HIV-1_HeavyChain	3653	11295, 18937, 26579, 34221, 41863, 49505, 57147
anti-HIV-1_HeavyChain	3654	11296, 18938, 26580, 34222, 41864, 49506, 57148
anti-HIV-1_HeavyChain	3655	11297, 18939, 26581, 34223, 41865, 49507, 57149
anti-HIV-1_HeavyChain	3656	11298, 18940, 26582, 34224, 41866, 49508, 57150

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3657	11299, 18941, 26583, 34225, 41867, 49509, 57151
anti-HIV-1_HeavyChain	3658	11300, 18942, 26584, 34226, 41868, 49510, 57152
anti-HIV-1_HeavyChain	3659	11301, 18943, 26585, 34227, 41869, 49511, 57153
anti-HIV-1_HeavyChain	3660	11302, 18944, 26586, 34228, 41870, 49512, 57154
anti-HIV-1_HeavyChain	3661	11303, 18945, 26587, 34229, 41871, 49513, 57155
anti-HIV-1_HeavyChain	3662	11304, 18946, 26588, 34230, 41872, 49514, 57156
anti-HIV-1_HeavyChain	3663	11305, 18947, 26589, 34231, 41873, 49515, 57157
anti-HIV-1_HeavyChain	3664	11306, 18948, 26590, 34232, 41874, 49516, 57158
anti-HIV-1_HeavyChain	3665	11307, 18949, 26591, 34233, 41875, 49517, 57159
anti-HIV-1_HeavyChain	3666	11308, 18950, 26592, 34234, 41876, 49518, 57160
anti-HIV-1_HeavyChain	3667	11309, 18951, 26593, 34235, 41877, 49519, 57161
anti-HIV-1_HeavyChain	3668	11310, 18952, 26594, 34236, 41878, 49520, 57162
anti-HIV-1_HeavyChain	3669	11311, 18953, 26595, 34237, 41879, 49521, 57163
anti-HIV-1_HeavyChain	3670	11312, 18954, 26596, 34238, 41880, 49522, 57164
anti-HIV-1_HeavyChain	3671	11313, 18955, 26597, 34239, 41881, 49523, 57165
anti-HIV-1_HeavyChain	3672	11314, 18956, 26598, 34240, 41882, 49524, 57166
anti-HIV-1_HeavyChain	3673	11315, 18957, 26599, 34241, 41883, 49525, 57167
anti-HIV-1_HeavyChain	3674	11316, 18958, 26600, 34242, 41884, 49526, 57168
anti-HIV-1_HeavyChain	3675	11317, 18959, 26601, 34243, 41885, 49527, 57169
anti-HIV-1_HeavyChain	3676	11318, 18960, 26602, 34244, 41886, 49528, 57170
anti-HIV-1_HeavyChain	3677	11319, 18961, 26603, 34245, 41887, 49529, 57171
anti-HIV-1_HeavyChain	3678	11320, 18962, 26604, 34246, 41888, 49530, 57172
anti-HIV-1_HeavyChain	3679	11321, 18963, 26605, 34247, 41889, 49531, 57173
anti-HIV-1_HeavyChain	3680	11322, 18964, 26606, 34248, 41890, 49532, 57174
anti-HIV-1_HeavyChain	3681	11323, 18965, 26607, 34249, 41891, 49533, 57175
anti-HIV-1_HeavyChain	3682	11324, 18966, 26608, 34250, 41892, 49534, 57176
anti-HIV-1_HeavyChain	3683	11325, 18967, 26609, 34251, 41893, 49535, 57177
anti-HIV-1_HeavyChain	3684	11326, 18968, 26610, 34252, 41894, 49536, 57178
anti-HIV-1_HeavyChain	3685	11327, 18969, 26611, 34253, 41895, 49537, 57179
anti-HIV-1_HeavyChain	3686	11328, 18970, 26612, 34254, 41896, 49538, 57180
anti-HIV-1_HeavyChain	3687	11329, 18971, 26613, 34255, 41897, 49539, 57181
anti-HIV-1_HeavyChain	3688	11330, 18972, 26614, 34256, 41898, 49540, 57182
anti-HIV-1_HeavyChain	3689	11331, 18973, 26615, 34257, 41899, 49541, 57183

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3690	11332, 18974, 26616, 34258, 41900, 49542, 57184
anti-HIV-1_HeavyChain	3691	11333, 18975, 26617, 34259, 41901, 49543, 57185
anti-HIV-1_HeavyChain	3692	11334, 18976, 26618, 34260, 41902, 49544, 57186
anti-HIV-1_HeavyChain	3693	11335, 18977, 26619, 34261, 41903, 49545, 57187
anti-HIV-1_HeavyChain	3694	11336, 18978, 26620, 34262, 41904, 49546, 57188
anti-HIV-1_HeavyChain	3695	11337, 18979, 26621, 34263, 41905, 49547, 57189
anti-HIV-1_HeavyChain	3696	11338, 18980, 26622, 34264, 41906, 49548, 57190
anti-HIV-1_HeavyChain	3697	11339, 18981, 26623, 34265, 41907, 49549, 57191
anti-HIV-1_HeavyChain	3698	11340, 18982, 26624, 34266, 41908, 49550, 57192
anti-HIV-1_HeavyChain	3699	11341, 18983, 26625, 34267, 41909, 49551, 57193
anti-HIV-1_HeavyChain	3700	11342, 18984, 26626, 34268, 41910, 49552, 57194
anti-HIV-1_HeavyChain	3701	11343, 18985, 26627, 34269, 41911, 49553, 57195
anti-HIV-1_HeavyChain	3702	11344, 18986, 26628, 34270, 41912, 49554, 57196
anti-HIV-1_HeavyChain	3703	11345, 18987, 26629, 34271, 41913, 49555, 57197
anti-HIV-1_HeavyChain	3704	11346, 18988, 26630, 34272, 41914, 49556, 57198
anti-HIV-1_HeavyChain	3705	11347, 18989, 26631, 34273, 41915, 49557, 57199
anti-HIV-1_HeavyChain	3706	11348, 18990, 26632, 34274, 41916, 49558, 57200
anti-HIV-1_HeavyChain	3707	11349, 18991, 26633, 34275, 41917, 49559, 57201
anti-HIV-1_HeavyChain	3708	11350, 18992, 26634, 34276, 41918, 49560, 57202
anti-HIV-1_HeavyChain	3709	11351, 18993, 26635, 34277, 41919, 49561, 57203
anti-HIV-1_HeavyChain	3710	11352, 18994, 26636, 34278, 41920, 49562, 57204
anti-HIV-1_HeavyChain	3711	11353, 18995, 26637, 34279, 41921, 49563, 57205
anti-HIV-1_HeavyChain	3712	11354, 18996, 26638, 34280, 41922, 49564, 57206
anti-HIV-1_HeavyChain	3713	11355, 18997, 26639, 34281, 41923, 49565, 57207
anti-HIV-1_HeavyChain	3714	11356, 18998, 26640, 34282, 41924, 49566, 57208
anti-HIV-1_HeavyChain	3715	11357, 18999, 26641, 34283, 41925, 49567, 57209
anti-HIV-1_HeavyChain	3716	11358, 19000, 26642, 34284, 41926, 49568, 57210
anti-HIV-1_HeavyChain	3717	11359, 19001, 26643, 34285, 41927, 49569, 57211
anti-HIV-1_HeavyChain	3718	11360, 19002, 26644, 34286, 41928, 49570, 57212
anti-HIV-1_HeavyChain	3719	11361, 19003, 26645, 34287, 41929, 49571, 57213
anti-HIV-1_HeavyChain	3720	11362, 19004, 26646, 34288, 41930, 49572, 57214
anti-HIV-1_HeavyChain	3721	11363, 19005, 26647, 34289, 41931, 49573, 57215
anti-HIV-1_HeavyChain	3722	11364, 19006, 26648, 34290, 41932, 49574, 57216

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3723	11365, 19007, 26649, 34291, 41933, 49575, 57217
anti-HIV-1_HeavyChain	3724	11366, 19008, 26650, 34292, 41934, 49576, 57218
anti-HIV-1_HeavyChain	3725	11367, 19009, 26651, 34293, 41935, 49577, 57219
anti-HIV-1_HeavyChain	3726	11368, 19010, 26652, 34294, 41936, 49578, 57220
anti-HIV-1_HeavyChain	3727	11369, 19011, 26653, 34295, 41937, 49579, 57221
anti-HIV-1_HeavyChain	3728	11370, 19012, 26654, 34296, 41938, 49580, 57222
anti-HIV-1_HeavyChain	3729	11371, 19013, 26655, 34297, 41939, 49581, 57223
anti-HIV-1_HeavyChain	3730	11372, 19014, 26656, 34298, 41940, 49582, 57224
anti-HIV-1_HeavyChain	3731	11373, 19015, 26657, 34299, 41941, 49583, 57225
anti-HIV-1_HeavyChain	3732	11374, 19016, 26658, 34300, 41942, 49584, 57226
anti-HIV-1_HeavyChain	3733	11375, 19017, 26659, 34301, 41943, 49585, 57227
anti-HIV-1_HeavyChain	3734	11376, 19018, 26660, 34302, 41944, 49586, 57228
anti-HIV-1_HeavyChain	3735	11377, 19019, 26661, 34303, 41945, 49587, 57229
anti-HIV-1_HeavyChain	3736	11378, 19020, 26662, 34304, 41946, 49588, 57230
anti-HIV-1_HeavyChain	3737	11379, 19021, 26663, 34305, 41947, 49589, 57231
anti-HIV-1_HeavyChain	3738	11380, 19022, 26664, 34306, 41948, 49590, 57232
anti-HIV-1_HeavyChain	3739	11381, 19023, 26665, 34307, 41949, 49591, 57233
anti-HIV-1_HeavyChain	3740	11382, 19024, 26666, 34308, 41950, 49592, 57234
anti-HIV-1_HeavyChain	3741	11383, 19025, 26667, 34309, 41951, 49593, 57235
anti-HIV-1_HeavyChain	3742	11384, 19026, 26668, 34310, 41952, 49594, 57236
anti-HIV-1_HeavyChain	3743	11385, 19027, 26669, 34311, 41953, 49595, 57237
anti-HIV-1_HeavyChain	3744	11386, 19028, 26670, 34312, 41954, 49596, 57238
anti-HIV-1_HeavyChain	3745	11387, 19029, 26671, 34313, 41955, 49597, 57239
anti-HIV-1_HeavyChain	3746	11388, 19030, 26672, 34314, 41956, 49598, 57240
anti-HIV-1_HeavyChain	3747	11389, 19031, 26673, 34315, 41957, 49599, 57241
anti-HIV-1_HeavyChain	3748	11390, 19032, 26674, 34316, 41958, 49600, 57242
anti-HIV-1_HeavyChain	3749	11391, 19033, 26675, 34317, 41959, 49601, 57243
anti-HIV-1_HeavyChain	3750	11392, 19034, 26676, 34318, 41960, 49602, 57244
anti-HIV-1_HeavyChain	3751	11393, 19035, 26677, 34319, 41961, 49603, 57245
anti-HIV-1_HeavyChain	3752	11394, 19036, 26678, 34320, 41962, 49604, 57246
anti-HIV-1_HeavyChain	3753	11395, 19037, 26679, 34321, 41963, 49605, 57247
anti-HIV-1_HeavyChain	3754	11396, 19038, 26680, 34322, 41964, 49606, 57248
anti-HIV-1_HeavyChain	3755	11397, 19039, 26681, 34323, 41965, 49607, 57249

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3756	11398, 19040, 26682, 34324, 41966, 49608, 57250
anti-HIV-1_HeavyChain	3757	11399, 19041, 26683, 34325, 41967, 49609, 57251
anti-HIV-1_HeavyChain	3758	11400, 19042, 26684, 34326, 41968, 49610, 57252
anti-HIV-1_HeavyChain	3759	11401, 19043, 26685, 34327, 41969, 49611, 57253
anti-HIV-1_HeavyChain	3760	11402, 19044, 26686, 34328, 41970, 49612, 57254
anti-HIV-1_HeavyChain	3761	11403, 19045, 26687, 34329, 41971, 49613, 57255
anti-HIV-1_HeavyChain	3762	11404, 19046, 26688, 34330, 41972, 49614, 57256
anti-HIV-1_HeavyChain	3763	11405, 19047, 26689, 34331, 41973, 49615, 57257
anti-HIV-1_HeavyChain	3764	11406, 19048, 26690, 34332, 41974, 49616, 57258
anti-HIV-1_HeavyChain	3765	11407, 19049, 26691, 34333, 41975, 49617, 57259
anti-HIV-1_HeavyChain	3766	11408, 19050, 26692, 34334, 41976, 49618, 57260
anti-HIV-1_HeavyChain	3767	11409, 19051, 26693, 34335, 41977, 49619, 57261
anti-HIV-1_HeavyChain	3768	11410, 19052, 26694, 34336, 41978, 49620, 57262
anti-HIV-1_HeavyChain	3769	11411, 19053, 26695, 34337, 41979, 49621, 57263
anti-HIV-1_HeavyChain	3770	11412, 19054, 26696, 34338, 41980, 49622, 57264
anti-HIV-1_HeavyChain	3771	11413, 19055, 26697, 34339, 41981, 49623, 57265
anti-HIV-1_HeavyChain	3772	11414, 19056, 26698, 34340, 41982, 49624, 57266
anti-HIV-1_HeavyChain	3773	11415, 19057, 26699, 34341, 41983, 49625, 57267
anti-HIV-1_HeavyChain	3774	11416, 19058, 26700, 34342, 41984, 49626, 57268
anti-HIV-1_HeavyChain	3775	11417, 19059, 26701, 34343, 41985, 49627, 57269
anti-HIV-1_HeavyChain	3776	11418, 19060, 26702, 34344, 41986, 49628, 57270
anti-HIV-1_HeavyChain	3777	11419, 19061, 26703, 34345, 41987, 49629, 57271
anti-HIV-1_HeavyChain	3778	11420, 19062, 26704, 34346, 41988, 49630, 57272
anti-HIV-1_HeavyChain	3779	11421, 19063, 26705, 34347, 41989, 49631, 57273
anti-HIV-1_HeavyChain	3780	11422, 19064, 26706, 34348, 41990, 49632, 57274
anti-HIV-1_HeavyChain	3781	11423, 19065, 26707, 34349, 41991, 49633, 57275
anti-HIV-1_HeavyChain	3782	11424, 19066, 26708, 34350, 41992, 49634, 57276
anti-HIV-1_HeavyChain	3783	11425, 19067, 26709, 34351, 41993, 49635, 57277
anti-HIV-1_HeavyChain	3784	11426, 19068, 26710, 34352, 41994, 49636, 57278
anti-HIV-1_HeavyChain	3785	11427, 19069, 26711, 34353, 41995, 49637, 57279
anti-HIV-1_HeavyChain	3786	11428, 19070, 26712, 34354, 41996, 49638, 57280
anti-HIV-1_HeavyChain	3787	11429, 19071, 26713, 34355, 41997, 49639, 57281
anti-HIV-1_HeavyChain	3788	11430, 19072, 26714, 34356, 41998, 49640, 57282

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3789	11431, 19073, 26715, 34357, 41999, 49641, 57283
anti-HIV-1_HeavyChain	3790	11432, 19074, 26716, 34358, 42000, 49642, 57284
anti-HIV-1_HeavyChain	3791	11433, 19075, 26717, 34359, 42001, 49643, 57285
anti-HIV-1_HeavyChain	3792	11434, 19076, 26718, 34360, 42002, 49644, 57286
anti-HIV-1_HeavyChain	3793	11435, 19077, 26719, 34361, 42003, 49645, 57287
anti-HIV-1_HeavyChain	3794	11436, 19078, 26720, 34362, 42004, 49646, 57288
anti-HIV-1_HeavyChain	3795	11437, 19079, 26721, 34363, 42005, 49647, 57289
anti-HIV-1_HeavyChain	3796	11438, 19080, 26722, 34364, 42006, 49648, 57290
anti-HIV-1_HeavyChain	3797	11439, 19081, 26723, 34365, 42007, 49649, 57291
anti-HIV-1_HeavyChain	3798	11440, 19082, 26724, 34366, 42008, 49650, 57292
anti-HIV-1_HeavyChain	3799	11441, 19083, 26725, 34367, 42009, 49651, 57293
anti-HIV-1_HeavyChain	3800	11442, 19084, 26726, 34368, 42010, 49652, 57294
anti-HIV-1_HeavyChain	3801	11443, 19085, 26727, 34369, 42011, 49653, 57295
anti-HIV-1_HeavyChain	3802	11444, 19086, 26728, 34370, 42012, 49654, 57296
anti-HIV-1_HeavyChain	3803	11445, 19087, 26729, 34371, 42013, 49655, 57297
anti-HIV-1_HeavyChain	3804	11446, 19088, 26730, 34372, 42014, 49656, 57298
anti-HIV-1_HeavyChain	3805	11447, 19089, 26731, 34373, 42015, 49657, 57299
anti-HIV-1_HeavyChain	3806	11448, 19090, 26732, 34374, 42016, 49658, 57300
anti-HIV-1_HeavyChain	3807	11449, 19091, 26733, 34375, 42017, 49659, 57301
anti-HIV-1_HeavyChain	3808	11450, 19092, 26734, 34376, 42018, 49660, 57302
anti-HIV-1_HeavyChain	3809	11451, 19093, 26735, 34377, 42019, 49661, 57303
anti-HIV-1_HeavyChain	3810	11452, 19094, 26736, 34378, 42020, 49662, 57304
anti-HIV-1_HeavyChain	3811	11453, 19095, 26737, 34379, 42021, 49663, 57305
anti-HIV-1_HeavyChain	3812	11454, 19096, 26738, 34380, 42022, 49664, 57306
anti-HIV-1_HeavyChain	3813	11455, 19097, 26739, 34381, 42023, 49665, 57307
anti-HIV-1_HeavyChain	3814	11456, 19098, 26740, 34382, 42024, 49666, 57308
anti-HIV-1_HeavyChain	3815	11457, 19099, 26741, 34383, 42025, 49667, 57309
anti-HIV-1_HeavyChain	3816	11458, 19100, 26742, 34384, 42026, 49668, 57310
anti-HIV-1_HeavyChain	3817	11459, 19101, 26743, 34385, 42027, 49669, 57311
anti-HIV-1_HeavyChain	3818	11460, 19102, 26744, 34386, 42028, 49670, 57312
anti-HIV-1_HeavyChain	3819	11461, 19103, 26745, 34387, 42029, 49671, 57313
anti-HIV-1_HeavyChain	3820	11462, 19104, 26746, 34388, 42030, 49672, 57314
anti-HIV-1_HeavyChain	3821	11463, 19105, 26747, 34389, 42031, 49673, 57315

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3822	11464, 19106, 26748, 34390, 42032, 49674, 57316
anti-HIV-1_HeavyChain	3823	11465, 19107, 26749, 34391, 42033, 49675, 57317
anti-HIV-1_HeavyChain	3824	11466, 19108, 26750, 34392, 42034, 49676, 57318
anti-HIV-1_HeavyChain	3825	11467, 19109, 26751, 34393, 42035, 49677, 57319
anti-HIV-1_HeavyChain	3826	11468, 19110, 26752, 34394, 42036, 49678, 57320
anti-HIV-1_HeavyChain	3827	11469, 19111, 26753, 34395, 42037, 49679, 57321
anti-HIV-1_HeavyChain	3828	11470, 19112, 26754, 34396, 42038, 49680, 57322
anti-HIV-1_HeavyChain	3829	11471, 19113, 26755, 34397, 42039, 49681, 57323
anti-HIV-1_HeavyChain	3830	11472, 19114, 26756, 34398, 42040, 49682, 57324
anti-HIV-1_HeavyChain	3831	11473, 19115, 26757, 34399, 42041, 49683, 57325
anti-HIV-1_HeavyChain	3832	11474, 19116, 26758, 34400, 42042, 49684, 57326
anti-HIV-1_HeavyChain	3833	11475, 19117, 26759, 34401, 42043, 49685, 57327
anti-HIV-1_HeavyChain	3834	11476, 19118, 26760, 34402, 42044, 49686, 57328
anti-HIV-1_HeavyChain	3835	11477, 19119, 26761, 34403, 42045, 49687, 57329
anti-HIV-1_HeavyChain	3836	11478, 19120, 26762, 34404, 42046, 49688, 57330
anti-HIV-1_HeavyChain	3837	11479, 19121, 26763, 34405, 42047, 49689, 57331
anti-HIV-1_HeavyChain	3838	11480, 19122, 26764, 34406, 42048, 49690, 57332
anti-HIV-1_HeavyChain	3839	11481, 19123, 26765, 34407, 42049, 49691, 57333
anti-HIV-1_HeavyChain	3840	11482, 19124, 26766, 34408, 42050, 49692, 57334
anti-HIV-1_HeavyChain	3841	11483, 19125, 26767, 34409, 42051, 49693, 57335
anti-HIV-1_HeavyChain	3842	11484, 19126, 26768, 34410, 42052, 49694, 57336
anti-HIV-1_HeavyChain	3843	11485, 19127, 26769, 34411, 42053, 49695, 57337
anti-HIV-1_HeavyChain	3844	11486, 19128, 26770, 34412, 42054, 49696, 57338
anti-HIV-1_HeavyChain	3845	11487, 19129, 26771, 34413, 42055, 49697, 57339
anti-HIV-1_HeavyChain	3846	11488, 19130, 26772, 34414, 42056, 49698, 57340
anti-HIV-1_HeavyChain	3847	11489, 19131, 26773, 34415, 42057, 49699, 57341
anti-HIV-1_HeavyChain	3848	11490, 19132, 26774, 34416, 42058, 49700, 57342
anti-HIV-1_HeavyChain	3849	11491, 19133, 26775, 34417, 42059, 49701, 57343
anti-HIV-1_HeavyChain	3850	11492, 19134, 26776, 34418, 42060, 49702, 57344
anti-HIV-1_HeavyChain	3851	11493, 19135, 26777, 34419, 42061, 49703, 57345
anti-HIV-1_HeavyChain	3852	11494, 19136, 26778, 34420, 42062, 49704, 57346
anti-HIV-1_HeavyChain	3853	11495, 19137, 26779, 34421, 42063, 49705, 57347
anti-HIV-1_HeavyChain	3854	11496, 19138, 26780, 34422, 42064, 49706, 57348

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3855	11497, 19139, 26781, 34423, 42065, 49707, 57349
anti-HIV-1_HeavyChain	3856	11498, 19140, 26782, 34424, 42066, 49708, 57350
anti-HIV-1_HeavyChain	3857	11499, 19141, 26783, 34425, 42067, 49709, 57351
anti-HIV-1_HeavyChain	3858	11500, 19142, 26784, 34426, 42068, 49710, 57352
anti-HIV-1_HeavyChain	3859	11501, 19143, 26785, 34427, 42069, 49711, 57353
anti-HIV-1_HeavyChain	3860	11502, 19144, 26786, 34428, 42070, 49712, 57354
anti-HIV-1_HeavyChain	3861	11503, 19145, 26787, 34429, 42071, 49713, 57355
anti-HIV-1_HeavyChain	3862	11504, 19146, 26788, 34430, 42072, 49714, 57356
anti-HIV-1_HeavyChain	3863	11505, 19147, 26789, 34431, 42073, 49715, 57357
anti-HIV-1_HeavyChain	3864	11506, 19148, 26790, 34432, 42074, 49716, 57358
anti-HIV-1_HeavyChain	3865	11507, 19149, 26791, 34433, 42075, 49717, 57359
anti-HIV-1_HeavyChain	3866	11508, 19150, 26792, 34434, 42076, 49718, 57360
anti-HIV-1_HeavyChain	3867	11509, 19151, 26793, 34435, 42077, 49719, 57361
anti-HIV-1_HeavyChain	3868	11510, 19152, 26794, 34436, 42078, 49720, 57362
anti-HIV-1_HeavyChain	3869	11511, 19153, 26795, 34437, 42079, 49721, 57363
anti-HIV-1_HeavyChain	3870	11512, 19154, 26796, 34438, 42080, 49722, 57364
anti-HIV-1_HeavyChain	3871	11513, 19155, 26797, 34439, 42081, 49723, 57365
anti-HIV-1_HeavyChain	3872	11514, 19156, 26798, 34440, 42082, 49724, 57366
anti-HIV-1_HeavyChain	3873	11515, 19157, 26799, 34441, 42083, 49725, 57367
anti-HIV-1_HeavyChain	3874	11516, 19158, 26800, 34442, 42084, 49726, 57368
anti-HIV-1_HeavyChain	3875	11517, 19159, 26801, 34443, 42085, 49727, 57369
anti-HIV-1_HeavyChain	3876	11518, 19160, 26802, 34444, 42086, 49728, 57370
anti-HIV-1_HeavyChain	3877	11519, 19161, 26803, 34445, 42087, 49729, 57371
anti-HIV-1_HeavyChain	3878	11520, 19162, 26804, 34446, 42088, 49730, 57372
anti-HIV-1_HeavyChain	3879	11521, 19163, 26805, 34447, 42089, 49731, 57373
anti-HIV-1_HeavyChain	3880	11522, 19164, 26806, 34448, 42090, 49732, 57374
anti-HIV-1_HeavyChain	3881	11523, 19165, 26807, 34449, 42091, 49733, 57375
anti-HIV-1_HeavyChain	3882	11524, 19166, 26808, 34450, 42092, 49734, 57376
anti-HIV-1_HeavyChain	3883	11525, 19167, 26809, 34451, 42093, 49735, 57377
anti-HIV-1_HeavyChain	3884	11526, 19168, 26810, 34452, 42094, 49736, 57378
anti-HIV-1_HeavyChain	3885	11527, 19169, 26811, 34453, 42095, 49737, 57379
anti-HIV-1_HeavyChain	3886	11528, 19170, 26812, 34454, 42096, 49738, 57380
anti-HIV-1_HeavyChain	3887	11529, 19171, 26813, 34455, 42097, 49739, 57381

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3888	11530, 19172, 26814, 34456, 42098, 49740, 57382
anti-HIV-1_HeavyChain	3889	11531, 19173, 26815, 34457, 42099, 49741, 57383
anti-HIV-1_HeavyChain	3890	11532, 19174, 26816, 34458, 42100, 49742, 57384
anti-HIV-1_HeavyChain	3891	11533, 19175, 26817, 34459, 42101, 49743, 57385
anti-HIV-1_HeavyChain	3892	11534, 19176, 26818, 34460, 42102, 49744, 57386
anti-HIV-1_HeavyChain	3893	11535, 19177, 26819, 34461, 42103, 49745, 57387
anti-HIV-1_HeavyChain	3894	11536, 19178, 26820, 34462, 42104, 49746, 57388
anti-HIV-1_HeavyChain	3895	11537, 19179, 26821, 34463, 42105, 49747, 57389
anti-HIV-1_HeavyChain	3896	11538, 19180, 26822, 34464, 42106, 49748, 57390
anti-HIV-1_HeavyChain	3897	11539, 19181, 26823, 34465, 42107, 49749, 57391
anti-HIV-1_HeavyChain	3898	11540, 19182, 26824, 34466, 42108, 49750, 57392
anti-HIV-1_HeavyChain	3899	11541, 19183, 26825, 34467, 42109, 49751, 57393
anti-HIV-1_HeavyChain	3900	11542, 19184, 26826, 34468, 42110, 49752, 57394
anti-HIV-1_HeavyChain	3901	11543, 19185, 26827, 34469, 42111, 49753, 57395
anti-HIV-1_HeavyChain	3902	11544, 19186, 26828, 34470, 42112, 49754, 57396
anti-HIV-1_HeavyChain	3903	11545, 19187, 26829, 34471, 42113, 49755, 57397
anti-HIV-1_HeavyChain	3904	11546, 19188, 26830, 34472, 42114, 49756, 57398
anti-HIV-1_HeavyChain	3905	11547, 19189, 26831, 34473, 42115, 49757, 57399
anti-HIV-1_HeavyChain	3906	11548, 19190, 26832, 34474, 42116, 49758, 57400
anti-HIV-1_HeavyChain	3907	11549, 19191, 26833, 34475, 42117, 49759, 57401
anti-HIV-1_HeavyChain	3908	11550, 19192, 26834, 34476, 42118, 49760, 57402
anti-HIV-1_HeavyChain	3909	11551, 19193, 26835, 34477, 42119, 49761, 57403
anti-HIV-1_HeavyChain	3910	11552, 19194, 26836, 34478, 42120, 49762, 57404
anti-HIV-1_HeavyChain	3911	11553, 19195, 26837, 34479, 42121, 49763, 57405
anti-HIV-1_HeavyChain	3912	11554, 19196, 26838, 34480, 42122, 49764, 57406
anti-HIV-1_HeavyChain	3913	11555, 19197, 26839, 34481, 42123, 49765, 57407
anti-HIV-1_HeavyChain	3914	11556, 19198, 26840, 34482, 42124, 49766, 57408
anti-HIV-1_HeavyChain	3915	11557, 19199, 26841, 34483, 42125, 49767, 57409
anti-HIV-1_HeavyChain	3916	11558, 19200, 26842, 34484, 42126, 49768, 57410
anti-HIV-1_HeavyChain	3917	11559, 19201, 26843, 34485, 42127, 49769, 57411
anti-HIV-1_HeavyChain	3918	11560, 19202, 26844, 34486, 42128, 49770, 57412
anti-HIV-1_HeavyChain	3919	11561, 19203, 26845, 34487, 42129, 49771, 57413
anti-HIV-1_HeavyChain	3920	11562, 19204, 26846, 34488, 42130, 49772, 57414

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3921	11563, 19205, 26847, 34489, 42131, 49773, 57415
anti-HIV-1_HeavyChain	3922	11564, 19206, 26848, 34490, 42132, 49774, 57416
anti-HIV-1_HeavyChain	3923	11565, 19207, 26849, 34491, 42133, 49775, 57417
anti-HIV-1_HeavyChain	3924	11566, 19208, 26850, 34492, 42134, 49776, 57418
anti-HIV-1_HeavyChain	3925	11567, 19209, 26851, 34493, 42135, 49777, 57419
anti-HIV-1_HeavyChain	3926	11568, 19210, 26852, 34494, 42136, 49778, 57420
anti-HIV-1_HeavyChain	3927	11569, 19211, 26853, 34495, 42137, 49779, 57421
anti-HIV-1_HeavyChain	3928	11570, 19212, 26854, 34496, 42138, 49780, 57422
anti-HIV-1_HeavyChain	3929	11571, 19213, 26855, 34497, 42139, 49781, 57423
anti-HIV-1_HeavyChain	3930	11572, 19214, 26856, 34498, 42140, 49782, 57424
anti-HIV-1_HeavyChain	3931	11573, 19215, 26857, 34499, 42141, 49783, 57425
anti-HIV-1_HeavyChain	3932	11574, 19216, 26858, 34500, 42142, 49784, 57426
anti-HIV-1_HeavyChain	3933	11575, 19217, 26859, 34501, 42143, 49785, 57427
anti-HIV-1_HeavyChain	3934	11576, 19218, 26860, 34502, 42144, 49786, 57428
anti-HIV-1_HeavyChain	3935	11577, 19219, 26861, 34503, 42145, 49787, 57429
anti-HIV-1_HeavyChain	3936	11578, 19220, 26862, 34504, 42146, 49788, 57430
anti-HIV-1_HeavyChain	3937	11579, 19221, 26863, 34505, 42147, 49789, 57431
anti-HIV-1_HeavyChain	3938	11580, 19222, 26864, 34506, 42148, 49790, 57432
anti-HIV-1_HeavyChain	3939	11581, 19223, 26865, 34507, 42149, 49791, 57433
anti-HIV-1_HeavyChain	3940	11582, 19224, 26866, 34508, 42150, 49792, 57434
anti-HIV-1_HeavyChain	3941	11583, 19225, 26867, 34509, 42151, 49793, 57435
anti-HIV-1_HeavyChain	3942	11584, 19226, 26868, 34510, 42152, 49794, 57436
anti-HIV-1_HeavyChain	3943	11585, 19227, 26869, 34511, 42153, 49795, 57437
anti-HIV-1_HeavyChain	3944	11586, 19228, 26870, 34512, 42154, 49796, 57438
anti-HIV-1_HeavyChain	3945	11587, 19229, 26871, 34513, 42155, 49797, 57439
anti-HIV-1_HeavyChain	3946	11588, 19230, 26872, 34514, 42156, 49798, 57440
anti-HIV-1_HeavyChain	3947	11589, 19231, 26873, 34515, 42157, 49799, 57441
anti-HIV-1_HeavyChain	3948	11590, 19232, 26874, 34516, 42158, 49800, 57442
anti-HIV-1_HeavyChain	3949	11591, 19233, 26875, 34517, 42159, 49801, 57443
anti-HIV-1_HeavyChain	3950	11592, 19234, 26876, 34518, 42160, 49802, 57444
anti-HIV-1_HeavyChain	3951	11593, 19235, 26877, 34519, 42161, 49803, 57445
anti-HIV-1_HeavyChain	3952	11594, 19236, 26878, 34520, 42162, 49804, 57446
anti-HIV-1_HeavyChain	3953	11595, 19237, 26879, 34521, 42163, 49805, 57447

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3954	11596, 19238, 26880, 34522, 42164, 49806, 57448
anti-HIV-1_HeavyChain	3955	11597, 19239, 26881, 34523, 42165, 49807, 57449
anti-HIV-1_HeavyChain	3956	11598, 19240, 26882, 34524, 42166, 49808, 57450
anti-HIV-1_HeavyChain	3957	11599, 19241, 26883, 34525, 42167, 49809, 57451
anti-HIV-1_HeavyChain	3958	11600, 19242, 26884, 34526, 42168, 49810, 57452
anti-HIV-1_HeavyChain	3959	11601, 19243, 26885, 34527, 42169, 49811, 57453
anti-HIV-1_HeavyChain	3960	11602, 19244, 26886, 34528, 42170, 49812, 57454
anti-HIV-1_HeavyChain	3961	11603, 19245, 26887, 34529, 42171, 49813, 57455
anti-HIV-1_HeavyChain	3962	11604, 19246, 26888, 34530, 42172, 49814, 57456
anti-HIV-1_HeavyChain	3963	11605, 19247, 26889, 34531, 42173, 49815, 57457
anti-HIV-1_HeavyChain	3964	11606, 19248, 26890, 34532, 42174, 49816, 57458
anti-HIV-1_HeavyChain	3965	11607, 19249, 26891, 34533, 42175, 49817, 57459
anti-HIV-1_HeavyChain	3966	11608, 19250, 26892, 34534, 42176, 49818, 57460
anti-HIV-1_HeavyChain	3967	11609, 19251, 26893, 34535, 42177, 49819, 57461
anti-HIV-1_HeavyChain	3968	11610, 19252, 26894, 34536, 42178, 49820, 57462
anti-HIV-1_HeavyChain	3969	11611, 19253, 26895, 34537, 42179, 49821, 57463
anti-HIV-1_HeavyChain	3970	11612, 19254, 26896, 34538, 42180, 49822, 57464
anti-HIV-1_HeavyChain	3971	11613, 19255, 26897, 34539, 42181, 49823, 57465
anti-HIV-1_HeavyChain	3972	11614, 19256, 26898, 34540, 42182, 49824, 57466
anti-HIV-1_HeavyChain	3973	11615, 19257, 26899, 34541, 42183, 49825, 57467
anti-HIV-1_HeavyChain	3974	11616, 19258, 26900, 34542, 42184, 49826, 57468
anti-HIV-1_HeavyChain	3975	11617, 19259, 26901, 34543, 42185, 49827, 57469
anti-HIV-1_HeavyChain	3976	11618, 19260, 26902, 34544, 42186, 49828, 57470
anti-HIV-1_HeavyChain	3977	11619, 19261, 26903, 34545, 42187, 49829, 57471
anti-HIV-1_HeavyChain	3978	11620, 19262, 26904, 34546, 42188, 49830, 57472
anti-HIV-1_HeavyChain	3979	11621, 19263, 26905, 34547, 42189, 49831, 57473
anti-HIV-1_HeavyChain	3980	11622, 19264, 26906, 34548, 42190, 49832, 57474
anti-HIV-1_HeavyChain	3981	11623, 19265, 26907, 34549, 42191, 49833, 57475
anti-HIV-1_HeavyChain	3982	11624, 19266, 26908, 34550, 42192, 49834, 57476
anti-HIV-1_HeavyChain	3983	11625, 19267, 26909, 34551, 42193, 49835, 57477
anti-HIV-1_HeavyChain	3984	11626, 19268, 26910, 34552, 42194, 49836, 57478
anti-HIV-1_HeavyChain	3985	11627, 19269, 26911, 34553, 42195, 49837, 57479
anti-HIV-1_HeavyChain	3986	11628, 19270, 26912, 34554, 42196, 49838, 57480

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV-1_HeavyChain	3987	11629, 19271, 26913, 34555, 42197, 49839, 57481
anti-HIV-1_HeavyChain	3988	11630, 19272, 26914, 34556, 42198, 49840, 57482
anti-HIV-1_HeavyChain	3989	11631, 19273, 26915, 34557, 42199, 49841, 57483
anti-HIV-1_HeavyChain	3990	11632, 19274, 26916, 34558, 42200, 49842, 57484
anti-HIV-1_HeavyChain	3991	11633, 19275, 26917, 34559, 42201, 49843, 57485
anti-HIV-1_HeavyChain	3992	11634, 19276, 26918, 34560, 42202, 49844, 57486
anti-HIV-1_HeavyChain	3993	11635, 19277, 26919, 34561, 42203, 49845, 57487
anti-HIV-1_HeavyChain	3994	11636, 19278, 26920, 34562, 42204, 49846, 57488
anti-HIV-1_HeavyChain	3995	11637, 19279, 26921, 34563, 42205, 49847, 57489
anti-HIV-1_HeavyChain	3996	11638, 19280, 26922, 34564, 42206, 49848, 57490
anti-HIV-1_HeavyChain	3997	11639, 19281, 26923, 34565, 42207, 49849, 57491
anti-HIV-1_HeavyChain	3998	11640, 19282, 26924, 34566, 42208, 49850, 57492
anti-HIV-1_HeavyChain	3999	11641, 19283, 26925, 34567, 42209, 49851, 57493
anti-HIV-1_HeavyChain	4000	11642, 19284, 26926, 34568, 42210, 49852, 57494
anti-HIV_5CIN_LightChain	4001	11643, 19285, 26927, 34569, 42211, 49853, 57495
anti-HIV_5CIN_HeavyChain	4002	11644, 19286, 26928, 34570, 42212, 49854, 57496
anti-HIV_5CIL_HeavyChain	4003	11645, 19287, 26929, 34571, 42213, 49855, 57497
anti-HIV_5CIP_A-Chain	4004	11646, 19288, 26930, 34572, 42214, 49856, 57498
anti-HIV_5CIP_HeavyChain	4005	11647, 19289, 26931, 34573, 42215, 49857, 57499
anti-HIV_4JKP_LightChain	4006	11648, 19290, 26932, 34574, 42216, 49858, 57500
anti-HIV_3TNN_E-Chain	4007	11649, 19291, 26933, 34575, 42217, 49859, 57501
anti-HIV_3BQU_B-Chain	4008	11650, 19292, 26934, 34576, 42218, 49860, 57502
anti-HIV_3BQU_A-Chain	4009	11651, 19293, 26935, 34577, 42219, 49861, 57503
anti-HIV_IgG_VR-Chain	4010	11652, 19294, 26936, 34578, 42220, 49862, 57504
anti-HIV_IgG_HeavyChain	4011	11653, 19295, 26937, 34579, 42221, 49863, 57505
anti-HIV_4P9M_HeavyChain	4012	11654, 19296, 26938, 34580, 42222, 49864, 57506
anti-HIV_4P9M_LightChain	4013	11655, 19297, 26939, 34581, 42223, 49865, 57507
anti-HIV_4P9H_C-Chain	4014	11656, 19298, 26940, 34582, 42224, 49866, 57508
anti-HIV_4YBL_A-Chain	4015	11657, 19299, 26941, 34583, 42225, 49867, 57509
anti-HIV_4R4N_V-Chain	4016	11658, 19300, 26942, 34584, 42226, 49868, 57510
anti-HIV_4JKP_G-Chain	4017	11659, 19301, 26943, 34585, 42227, 49869, 57511
anti-HIV_3BQU_D-Chain	4018	11660, 19302, 26944, 34586, 42228, 49870, 57512
anti-HIV_3BQU_C-Chain	4019	11661, 19303, 26945, 34587, 42229, 49871, 57513

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Ig_LightChain	4020	11662, 19304, 26946, 34588, 42230, 49872, 57514
anti-HIV_Ig_HeavyChain	4021	11663, 19305, 26947, 34589, 42231, 49873, 57515
anti-HIV_4P9H_G-Chain	4022	11664, 19306, 26948, 34590, 42232, 49874, 57516
anti-HIV_Chain	4023	11665, 19307, 26949, 34591, 42233, 49875, 57517
anti-HIV_Chain	4024	11666, 19308, 26950, 34592, 42234, 49876, 57518
anti-HIV_Chain	4025	11667, 19309, 26951, 34593, 42235, 49877, 57519
anti-HIV_Chain	4026	11668, 19310, 26952, 34594, 42236, 49878, 57520
anti-HIV_Chain	4027	11669, 19311, 26953, 34595, 42237, 49879, 57521
anti-HIV_Chain	4028	11670, 19312, 26954, 34596, 42238, 49880, 57522
anti-HIV_Chain	4029	11671, 19313, 26955, 34597, 42239, 49881, 57523
anti-HIV_Chain	4030	11672, 19314, 26956, 34598, 42240, 49882, 57524
anti-HIV_Chain	4031	11673, 19315, 26957, 34599, 42241, 49883, 57525
anti-HIV_Chain	4032	11674, 19316, 26958, 34600, 42242, 49884, 57526
anti-HIV_Chain	4033	11675, 19317, 26959, 34601, 42243, 49885, 57527
anti-HIV_Chain	4034	11676, 19318, 26960, 34602, 42244, 49886, 57528
anti-HIV_Chain	4035	11677, 19319, 26961, 34603, 42245, 49887, 57529
anti-HIV_Chain	4036	11678, 19320, 26962, 34604, 42246, 49888, 57530
anti-HIV_Chain	4037	11679, 19321, 26963, 34605, 42247, 49889, 57531
anti-HIV_Chain	4038	11680, 19322, 26964, 34606, 42248, 49890, 57532
anti-HIV_Chain	4039	11681, 19323, 26965, 34607, 42249, 49891, 57533
anti-HIV_Chain	4040	11682, 19324, 26966, 34608, 42250, 49892, 57534
anti-HIV_Chain	4041	11683, 19325, 26967, 34609, 42251, 49893, 57535
anti-HIV_Chain	4042	11684, 19326, 26968, 34610, 42252, 49894, 57536
anti-HIV_Chain	4043	11685, 19327, 26969, 34611, 42253, 49895, 57537
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anti-HIV_Chain	4045	11687, 19329, 26971, 34613, 42255, 49897, 57539
anti-HIV_Chain	4046	11688, 19330, 26972, 34614, 42256, 49898, 57540
anti-HIV_Chain	4047	11689, 19331, 26973, 34615, 42257, 49899, 57541
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anti-HIV_Chain	4049	11691, 19333, 26975, 34617, 42259, 49901, 57543
anti-HIV_Chain	4050	11692, 19334, 26976, 34618, 42260, 49902, 57544
anti-HIV_Chain	4051	11693, 19335, 26977, 34619, 42261, 49903, 57545
anti-HIV_Chain	4052	11694, 19336, 26978, 34620, 42262, 49904, 57546

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4053	11695, 19337, 26979, 34621, 42263, 49905, 57547
anti-HIV_Chain	4054	11696, 19338, 26980, 34622, 42264, 49906, 57548
anti-HIV_Chain	4055	11697, 19339, 26981, 34623, 42265, 49907, 57549
anti-HIV_Chain	4056	11698, 19340, 26982, 34624, 42266, 49908, 57550
anti-HIV_Chain	4057	11699, 19341, 26983, 34625, 42267, 49909, 57551
anti-HIV_Chain	4058	11700, 19342, 26984, 34626, 42268, 49910, 57552
anti-HIV_Chain	4059	11701, 19343, 26985, 34627, 42269, 49911, 57553
anti-HIV_Chain	4060	11702, 19344, 26986, 34628, 42270, 49912, 57554
anti-HIV_Chain	4061	11703, 19345, 26987, 34629, 42271, 49913, 57555
anti-HIV_Chain	4062	11704, 19346, 26988, 34630, 42272, 49914, 57556
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anti-HIV_Chain	4064	11706, 19348, 26990, 34632, 42274, 49916, 57558
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anti-HIV_Chain	4066	11708, 19350, 26992, 34634, 42276, 49918, 57560
anti-HIV_Chain	4067	11709, 19351, 26993, 34635, 42277, 49919, 57561
anti-HIV_Chain	4068	11710, 19352, 26994, 34636, 42278, 49920, 57562
anti-HIV_Chain	4069	11711, 19353, 26995, 34637, 42279, 49921, 57563
anti-HIV_Chain	4070	11712, 19354, 26996, 34638, 42280, 49922, 57564
anti-HIV_LightChain	4071	11713, 19355, 26997, 34639, 42281, 49923, 57565
anti-HIV_LightChain	4072	11714, 19356, 26998, 34640, 42282, 49924, 57566
anti-HIV_Chain	4073	11715, 19357, 26999, 34641, 42283, 49925, 57567
anti-HIV_Chain	4074	11716, 19358, 27000, 34642, 42284, 49926, 57568
anti-HIV_Chain	4075	11717, 19359, 27001, 34643, 42285, 49927, 57569
anti-HIV_HeavyChain	4076	11718, 19360, 27002, 34644, 42286, 49928, 57570
anti-HIV_Chain	4077	11719, 19361, 27003, 34645, 42287, 49929, 57571
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anti-HIV_LightChain	4079	11721, 19363, 27005, 34647, 42289, 49931, 57573
anti-HIV_LightChain	4080	11722, 19364, 27006, 34648, 42290, 49932, 57574
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anti-HIV_Chain	4082	11724, 19366, 27008, 34650, 42292, 49934, 57576
anti-HIV_Chain	4083	11725, 19367, 27009, 34651, 42293, 49935, 57577
anti-HIV_Chain	4084	11726, 19368, 27010, 34652, 42294, 49936, 57578
anti-HIV_Chain	4085	11727, 19369, 27011, 34653, 42295, 49937, 57579

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4086	11728, 19370, 27012, 34654, 42296, 49938, 57580
anti-HIV_Chain	4087	11729, 19371, 27013, 34655, 42297, 49939, 57581
anti-HIV_Chain	4088	11730, 19372, 27014, 34656, 42298, 49940, 57582
anti-HIV_Chain	4089	11731, 19373, 27015, 34657, 42299, 49941, 57583
anti-HIV_Chain	4090	11732, 19374, 27016, 34658, 42300, 49942, 57584
anti-HIV_Chain	4091	11733, 19375, 27017, 34659, 42301, 49943, 57585
anti-HIV_Chain	4092	11734, 19376, 27018, 34660, 42302, 49944, 57586
anti-HIV_Chain	4093	11735, 19377, 27019, 34661, 42303, 49945, 57587
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anti-HIV_Chain	4095	11737, 19379, 27021, 34663, 42305, 49947, 57589
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anti-HIV_Chain	4097	11739, 19381, 27023, 34665, 42307, 49949, 57591
anti-HIV_Chain	4098	11740, 19382, 27024, 34666, 42308, 49950, 57592
anti-HIV_Chain	4099	11741, 19383, 27025, 34667, 42309, 49951, 57593
anti-HIV_Chain	4100	11742, 19384, 27026, 34668, 42310, 49952, 57594
anti-HIV_Chain	4101	11743, 19385, 27027, 34669, 42311, 49953, 57595
anti-HIV_Chain	4102	11744, 19386, 27028, 34670, 42312, 49954, 57596
anti-HIV_Chain	4103	11745, 19387, 27029, 34671, 42313, 49955, 57597
anti-HIV_Chain	4104	11746, 19388, 27030, 34672, 42314, 49956, 57598
anti-HIV_Chain	4105	11747, 19389, 27031, 34673, 42315, 49957, 57599
anti-HIV_Chain	4106	11748, 19390, 27032, 34674, 42316, 49958, 57600
anti-HIV_Chain	4107	11749, 19391, 27033, 34675, 42317, 49959, 57601
anti-HIV_Chain	4108	11750, 19392, 27034, 34676, 42318, 49960, 57602
anti-HIV_Chain	4109	11751, 19393, 27035, 34677, 42319, 49961, 57603
anti-HIV_Chain	4110	11752, 19394, 27036, 34678, 42320, 49962, 57604
anti-HIV_Chain	4111	11753, 19395, 27037, 34679, 42321, 49963, 57605
anti-HIV_Chain	4112	11754, 19396, 27038, 34680, 42322, 49964, 57606
anti-HIV_LightChain	4113	11755, 19397, 27039, 34681, 42323, 49965, 57607
anti-HIV_LightChain	4114	11756, 19398, 27040, 34682, 42324, 49966, 57608
anti-HIV_LightChain	4115	11757, 19399, 27041, 34683, 42325, 49967, 57609
anti-HIV_LightChain	4116	11758, 19400, 27042, 34684, 42326, 49968, 57610
anti-HIV_LightChain	4117	11759, 19401, 27043, 34685, 42327, 49969, 57611
anti-HIV_LightChain	4118	11760, 19402, 27044, 34686, 42328, 49970, 57612

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_LightChain	4119	11761, 19403, 27045, 34687, 42329, 49971, 57613
anti-HIV_LightChain	4120	11762, 19404, 27046, 34688, 42330, 49972, 57614
anti-HIV_LightChain	4121	11763, 19405, 27047, 34689, 42331, 49973, 57615
anti-HIV_LightChain	4122	11764, 19406, 27048, 34690, 42332, 49974, 57616
anti-HIV_LightChain	4123	11765, 19407, 27049, 34691, 42333, 49975, 57617
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anti-HIV_LightChain	4125	11767, 19409, 27051, 34693, 42335, 49977, 57619
anti-HIV_LightChain	4126	11768, 19410, 27052, 34694, 42336, 49978, 57620
anti-HIV_LightChain	4127	11769, 19411, 27053, 34695, 42337, 49979, 57621
anti-HIV_Chain	4128	11770, 19412, 27054, 34696, 42338, 49980, 57622
anti-HIV_Chain	4129	11771, 19413, 27055, 34697, 42339, 49981, 57623
anti-HIV_Chain	4130	11772, 19414, 27056, 34698, 42340, 49982, 57624
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anti-HIV_Chain	4132	11774, 19416, 27058, 34700, 42342, 49984, 57626
anti-HIV_Chain	4133	11775, 19417, 27059, 34701, 42343, 49985, 57627
anti-HIV_Chain	4134	11776, 19418, 27060, 34702, 42344, 49986, 57628
anti-HIV_Chain	4135	11777, 19419, 27061, 34703, 42345, 49987, 57629
anti-HIV_Chain	4136	11778, 19420, 27062, 34704, 42346, 49988, 57630
anti-HIV_HeavyChain	4137	11779, 19421, 27063, 34705, 42347, 49989, 57631
anti-HIV_Chain	4138	11780, 19422, 27064, 34706, 42348, 49990, 57632
anti-HIV_Chain	4139	11781, 19423, 27065, 34707, 42349, 49991, 57633
anti-HIV_Chain	4140	11782, 19424, 27066, 34708, 42350, 49992, 57634
anti-HIV_Chain	4141	11783, 19425, 27067, 34709, 42351, 49993, 57635
anti-HIV_Chain	4142	11784, 19426, 27068, 34710, 42352, 49994, 57636
anti-HIV_Chain	4143	11785, 19427, 27069, 34711, 42353, 49995, 57637
anti-HIV_Chain	4144	11786, 19428, 27070, 34712, 42354, 49996, 57638
anti-HIV_Chain	4145	11787, 19429, 27071, 34713, 42355, 49997, 57639
anti-HIV_Chain	4146	11788, 19430, 27072, 34714, 42356, 49998, 57640
anti-HIV_Chain	4147	11789, 19431, 27073, 34715, 42357, 49999, 57641
anti-HIV_Chain	4148	11790, 19432, 27074, 34716, 42358, 50000, 57642
anti-HIV_Chain	4149	11791, 19433, 27075, 34717, 42359, 50001, 57643
anti-HIV_Chain	4150	11792, 19434, 27076, 34718, 42360, 50002, 57644
anti-HIV_Chain	4151	11793, 19435, 27077, 34719, 42361, 50003, 57645

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4152	11794, 19436, 27078, 34720, 42362, 50004, 57646
anti-HIV_Chain	4153	11795, 19437, 27079, 34721, 42363, 50005, 57647
anti-HIV_Chain	4154	11796, 19438, 27080, 34722, 42364, 50006, 57648
anti-HIV_Chain	4155	11797, 19439, 27081, 34723, 42365, 50007, 57649
anti-HIV_Chain	4156	11798, 19440, 27082, 34724, 42366, 50008, 57650
anti-HIV_Chain	4157	11799, 19441, 27083, 34725, 42367, 50009, 57651
anti-HIV_HeavyChain	4158	11800, 19442, 27084, 34726, 42368, 50010, 57652
anti-HIV_HeavyChain	4159	11801, 19443, 27085, 34727, 42369, 50011, 57653
anti-HIV_Chain	4160	11802, 19444, 27086, 34728, 42370, 50012, 57654
anti-HIV_Chain	4161	11803, 19445, 27087, 34729, 42371, 50013, 57655
anti-HIV_Chain	4162	11804, 19446, 27088, 34730, 42372, 50014, 57656
anti-HIV_Chain	4163	11805, 19447, 27089, 34731, 42373, 50015, 57657
anti-HIV_Chain	4164	11806, 19448, 27090, 34732, 42374, 50016, 57658
anti-HIV_Chain	4165	11807, 19449, 27091, 34733, 42375, 50017, 57659
anti-HIV_Chain	4166	11808, 19450, 27092, 34734, 42376, 50018, 57660
anti-HIV_Chain	4167	11809, 19451, 27093, 34735, 42377, 50019, 57661
anti-HIV_Chain	4168	11810, 19452, 27094, 34736, 42378, 50020, 57662
anti-HIV_Chain	4169	11811, 19453, 27095, 34737, 42379, 50021, 57663
anti-HIV_Chain	4170	11812, 19454, 27096, 34738, 42380, 50022, 57664
anti-HIV_Chain	4171	11813, 19455, 27097, 34739, 42381, 50023, 57665
anti-HIV_Chain	4172	11814, 19456, 27098, 34740, 42382, 50024, 57666
anti-HIV_Chain	4173	11815, 19457, 27099, 34741, 42383, 50025, 57667
anti-HIV_Chain	4174	11816, 19458, 27100, 34742, 42384, 50026, 57668
anti-HIV_Chain	4175	11817, 19459, 27101, 34743, 42385, 50027, 57669
anti-HIV_Chain	4176	11818, 19460, 27102, 34744, 42386, 50028, 57670
anti-HIV_Chain	4177	11819, 19461, 27103, 34745, 42387, 50029, 57671
anti-HIV_Chain	4178	11820, 19462, 27104, 34746, 42388, 50030, 57672
anti-HIV_Chain	4179	11821, 19463, 27105, 34747, 42389, 50031, 57673
anti-HIV_Chain	4180	11822, 19464, 27106, 34748, 42390, 50032, 57674
anti-HIV_Chain	4181	11823, 19465, 27107, 34749, 42391, 50033, 57675
anti-HIV_Chain	4182	11824, 19466, 27108, 34750, 42392, 50034, 57676
anti-HIV_Chain	4183	11825, 19467, 27109, 34751, 42393, 50035, 57677
anti-HIV_Chain	4184	11826, 19468, 27110, 34752, 42394, 50036, 57678

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4185	11827, 19469, 27111, 34753, 42395, 50037, 57679
anti-HIV_Chain	4186	11828, 19470, 27112, 34754, 42396, 50038, 57680
anti-HIV_Chain	4187	11829, 19471, 27113, 34755, 42397, 50039, 57681
anti-HIV_Chain	4188	11830, 19472, 27114, 34756, 42398, 50040, 57682
anti-HIV_Chain	4189	11831, 19473, 27115, 34757, 42399, 50041, 57683
anti-HIV_Chain	4190	11832, 19474, 27116, 34758, 42400, 50042, 57684
anti-HIV_Chain	4191	11833, 19475, 27117, 34759, 42401, 50043, 57685
anti-HIV_Chain	4192	11834, 19476, 27118, 34760, 42402, 50044, 57686
anti-HIV_Chain	4193	11835, 19477, 27119, 34761, 42403, 50045, 57687
anti-HIV_Chain	4194	11836, 19478, 27120, 34762, 42404, 50046, 57688
anti-HIV_Chain	4195	11837, 19479, 27121, 34763, 42405, 50047, 57689
anti-HIV_Chain	4196	11838, 19480, 27122, 34764, 42406, 50048, 57690
anti-HIV_Chain	4197	11839, 19481, 27123, 34765, 42407, 50049, 57691
anti-HIV_Chain	4198	11840, 19482, 27124, 34766, 42408, 50050, 57692
anti-HIV_Chain	4199	11841, 19483, 27125, 34767, 42409, 50051, 57693
anti-HIV_Chain	4200	11842, 19484, 27126, 34768, 42410, 50052, 57694
anti-HIV_Chain	4201	11843, 19485, 27127, 34769, 42411, 50053, 57695
anti-HIV_Chain	4202	11844, 19486, 27128, 34770, 42412, 50054, 57696
anti-HIV_Chain	4203	11845, 19487, 27129, 34771, 42413, 50055, 57697
anti-HIV_Chain	4204	11846, 19488, 27130, 34772, 42414, 50056, 57698
anti-HIV_Chain	4205	11847, 19489, 27131, 34773, 42415, 50057, 57699
anti-HIV_HeavyChain	4206	11848, 19490, 27132, 34774, 42416, 50058, 57700
anti-HIV_Chain	4207	11849, 19491, 27133, 34775, 42417, 50059, 57701
anti-HIV_Chain	4208	11850, 19492, 27134, 34776, 42418, 50060, 57702
anti-HIV_Chain	4209	11851, 19493, 27135, 34777, 42419, 50061, 57703
anti-HIV_Chain	4210	11852, 19494, 27136, 34778, 42420, 50062, 57704
anti-HIV_Chain	4211	11853, 19495, 27137, 34779, 42421, 50063, 57705
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anti-HIV_Chain	4213	11855, 19497, 27139, 34781, 42423, 50065, 57707
anti-HIV_Chain	4214	11856, 19498, 27140, 34782, 42424, 50066, 57708
anti-HIV_Chain	4215	11857, 19499, 27141, 34783, 42425, 50067, 57709
anti-HIV_Chain	4216	11858, 19500, 27142, 34784, 42426, 50068, 57710
anti-HIV_Chain	4217	11859, 19501, 27143, 34785, 42427, 50069, 57711

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4218	11860, 19502, 27144, 34786, 42428, 50070, 57712
anti-HIV_Chain	4219	11861, 19503, 27145, 34787, 42429, 50071, 57713
anti-HIV_Chain	4220	11862, 19504, 27146, 34788, 42430, 50072, 57714
anti-HIV_Chain	4221	11863, 19505, 27147, 34789, 42431, 50073, 57715
anti-HIV_Chain	4222	11864, 19506, 27148, 34790, 42432, 50074, 57716
anti-HIV_Chain	4223	11865, 19507, 27149, 34791, 42433, 50075, 57717
anti-HIV_Chain	4224	11866, 19508, 27150, 34792, 42434, 50076, 57718
anti-HIV_Chain	4225	11867, 19509, 27151, 34793, 42435, 50077, 57719
anti-HIV_Chain	4226	11868, 19510, 27152, 34794, 42436, 50078, 57720
anti-HIV_Chain	4227	11869, 19511, 27153, 34795, 42437, 50079, 57721
anti-HIV_Chain	4228	11870, 19512, 27154, 34796, 42438, 50080, 57722
anti-HIV_Chain	4229	11871, 19513, 27155, 34797, 42439, 50081, 57723
anti-HIV_Chain	4230	11872, 19514, 27156, 34798, 42440, 50082, 57724
anti-HIV_Chain	4231	11873, 19515, 27157, 34799, 42441, 50083, 57725
anti-HIV_Chain	4232	11874, 19516, 27158, 34800, 42442, 50084, 57726
anti-HIV_Chain	4233	11875, 19517, 27159, 34801, 42443, 50085, 57727
anti-HIV_Chain	4234	11876, 19518, 27160, 34802, 42444, 50086, 57728
anti-HIV_Chain	4235	11877, 19519, 27161, 34803, 42445, 50087, 57729
anti-HIV_Chain	4236	11878, 19520, 27162, 34804, 42446, 50088, 57730
anti-HIV_Chain	4237	11879, 19521, 27163, 34805, 42447, 50089, 57731
anti-HIV_Chain	4238	11880, 19522, 27164, 34806, 42448, 50090, 57732
anti-HIV_Chain	4239	11881, 19523, 27165, 34807, 42449, 50091, 57733
anti-HIV_Chain	4240	11882, 19524, 27166, 34808, 42450, 50092, 57734
anti-HIV_Chain	4241	11883, 19525, 27167, 34809, 42451, 50093, 57735
anti-HIV_Chain	4242	11884, 19526, 27168, 34810, 42452, 50094, 57736
anti-HIV_Chain	4243	11885, 19527, 27169, 34811, 42453, 50095, 57737
anti-HIV_Chain	4244	11886, 19528, 27170, 34812, 42454, 50096, 57738
anti-HIV_Chain	4245	11887, 19529, 27171, 34813, 42455, 50097, 57739
anti-HIV_Chain	4246	11888, 19530, 27172, 34814, 42456, 50098, 57740
anti-HIV_Chain	4247	11889, 19531, 27173, 34815, 42457, 50099, 57741
anti-HIV_Chain	4248	11890, 19532, 27174, 34816, 42458, 50100, 57742
anti-HIV_Chain	4249	11891, 19533, 27175, 34817, 42459, 50101, 57743
anti-HIV_Chain	4250	11892, 19534, 27176, 34818, 42460, 50102, 57744

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4251	11893, 19535, 27177, 34819, 42461, 50103, 57745
anti-HIV_Chain	4252	11894, 19536, 27178, 34820, 42462, 50104, 57746
anti-HIV_Chain	4253	11895, 19537, 27179, 34821, 42463, 50105, 57747
anti-HIV_Chain	4254	11896, 19538, 27180, 34822, 42464, 50106, 57748
anti-HIV_Chain	4255	11897, 19539, 27181, 34823, 42465, 50107, 57749
anti-HIV_Chain	4256	11898, 19540, 27182, 34824, 42466, 50108, 57750
anti-HIV_Chain	4257	11899, 19541, 27183, 34825, 42467, 50109, 57751
anti-HIV_Chain	4258	11900, 19542, 27184, 34826, 42468, 50110, 57752
anti-HIV_Chain	4259	11901, 19543, 27185, 34827, 42469, 50111, 57753
anti-HIV_Chain	4260	11902, 19544, 27186, 34828, 42470, 50112, 57754
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anti-HIV_Chain	4262	11904, 19546, 27188, 34830, 42472, 50114, 57756
anti-HIV_Chain	4263	11905, 19547, 27189, 34831, 42473, 50115, 57757
anti-HIV_Chain	4264	11906, 19548, 27190, 34832, 42474, 50116, 57758
anti-HIV_Chain	4265	11907, 19549, 27191, 34833, 42475, 50117, 57759
anti-HIV_Chain	4266	11908, 19550, 27192, 34834, 42476, 50118, 57760
anti-HIV_Chain	4267	11909, 19551, 27193, 34835, 42477, 50119, 57761
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anti-HIV_Chain	4269	11911, 19553, 27195, 34837, 42479, 50121, 57763
anti-HIV_Chain	4270	11912, 19554, 27196, 34838, 42480, 50122, 57764
anti-HIV_Chain	4271	11913, 19555, 27197, 34839, 42481, 50123, 57765
anti-HIV_Chain	4272	11914, 19556, 27198, 34840, 42482, 50124, 57766
anti-HIV_Chain	4273	11915, 19557, 27199, 34841, 42483, 50125, 57767
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anti-HIV_Chain	4275	11917, 19559, 27201, 34843, 42485, 50127, 57769
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anti-HIV_Chain	4277	11919, 19561, 27203, 34845, 42487, 50129, 57771
anti-HIV_Chain	4278	11920, 19562, 27204, 34846, 42488, 50130, 57772
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anti-HIV_Chain	4280	11922, 19564, 27206, 34848, 42490, 50132, 57774
anti-HIV_Chain	4281	11923, 19565, 27207, 34849, 42491, 50133, 57775
anti-HIV_Chain	4282	11924, 19566, 27208, 34850, 42492, 50134, 57776
anti-HIV_Chain	4283	11925, 19567, 27209, 34851, 42493, 50135, 57777

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4284	11926, 19568, 27210, 34852, 42494, 50136, 57778
anti-HIV_Chain	4285	11927, 19569, 27211, 34853, 42495, 50137, 57779
anti-HIV_Chain	4286	11928, 19570, 27212, 34854, 42496, 50138, 57780
anti-HIV_Chain	4287	11929, 19571, 27213, 34855, 42497, 50139, 57781
anti-HIV_Chain	4288	11930, 19572, 27214, 34856, 42498, 50140, 57782
anti-HIV_Chain	4289	11931, 19573, 27215, 34857, 42499, 50141, 57783
anti-HIV_Chain	4290	11932, 19574, 27216, 34858, 42500, 50142, 57784
anti-HIV_Chain	4291	11933, 19575, 27217, 34859, 42501, 50143, 57785
anti-HIV_Chain	4292	11934, 19576, 27218, 34860, 42502, 50144, 57786
anti-HIV_Chain	4293	11935, 19577, 27219, 34861, 42503, 50145, 57787
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anti-HIV_Chain	4296	11938, 19580, 27222, 34864, 42506, 50148, 57790
anti-HIV_Chain	4297	11939, 19581, 27223, 34865, 42507, 50149, 57791
anti-HIV_Chain	4298	11940, 19582, 27224, 34866, 42508, 50150, 57792
anti-HIV_Chain	4299	11941, 19583, 27225, 34867, 42509, 50151, 57793
anti-HIV_Chain	4300	11942, 19584, 27226, 34868, 42510, 50152, 57794
anti-HIV_Chain	4301	11943, 19585, 27227, 34869, 42511, 50153, 57795
anti-HIV_Chain	4302	11944, 19586, 27228, 34870, 42512, 50154, 57796
anti-HIV_Chain	4303	11945, 19587, 27229, 34871, 42513, 50155, 57797
anti-HIV_Chain	4304	11946, 19588, 27230, 34872, 42514, 50156, 57798
anti-HIV_Chain	4305	11947, 19589, 27231, 34873, 42515, 50157, 57799
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anti-HIV_Chain	4307	11949, 19591, 27233, 34875, 42517, 50159, 57801
anti-HIV_Chain	4308	11950, 19592, 27234, 34876, 42518, 50160, 57802
anti-HIV_Chain	4309	11951, 19593, 27235, 34877, 42519, 50161, 57803
anti-HIV_Chain	4310	11952, 19594, 27236, 34878, 42520, 50162, 57804
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anti-HIV_Chain	4314	11956, 19598, 27240, 34882, 42524, 50166, 57808
anti-HIV_Chain	4315	11957, 19599, 27241, 34883, 42525, 50167, 57809
anti-HIV_Chain	4316	11958, 19600, 27242, 34884, 42526, 50168, 57810

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4317	11959, 19601, 27243, 34885, 42527, 50169, 57811
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anti-HIV_Chain	4320	11962, 19604, 27246, 34888, 42530, 50172, 57814
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anti-HIV_Chain	4322	11964, 19606, 27248, 34890, 42532, 50174, 57816
anti-HIV_Chain	4323	11965, 19607, 27249, 34891, 42533, 50175, 57817
anti-HIV_Chain	4324	11966, 19608, 27250, 34892, 42534, 50176, 57818
anti-HIV_Chain	4325	11967, 19609, 27251, 34893, 42535, 50177, 57819
anti-HIV_Chain	4326	11968, 19610, 27252, 34894, 42536, 50178, 57820
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anti-HIV_Chain	4330	11972, 19614, 27256, 34898, 42540, 50182, 57824
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anti-HIV_Chain	4332	11974, 19616, 27258, 34900, 42542, 50184, 57826
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anti-HIV_Chain	4334	11976, 19618, 27260, 34902, 42544, 50186, 57828
anti-HIV_Chain	4335	11977, 19619, 27261, 34903, 42545, 50187, 57829
anti-HIV_Chain	4336	11978, 19620, 27262, 34904, 42546, 50188, 57830
anti-HIV_Chain	4337	11979, 19621, 27263, 34905, 42547, 50189, 57831
anti-HIV_Chain	4338	11980, 19622, 27264, 34906, 42548, 50190, 57832
anti-HIV_Chain	4339	11981, 19623, 27265, 34907, 42549, 50191, 57833
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anti-HIV_Chain	4341	11983, 19625, 27267, 34909, 42551, 50193, 57835
anti-HIV_Chain	4342	11984, 19626, 27268, 34910, 42552, 50194, 57836
anti-HIV_Chain	4343	11985, 19627, 27269, 34911, 42553, 50195, 57837
anti-HIV_Chain	4344	11986, 19628, 27270, 34912, 42554, 50196, 57838
anti-HIV_Chain	4345	11987, 19629, 27271, 34913, 42555, 50197, 57839
anti-HIV_Chain	4346	11988, 19630, 27272, 34914, 42556, 50198, 57840
anti-HIV_Chain	4347	11989, 19631, 27273, 34915, 42557, 50199, 57841
anti-HIV_Chain	4348	11990, 19632, 27274, 34916, 42558, 50200, 57842
anti-HIV_Chain	4349	11991, 19633, 27275, 34917, 42559, 50201, 57843

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-HIV_Chain	4352	11994, 19636, 27278, 34920, 42562, 50204, 57846
anti-HIV_Chain	4353	11995, 19637, 27279, 34921, 42563, 50205, 57847
anti-HIV_Chain	4354	11996, 19638, 27280, 34922, 42564, 50206, 57848
anti-HIV_Chain	4355	11997, 19639, 27281, 34923, 42565, 50207, 57849
anti-HIV_Chain	4356	11998, 19640, 27282, 34924, 42566, 50208, 57850
anti-HIV_Chain	4357	11999, 19641, 27283, 34925, 42567, 50209, 57851
anti-HIV_Chain	4358	12000, 19642, 27284, 34926, 42568, 50210, 57852
anti-HIV_Chain	4359	12001, 19643, 27285, 34927, 42569, 50211, 57853
anti-HIV_Chain	4360	12002, 19644, 27286, 34928, 42570, 50212, 57854
anti-HIV_Chain	4361	12003, 19645, 27287, 34929, 42571, 50213, 57855
anti-HIV_Chain	4362	12004, 19646, 27288, 34930, 42572, 50214, 57856
anti-HIV_Chain	4363	12005, 19647, 27289, 34931, 42573, 50215, 57857
anti-HIV_Chain	4364	12006, 19648, 27290, 34932, 42574, 50216, 57858
anti-HIV_Chain	4365	12007, 19649, 27291, 34933, 42575, 50217, 57859
anti-HIV_Chain	4366	12008, 19650, 27292, 34934, 42576, 50218, 57860
anti-HIV_Chain	4367	12009, 19651, 27293, 34935, 42577, 50219, 57861
anti-HIV_Chain	4368	12010, 19652, 27294, 34936, 42578, 50220, 57862
anti-HIV_Chain	4369	12011, 19653, 27295, 34937, 42579, 50221, 57863
anti-HIV_Chain	4370	12012, 19654, 27296, 34938, 42580, 50222, 57864
anti-HIV_Chain	4371	12013, 19655, 27297, 34939, 42581, 50223, 57865
anti-HIV_Chain	4372	12014, 19656, 27298, 34940, 42582, 50224, 57866
anti-HIV_Chain	4373	12015, 19657, 27299, 34941, 42583, 50225, 57867
anti-HIV_Chain	4374	12016, 19658, 27300, 34942, 42584, 50226, 57868
anti-HIV_Chain	4375	12017, 19659, 27301, 34943, 42585, 50227, 57869
anti-HIV_Chain	4376	12018, 19660, 27302, 34944, 42586, 50228, 57870
anti-HIV_Chain	4377	12019, 19661, 27303, 34945, 42587, 50229, 57871
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anti-HIV_Chain	4379	12021, 19663, 27305, 34947, 42589, 50231, 57873
anti-HIV_Chain	4380	12022, 19664, 27306, 34948, 42590, 50232, 57874
anti-HIV_Chain	4381	12023, 19665, 27307, 34949, 42591, 50233, 57875
anti-HIV_Chain	4382	12024, 19666, 27308, 34950, 42592, 50234, 57876

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-HIV_Chain	4384	12026, 19668, 27310, 34952, 42594, 50236, 57878
anti-HIV_Chain	4385	12027, 19669, 27311, 34953, 42595, 50237, 57879
anti-HIV_Chain	4386	12028, 19670, 27312, 34954, 42596, 50238, 57880
anti-HIV_Chain	4387	12029, 19671, 27313, 34955, 42597, 50239, 57881
anti-HIV_Chain	4388	12030, 19672, 27314, 34956, 42598, 50240, 57882
anti-HIV_Chain	4389	12031, 19673, 27315, 34957, 42599, 50241, 57883
anti-HIV_Chain	4390	12032, 19674, 27316, 34958, 42600, 50242, 57884
anti-HIV_Chain	4391	12033, 19675, 27317, 34959, 42601, 50243, 57885
anti-HIV_Chain	4392	12034, 19676, 27318, 34960, 42602, 50244, 57886
anti-HIV_Chain	4393	12035, 19677, 27319, 34961, 42603, 50245, 57887
anti-HIV_Chain	4394	12036, 19678, 27320, 34962, 42604, 50246, 57888
anti-HIV_Chain	4395	12037, 19679, 27321, 34963, 42605, 50247, 57889
anti-HIV_Chain	4396	12038, 19680, 27322, 34964, 42606, 50248, 57890
anti-HIV_Chain	4397	12039, 19681, 27323, 34965, 42607, 50249, 57891
anti-HIV_Chain	4398	12040, 19682, 27324, 34966, 42608, 50250, 57892
anti-HIV_Chain	4399	12041, 19683, 27325, 34967, 42609, 50251, 57893
anti-HIV_Chain	4400	12042, 19684, 27326, 34968, 42610, 50252, 57894
anti-HIV_Chain	4401	12043, 19685, 27327, 34969, 42611, 50253, 57895
anti-HIV_Chain	4402	12044, 19686, 27328, 34970, 42612, 50254, 57896
anti-HIV_Chain	4403	12045, 19687, 27329, 34971, 42613, 50255, 57897
anti-HIV_Chain	4404	12046, 19688, 27330, 34972, 42614, 50256, 57898
anti-HIV_Chain	4405	12047, 19689, 27331, 34973, 42615, 50257, 57899
anti-HIV_Chain	4406	12048, 19690, 27332, 34974, 42616, 50258, 57900
anti-HIV_Chain	4407	12049, 19691, 27333, 34975, 42617, 50259, 57901
anti-HIV_Chain	4408	12050, 19692, 27334, 34976, 42618, 50260, 57902
anti-HIV_Chain	4409	12051, 19693, 27335, 34977, 42619, 50261, 57903
anti-HIV_Chain	4410	12052, 19694, 27336, 34978, 42620, 50262, 57904
anti-HIV_Chain	4411	12053, 19695, 27337, 34979, 42621, 50263, 57905
anti-HIV_Chain	4412	12054, 19696, 27338, 34980, 42622, 50264, 57906
anti-HIV_Chain	4413	12055, 19697, 27339, 34981, 42623, 50265, 57907
anti-HIV_Chain	4414	12056, 19698, 27340, 34982, 42624, 50266, 57908
anti-HIV_Chain	4415	12057, 19699, 27341, 34983, 42625, 50267, 57909

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4416	12058, 19700, 27342, 34984, 42626, 50268, 57910
anti-HIV_Chain	4417	12059, 19701, 27343, 34985, 42627, 50269, 57911
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anti-HIV_Chain	4428	12070, 19712, 27354, 34996, 42638, 50280, 57922
anti-HIV_Chain	4429	12071, 19713, 27355, 34997, 42639, 50281, 57923
anti-HIV_Chain	4430	12072, 19714, 27356, 34998, 42640, 50282, 57924
anti-HIV_Chain	4431	12073, 19715, 27357, 34999, 42641, 50283, 57925
anti-HIV_Chain	4432	12074, 19716, 27358, 35000, 42642, 50284, 57926
anti-HIV_Chain	4433	12075, 19717, 27359, 35001, 42643, 50285, 57927
anti-HIV_Chain	4434	12076, 19718, 27360, 35002, 42644, 50286, 57928
anti-HIV_Chain	4435	12077, 19719, 27361, 35003, 42645, 50287, 57929
anti-HIV_Chain	4436	12078, 19720, 27362, 35004, 42646, 50288, 57930
anti-HIV_Chain	4437	12079, 19721, 27363, 35005, 42647, 50289, 57931
anti-HIV_Chain	4438	12080, 19722, 27364, 35006, 42648, 50290, 57932
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anti-HIV_Chain	4440	12082, 19724, 27366, 35008, 42650, 50292, 57934
anti-HIV_Chain	4441	12083, 19725, 27367, 35009, 42651, 50293, 57935
anti-HIV_Chain	4442	12084, 19726, 27368, 35010, 42652, 50294, 57936
anti-HIV_Chain	4443	12085, 19727, 27369, 35011, 42653, 50295, 57937
anti-HIV_Chain	4444	12086, 19728, 27370, 35012, 42654, 50296, 57938
anti-HIV_Chain	4445	12087, 19729, 27371, 35013, 42655, 50297, 57939
anti-HIV_Chain	4446	12088, 19730, 27372, 35014, 42656, 50298, 57940
anti-HIV_Chain	4447	12089, 19731, 27373, 35015, 42657, 50299, 57941
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Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-HIV_Chain	4450	12092, 19734, 27376, 35018, 42660, 50302, 57944
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anti-HIV_Chain	4452	12094, 19736, 27378, 35020, 42662, 50304, 57946
anti-HIV_Chain	4453	12095, 19737, 27379, 35021, 42663, 50305, 57947
anti-HIV_Chain	4454	12096, 19738, 27380, 35022, 42664, 50306, 57948
anti-HIV_Chain	4455	12097, 19739, 27381, 35023, 42665, 50307, 57949
anti-HIV_Chain	4456	12098, 19740, 27382, 35024, 42666, 50308, 57950
anti-HIV_Chain	4457	12099, 19741, 27383, 35025, 42667, 50309, 57951
anti-HIV_Chain	4458	12100, 19742, 27384, 35026, 42668, 50310, 57952
anti-HIV_Chain	4459	12101, 19743, 27385, 35027, 42669, 50311, 57953
anti-HIV_Chain	4460	12102, 19744, 27386, 35028, 42670, 50312, 57954
anti-HIV_Chain	4461	12103, 19745, 27387, 35029, 42671, 50313, 57955
anti-HIV_Chain	4462	12104, 19746, 27388, 35030, 42672, 50314, 57956
anti-HIV_Chain	4463	12105, 19747, 27389, 35031, 42673, 50315, 57957
anti-HIV_Chain	4464	12106, 19748, 27390, 35032, 42674, 50316, 57958
anti-HIV_Chain	4465	12107, 19749, 27391, 35033, 42675, 50317, 57959
anti-HIV_Chain	4466	12108, 19750, 27392, 35034, 42676, 50318, 57960
anti-HIV_Chain	4467	12109, 19751, 27393, 35035, 42677, 50319, 57961
anti-HIV_Chain	4468	12110, 19752, 27394, 35036, 42678, 50320, 57962
anti-HIV_Chain	4469	12111, 19753, 27395, 35037, 42679, 50321, 57963
anti-HIV_Chain	4470	12112, 19754, 27396, 35038, 42680, 50322, 57964
anti-HIV_Chain	4471	12113, 19755, 27397, 35039, 42681, 50323, 57965
anti-HIV_LightChain	4472	12114, 19756, 27398, 35040, 42682, 50324, 57966
anti-HIV_Chain	4473	12115, 19757, 27399, 35041, 42683, 50325, 57967
anti-HIV_Chain	4474	12116, 19758, 27400, 35042, 42684, 50326, 57968
anti-HIV_Chain	4475	12117, 19759, 27401, 35043, 42685, 50327, 57969
anti-HIV_Chain	4476	12118, 19760, 27402, 35044, 42686, 50328, 57970
anti-HIV_Chain	4477	12119, 19761, 27403, 35045, 42687, 50329, 57971
anti-HIV_Chain	4478	12120, 19762, 27404, 35046, 42688, 50330, 57972
anti-HIV_Chain	4479	12121, 19763, 27405, 35047, 42689, 50331, 57973
anti-HIV_Chain	4480	12122, 19764, 27406, 35048, 42690, 50332, 57974
anti-HIV_Chain	4481	12123, 19765, 27407, 35049, 42691, 50333, 57975

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4482	12124, 19766, 27408, 35050, 42692, 50334, 57976
anti-HIV_Chain	4483	12125, 19767, 27409, 35051, 42693, 50335, 57977
anti-HIV_Chain	4484	12126, 19768, 27410, 35052, 42694, 50336, 57978
anti-HIV_Chain	4485	12127, 19769, 27411, 35053, 42695, 50337, 57979
anti-HIV_Chain	4486	12128, 19770, 27412, 35054, 42696, 50338, 57980
anti-HIV_Chain	4487	12129, 19771, 27413, 35055, 42697, 50339, 57981
anti-HIV_Chain	4488	12130, 19772, 27414, 35056, 42698, 50340, 57982
anti-HIV_Chain	4489	12131, 19773, 27415, 35057, 42699, 50341, 57983
anti-HIV_Chain	4490	12132, 19774, 27416, 35058, 42700, 50342, 57984
anti-HIV_Chain	4491	12133, 19775, 27417, 35059, 42701, 50343, 57985
anti-HIV_Chain	4492	12134, 19776, 27418, 35060, 42702, 50344, 57986
anti-HIV_Chain	4493	12135, 19777, 27419, 35061, 42703, 50345, 57987
anti-HIV_Chain	4494	12136, 19778, 27420, 35062, 42704, 50346, 57988
anti-HIV_Chain	4495	12137, 19779, 27421, 35063, 42705, 50347, 57989
anti-HIV_Chain	4496	12138, 19780, 27422, 35064, 42706, 50348, 57990
anti-HIV_Chain	4497	12139, 19781, 27423, 35065, 42707, 50349, 57991
anti-HIV_Chain	4498	12140, 19782, 27424, 35066, 42708, 50350, 57992
anti-HIV_Chain	4499	12141, 19783, 27425, 35067, 42709, 50351, 57993
anti-HIV_Chain	4500	12142, 19784, 27426, 35068, 42710, 50352, 57994
anti-HIV_Chain	4501	12143, 19785, 27427, 35069, 42711, 50353, 57995
anti-HIV_Chain	4502	12144, 19786, 27428, 35070, 42712, 50354, 57996
anti-HIV_Chain	4503	12145, 19787, 27429, 35071, 42713, 50355, 57997
anti-HIV_Chain	4504	12146, 19788, 27430, 35072, 42714, 50356, 57998
anti-HIV_Chain	4505	12147, 19789, 27431, 35073, 42715, 50357, 57999
anti-HIV_Chain	4506	12148, 19790, 27432, 35074, 42716, 50358, 58000
anti-HIV_Chain	4507	12149, 19791, 27433, 35075, 42717, 50359, 58001
anti-HIV_Chain	4508	12150, 19792, 27434, 35076, 42718, 50360, 58002
anti-HIV_Chain	4509	12151, 19793, 27435, 35077, 42719, 50361, 58003
anti-HIV_Chain	4510	12152, 19794, 27436, 35078, 42720, 50362, 58004
anti-HIV_Chain	4511	12153, 19795, 27437, 35079, 42721, 50363, 58005
anti-HIV_Chain	4512	12154, 19796, 27438, 35080, 42722, 50364, 58006
anti-HIV_Chain	4513	12155, 19797, 27439, 35081, 42723, 50365, 58007
anti-HIV_Chain	4514	12156, 19798, 27440, 35082, 42724, 50366, 58008

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4515	12157, 19799, 27441, 35083, 42725, 50367, 58009
anti-HIV_Chain	4516	12158, 19800, 27442, 35084, 42726, 50368, 58010
anti-HIV_Chain	4517	12159, 19801, 27443, 35085, 42727, 50369, 58011
anti-HIV_Chain	4518	12160, 19802, 27444, 35086, 42728, 50370, 58012
anti-HIV_Chain	4519	12161, 19803, 27445, 35087, 42729, 50371, 58013
anti-HIV_Chain	4520	12162, 19804, 27446, 35088, 42730, 50372, 58014
anti-HIV_Chain	4521	12163, 19805, 27447, 35089, 42731, 50373, 58015
anti-HIV_Chain	4522	12164, 19806, 27448, 35090, 42732, 50374, 58016
anti-HIV_Chain	4523	12165, 19807, 27449, 35091, 42733, 50375, 58017
anti-HIV_Chain	4524	12166, 19808, 27450, 35092, 42734, 50376, 58018
anti-HIV_Chain	4525	12167, 19809, 27451, 35093, 42735, 50377, 58019
anti-HIV_Chain	4526	12168, 19810, 27452, 35094, 42736, 50378, 58020
anti-HIV_Chain	4527	12169, 19811, 27453, 35095, 42737, 50379, 58021
anti-HIV_Chain	4528	12170, 19812, 27454, 35096, 42738, 50380, 58022
anti-HIV_Chain	4529	12171, 19813, 27455, 35097, 42739, 50381, 58023
anti-HIV_Chain	4530	12172, 19814, 27456, 35098, 42740, 50382, 58024
anti-HIV_Chain	4531	12173, 19815, 27457, 35099, 42741, 50383, 58025
anti-HIV_Chain	4532	12174, 19816, 27458, 35100, 42742, 50384, 58026
anti-HIV_Chain	4533	12175, 19817, 27459, 35101, 42743, 50385, 58027
anti-HIV_Chain	4534	12176, 19818, 27460, 35102, 42744, 50386, 58028
anti-HIV_Chain	4535	12177, 19819, 27461, 35103, 42745, 50387, 58029
anti-HIV_Chain	4536	12178, 19820, 27462, 35104, 42746, 50388, 58030
anti-HIV_Chain	4537	12179, 19821, 27463, 35105, 42747, 50389, 58031
anti-HIV_Chain	4538	12180, 19822, 27464, 35106, 42748, 50390, 58032
anti-HIV_Chain	4539	12181, 19823, 27465, 35107, 42749, 50391, 58033
anti-HIV_Chain	4540	12182, 19824, 27466, 35108, 42750, 50392, 58034
anti-HIV_Chain	4541	12183, 19825, 27467, 35109, 42751, 50393, 58035
anti-HIV_Chain	4542	12184, 19826, 27468, 35110, 42752, 50394, 58036
anti-HIV_LightChain	4543	12185, 19827, 27469, 35111, 42753, 50395, 58037
anti-HIV_Chain	4544	12186, 19828, 27470, 35112, 42754, 50396, 58038
anti-HIV_Chain	4545	12187, 19829, 27471, 35113, 42755, 50397, 58039
anti-HIV_Chain	4546	12188, 19830, 27472, 35114, 42756, 50398, 58040
anti-HIV_Chain	4547	12189, 19831, 27473, 35115, 42757, 50399, 58041

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4548	12190, 19832, 27474, 35116, 42758, 50400, 58042
anti-HIV_Chain	4549	12191, 19833, 27475, 35117, 42759, 50401, 58043
anti-HIV_Chain	4550	12192, 19834, 27476, 35118, 42760, 50402, 58044
anti-HIV_Chain	4551	12193, 19835, 27477, 35119, 42761, 50403, 58045
anti-HIV_Chain	4552	12194, 19836, 27478, 35120, 42762, 50404, 58046
anti-HIV_Chain	4553	12195, 19837, 27479, 35121, 42763, 50405, 58047
anti-HIV_Chain	4554	12196, 19838, 27480, 35122, 42764, 50406, 58048
anti-HIV_Chain	4555	12197, 19839, 27481, 35123, 42765, 50407, 58049
anti-HIV_Chain	4556	12198, 19840, 27482, 35124, 42766, 50408, 58050
anti-HIV_Chain	4557	12199, 19841, 27483, 35125, 42767, 50409, 58051
anti-HIV_Chain	4558	12200, 19842, 27484, 35126, 42768, 50410, 58052
anti-HIV_Chain	4559	12201, 19843, 27485, 35127, 42769, 50411, 58053
anti-HIV_Chain	4560	12202, 19844, 27486, 35128, 42770, 50412, 58054
anti-HIV_Chain	4561	12203, 19845, 27487, 35129, 42771, 50413, 58055
anti-HIV_Chain	4562	12204, 19846, 27488, 35130, 42772, 50414, 58056
anti-HIV_HeavyChain	4563	12205, 19847, 27489, 35131, 42773, 50415, 58057
anti-HIV_HeavyChain	4564	12206, 19848, 27490, 35132, 42774, 50416, 58058
anti-HIV_HeavyChain	4565	12207, 19849, 27491, 35133, 42775, 50417, 58059
anti-HIV_Chain	4566	12208, 19850, 27492, 35134, 42776, 50418, 58060
anti-HIV_Chain	4567	12209, 19851, 27493, 35135, 42777, 50419, 58061
anti-HIV_Chain	4568	12210, 19852, 27494, 35136, 42778, 50420, 58062
anti-HIV_Chain	4569	12211, 19853, 27495, 35137, 42779, 50421, 58063
anti-HIV_Chain	4570	12212, 19854, 27496, 35138, 42780, 50422, 58064
anti-HIV_Chain	4571	12213, 19855, 27497, 35139, 42781, 50423, 58065
anti-HIV_Chain	4572	12214, 19856, 27498, 35140, 42782, 50424, 58066
anti-HIV_Chain	4573	12215, 19857, 27499, 35141, 42783, 50425, 58067
anti-HIV_Chain	4574	12216, 19858, 27500, 35142, 42784, 50426, 58068
anti-HIV_HeavyChain	4575	12217, 19859, 27501, 35143, 42785, 50427, 58069
anti-HIV_HeavyChain	4576	12218, 19860, 27502, 35144, 42786, 50428, 58070
anti-HIV_HeavyChain	4577	12219, 19861, 27503, 35145, 42787, 50429, 58071
anti-HIV_HeavyChain	4578	12220, 19862, 27504, 35146, 42788, 50430, 58072
anti-HIV_HeavyChain	4579	12221, 19863, 27505, 35147, 42789, 50431, 58073
anti-HIV_HeavyChain	4580	12222, 19864, 27506, 35148, 42790, 50432, 58074

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_HeavyChain	4581	12223, 19865, 27507, 35149, 42791, 50433, 58075
anti-HIV_HeavyChain	4582	12224, 19866, 27508, 35150, 42792, 50434, 58076
anti-HIV_HeavyChain	4583	12225, 19867, 27509, 35151, 42793, 50435, 58077
anti-HIV_HeavyChain	4584	12226, 19868, 27510, 35152, 42794, 50436, 58078
anti-HIV_HeavyChain	4585	12227, 19869, 27511, 35153, 42795, 50437, 58079
anti-HIV_HeavyChain	4586	12228, 19870, 27512, 35154, 42796, 50438, 58080
anti-HIV_HeavyChain	4587	12229, 19871, 27513, 35155, 42797, 50439, 58081
anti-HIV_Chain	4588	12230, 19872, 27514, 35156, 42798, 50440, 58082
anti-HIV_Chain	4589	12231, 19873, 27515, 35157, 42799, 50441, 58083
anti-HIV_Chain	4590	12232, 19874, 27516, 35158, 42800, 50442, 58084
anti-HIV_Chain	4591	12233, 19875, 27517, 35159, 42801, 50443, 58085
anti-HIV_Chain	4592	12234, 19876, 27518, 35160, 42802, 50444, 58086
anti-HIV_Chain	4593	12235, 19877, 27519, 35161, 42803, 50445, 58087
anti-HIV_Chain	4594	12236, 19878, 27520, 35162, 42804, 50446, 58088
anti-HIV_Chain	4595	12237, 19879, 27521, 35163, 42805, 50447, 58089
anti-HIV_Chain	4596	12238, 19880, 27522, 35164, 42806, 50448, 58090
anti-HIV_Chain	4597	12239, 19881, 27523, 35165, 42807, 50449, 58091
anti-HIV_Chain	4598	12240, 19882, 27524, 35166, 42808, 50450, 58092
anti-HIV_Chain	4599	12241, 19883, 27525, 35167, 42809, 50451, 58093
anti-HIV_Chain	4600	12242, 19884, 27526, 35168, 42810, 50452, 58094
anti-HIV_Chain	4601	12243, 19885, 27527, 35169, 42811, 50453, 58095
anti-HIV_Chain	4602	12244, 19886, 27528, 35170, 42812, 50454, 58096
anti-HIV_Chain	4603	12245, 19887, 27529, 35171, 42813, 50455, 58097
anti-HIV_Chain	4604	12246, 19888, 27530, 35172, 42814, 50456, 58098
anti-HIV_Chain	4605	12247, 19889, 27531, 35173, 42815, 50457, 58099
anti-HIV_Chain	4606	12248, 19890, 27532, 35174, 42816, 50458, 58100
anti-HIV_HeavyChain	4607	12249, 19891, 27533, 35175, 42817, 50459, 58101
anti-HIV_HeavyChain	4608	12250, 19892, 27534, 35176, 42818, 50460, 58102
anti-HIV_Chain	4609	12251, 19893, 27535, 35177, 42819, 50461, 58103
anti-HIV_Chain	4610	12252, 19894, 27536, 35178, 42820, 50462, 58104
anti-HIV_Chain	4611	12253, 19895, 27537, 35179, 42821, 50463, 58105
anti-HIV_Chain	4612	12254, 19896, 27538, 35180, 42822, 50464, 58106
anti-HIV_Chain	4613	12255, 19897, 27539, 35181, 42823, 50465, 58107

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-HIV_Chain	4614	12256, 19898, 27540, 35182, 42824, 50466, 58108
anti-HIV_HeavyChain	4615	12257, 19899, 27541, 35183, 42825, 50467, 58109
anti-HIV_HeavyChain	4616	12258, 19900, 27542, 35184, 42826, 50468, 58110
anti-HIV_Chain	4617	12259, 19901, 27543, 35185, 42827, 50469, 58111
anti-HIV_Chain	4618	12260, 19902, 27544, 35186, 42828, 50470, 58112
anti-HIV_Chain	4619	12261, 19903, 27545, 35187, 42829, 50471, 58113
anti-HIV_Chain	4620	12262, 19904, 27546, 35188, 42830, 50472, 58114
anti-HIV_Chain	4621	12263, 19905, 27547, 35189, 42831, 50473, 58115
anti-HIV_Chain	4622	12264, 19906, 27548, 35190, 42832, 50474, 58116
anti-HIV_Chain	4623	12265, 19907, 27549, 35191, 42833, 50475, 58117
anti-HIV_Chain	4624	12266, 19908, 27550, 35192, 42834, 50476, 58118
anti-HIV_LightChain	4625	12267, 19909, 27551, 35193, 42835, 50477, 58119
anti-HIV_Chain	4626	12268, 19910, 27552, 35194, 42836, 50478, 58120
anti-HIV_Chain	4627	12269, 19911, 27553, 35195, 42837, 50479, 58121
anti-HIV_SingleChain	4628	12270, 19912, 27554, 35196, 42838, 50480, 58122
anti-HIV_LightChain	4629	12271, 19913, 27555, 35197, 42839, 50481, 58123
anti-HIV_Chain	4630	12272, 19914, 27556, 35198, 42840, 50482, 58124
anti-HIV_Chain	4631	12273, 19915, 27557, 35199, 42841, 50483, 58125
anti-influenza_Fab	4632	12274, 19916, 27558, 35200, 42842, 50484, 58126
anti-influenza_Fab	4633	12275, 19917, 27559, 35201, 42843, 50485, 58127
anti-influenza_Fab	4634	12276, 19918, 27560, 35202, 42844, 50486, 58128
anti-influenza_Fab	4635	12277, 19919, 27561, 35203, 42845, 50487, 58129
anti-influenza_Fab	4636	12278, 19920, 27562, 35204, 42846, 50488, 58130
anti-influenza_Fab	4637	12279, 19921, 27563, 35205, 42847, 50489, 58131
anti-influenza_Fab	4638	12280, 19922, 27564, 35206, 42848, 50490, 58132
anti-influenza_Apo	4639	12281, 19923, 27565, 35207, 42849, 50491, 58133
anti-influenza_Apo	4640	12282, 19924, 27566, 35208, 42850, 50492, 58134
anti-influenza-A_kappa_LightChain_V-Region	4641	12283, 19925, 27567, 35209, 42851, 50493, 58135
anti-influenza-A_kappa_LightChain_V-Region	4642	12284, 19926, 27568, 35210, 42852, 50494, 58136
anti-influenza-A_kappa_LightChain_V-Region	4643	12285, 19927, 27569, 35211, 42853, 50495, 58137
anti-influenza-A_kappa_LightChain_V-Region	4644	12286, 19928, 27570, 35212, 42854, 50496, 58138
anti-influenza-A_kappa_LightChain_V-Region	4645	12287, 19929, 27571, 35213, 42855, 50497, 58139
anti-influenza-A_kappa_LightChain_V-Region	4646	12288, 19930, 27572, 35214, 42856, 50498, 58140

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza-A_HeavyChain_V-Region	4647	12289, 19931, 27573, 35215, 42857, 50499, 58141
anti-influenza-A_HeavyChain_V-Region	4648	12290, 19932, 27574, 35216, 42858, 50500, 58142
anti-influenza-A_HeavyChain_V-Region	4649	12291, 19933, 27575, 35217, 42859, 50501, 58143
anti-influenza-A_HeavyChain_V-Region	4650	12292, 19934, 27576, 35218, 42860, 50502, 58144
anti-influenza-A_HeavyChain_V-Region	4651	12293, 19935, 27577, 35219, 42861, 50503, 58145
anti-influenza-A_HeavyChain_V-Region	4652	12294, 19936, 27578, 35220, 42862, 50504, 58146
anti-influenza-A_HeavyChain_V-Region	4653	12295, 19937, 27579, 35221, 42863, 50505, 58147
anti-influenza-A_LightChain_V-Region	4654	12296, 19938, 27580, 35222, 42864, 50506, 58148
anti-influenza-A_HeavyChain_V-Region	4655	12297, 19939, 27581, 35223, 42865, 50507, 58149
anti-influenza_Chain	4656	12298, 19940, 27582, 35224, 42866, 50508, 58150
anti-influenza_Chain	4657	12299, 19941, 27583, 35225, 42867, 50509, 58151
anti-influenza_Chain	4658	12300, 19942, 27584, 35226, 42868, 50510, 58152
anti-influenza_Chain	4659	12301, 19943, 27585, 35227, 42869, 50511, 58153
anti-influenza_Chain	4660	12302, 19944, 27586, 35228, 42870, 50512, 58154
anti-influenza_Chain	4661	12303, 19945, 27587, 35229, 42871, 50513, 58155
anti-influenza_Chain	4662	12304, 19946, 27588, 35230, 42872, 50514, 58156
anti-influenza_Chain	4663	12305, 19947, 27589, 35231, 42873, 50515, 58157
anti-influenza_Chain	4664	12306, 19948, 27590, 35232, 42874, 50516, 58158
anti-influenza_Chain	4665	12307, 19949, 27591, 35233, 42875, 50517, 58159
anti-influenza_Chain	4666	12308, 19950, 27592, 35234, 42876, 50518, 58160
anti-influenza_Chain	4667	12309, 19951, 27593, 35235, 42877, 50519, 58161
anti-influenza_Chain	4668	12310, 19952, 27594, 35236, 42878, 50520, 58162
anti-influenza_Chain	4669	12311, 19953, 27595, 35237, 42879, 50521, 58163
anti-influenza_Chain	4670	12312, 19954, 27596, 35238, 42880, 50522, 58164
anti-influenza_Chain	4671	12313, 19955, 27597, 35239, 42881, 50523, 58165
anti-influenza_Chain	4672	12314, 19956, 27598, 35240, 42882, 50524, 58166
anti-influenza_Chain	4673	12315, 19957, 27599, 35241, 42883, 50525, 58167
anti-influenza_Chain	4674	12316, 19958, 27600, 35242, 42884, 50526, 58168
anti-influenza_Chain	4675	12317, 19959, 27601, 35243, 42885, 50527, 58169
anti-influenza_Chain	4676	12318, 19960, 27602, 35244, 42886, 50528, 58170
anti-influenza_Chain	4677	12319, 19961, 27603, 35245, 42887, 50529, 58171
anti-influenza_Chain	4678	12320, 19962, 27604, 35246, 42888, 50530, 58172
anti-influenza_Chain	4679	12321, 19963, 27605, 35247, 42889, 50531, 58173

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza_Chain	4680	12322, 19964, 27606, 35248, 42890, 50532, 58174
anti-influenza_Chain	4681	12323, 19965, 27607, 35249, 42891, 50533, 58175
anti-influenza_Chain	4682	12324, 19966, 27608, 35250, 42892, 50534, 58176
anti-influenza_Chain	4683	12325, 19967, 27609, 35251, 42893, 50535, 58177
anti-influenza_Chain	4684	12326, 19968, 27610, 35252, 42894, 50536, 58178
anti-influenza_Chain	4685	12327, 19969, 27611, 35253, 42895, 50537, 58179
anti-influenza_Chain	4686	12328, 19970, 27612, 35254, 42896, 50538, 58180
anti-influenza_Chain	4687	12329, 19971, 27613, 35255, 42897, 50539, 58181
anti-influenza_Chain	4688	12330, 19972, 27614, 35256, 42898, 50540, 58182
anti-influenza_Chain	4689	12331, 19973, 27615, 35257, 42899, 50541, 58183
anti-influenza_Chain	4690	12332, 19974, 27616, 35258, 42900, 50542, 58184
anti-influenza_Chain	4691	12333, 19975, 27617, 35259, 42901, 50543, 58185
anti-influenza_Chain	4692	12334, 19976, 27618, 35260, 42902, 50544, 58186
anti-influenza_Chain	4693	12335, 19977, 27619, 35261, 42903, 50545, 58187
anti-influenza_Chain	4694	12336, 19978, 27620, 35262, 42904, 50546, 58188
anti-influenza_Chain	4695	12337, 19979, 27621, 35263, 42905, 50547, 58189
anti-influenza_Chain	4696	12338, 19980, 27622, 35264, 42906, 50548, 58190
anti-influenza_Chain	4697	12339, 19981, 27623, 35265, 42907, 50549, 58191
anti-influenza_Chain	4698	12340, 19982, 27624, 35266, 42908, 50550, 58192
anti-influenza_Chain	4699	12341, 19983, 27625, 35267, 42909, 50551, 58193
anti-influenza_Chain	4700	12342, 19984, 27626, 35268, 42910, 50552, 58194
anti-influenza_Chain	4701	12343, 19985, 27627, 35269, 42911, 50553, 58195
anti-influenza_Chain	4702	12344, 19986, 27628, 35270, 42912, 50554, 58196
anti-influenza_Chain	4703	12345, 19987, 27629, 35271, 42913, 50555, 58197
anti-influenza_Chain	4704	12346, 19988, 27630, 35272, 42914, 50556, 58198
anti-influenza_Chain	4705	12347, 19989, 27631, 35273, 42915, 50557, 58199
anti-influenza_Chain	4706	12348, 19990, 27632, 35274, 42916, 50558, 58200
anti-influenza_Chain	4707	12349, 19991, 27633, 35275, 42917, 50559, 58201
anti-influenza_Chain	4708	12350, 19992, 27634, 35276, 42918, 50560, 58202
anti-influenza_Chain	4709	12351, 19993, 27635, 35277, 42919, 50561, 58203
anti-influenza_Chain	4710	12352, 19994, 27636, 35278, 42920, 50562, 58204
anti-influenza_Chain	4711	12353, 19995, 27637, 35279, 42921, 50563, 58205
anti-influenza_Chain	4712	12354, 19996, 27638, 35280, 42922, 50564, 58206

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza_Chain	4713	12355, 19997, 27639, 35281, 42923, 50565, 58207
anti-influenza_Chain	4714	12356, 19998, 27640, 35282, 42924, 50566, 58208
anti-influenza_Chain	4715	12357, 19999, 27641, 35283, 42925, 50567, 58209
anti-influenza_Chain	4716	12358, 20000, 27642, 35284, 42926, 50568, 58210
anti-influenza_Chain	4717	12359, 20001, 27643, 35285, 42927, 50569, 58211
anti-influenza_Chain	4718	12360, 20002, 27644, 35286, 42928, 50570, 58212
anti-influenza_Chain	4719	12361, 20003, 27645, 35287, 42929, 50571, 58213
anti-influenza_Chain	4720	12362, 20004, 27646, 35288, 42930, 50572, 58214
anti-influenza_Chain	4721	12363, 20005, 27647, 35289, 42931, 50573, 58215
anti-influenza_Chain	4722	12364, 20006, 27648, 35290, 42932, 50574, 58216
anti-influenza_Chain	4723	12365, 20007, 27649, 35291, 42933, 50575, 58217
anti-influenza_Chain	4724	12366, 20008, 27650, 35292, 42934, 50576, 58218
anti-influenza_Chain	4725	12367, 20009, 27651, 35293, 42935, 50577, 58219
anti-influenza_Chain	4726	12368, 20010, 27652, 35294, 42936, 50578, 58220
anti-influenza_Chain	4727	12369, 20011, 27653, 35295, 42937, 50579, 58221
anti-influenza_Chain	4728	12370, 20012, 27654, 35296, 42938, 50580, 58222
anti-influenza_Chain	4729	12371, 20013, 27655, 35297, 42939, 50581, 58223
anti-influenza_Chain	4730	12372, 20014, 27656, 35298, 42940, 50582, 58224
anti-influenza_Chain	4731	12373, 20015, 27657, 35299, 42941, 50583, 58225
anti-influenza_Chain	4732	12374, 20016, 27658, 35300, 42942, 50584, 58226
anti-influenza_Chain	4733	12375, 20017, 27659, 35301, 42943, 50585, 58227
anti-influenza_Chain	4734	12376, 20018, 27660, 35302, 42944, 50586, 58228
anti-influenza_Chain	4735	12377, 20019, 27661, 35303, 42945, 50587, 58229
anti-influenza_Chain	4736	12378, 20020, 27662, 35304, 42946, 50588, 58230
anti-influenza_Chain	4737	12379, 20021, 27663, 35305, 42947, 50589, 58231
anti-influenza_Chain	4738	12380, 20022, 27664, 35306, 42948, 50590, 58232
anti-influenza_Chain	4739	12381, 20023, 27665, 35307, 42949, 50591, 58233
anti-influenza_Chain	4740	12382, 20024, 27666, 35308, 42950, 50592, 58234
anti-influenza_Chain	4741	12383, 20025, 27667, 35309, 42951, 50593, 58235
anti-influenza_Chain	4742	12384, 20026, 27668, 35310, 42952, 50594, 58236
anti-influenza_Chain	4743	12385, 20027, 27669, 35311, 42953, 50595, 58237
anti-influenza_Chain	4744	12386, 20028, 27670, 35312, 42954, 50596, 58238
anti-influenza_Chain	4745	12387, 20029, 27671, 35313, 42955, 50597, 58239

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	4748	12390, 20032, 27674, 35316, 42958, 50600, 58242
anti-influenza_Chain	4749	12391, 20033, 27675, 35317, 42959, 50601, 58243
anti-influenza_Chain	4750	12392, 20034, 27676, 35318, 42960, 50602, 58244
anti-influenza_Chain	4751	12393, 20035, 27677, 35319, 42961, 50603, 58245
anti-influenza_Chain	4752	12394, 20036, 27678, 35320, 42962, 50604, 58246
anti-influenza_Chain	4753	12395, 20037, 27679, 35321, 42963, 50605, 58247
anti-influenza_Chain	4754	12396, 20038, 27680, 35322, 42964, 50606, 58248
anti-influenza_Chain	4755	12397, 20039, 27681, 35323, 42965, 50607, 58249
anti-influenza_Chain	4756	12398, 20040, 27682, 35324, 42966, 50608, 58250
anti-influenza_Chain	4757	12399, 20041, 27683, 35325, 42967, 50609, 58251
anti-influenza_Chain	4758	12400, 20042, 27684, 35326, 42968, 50610, 58252
anti-influenza_Chain	4759	12401, 20043, 27685, 35327, 42969, 50611, 58253
anti-influenza_Chain	4760	12402, 20044, 27686, 35328, 42970, 50612, 58254
anti-influenza_Chain	4761	12403, 20045, 27687, 35329, 42971, 50613, 58255
anti-influenza_Chain	4762	12404, 20046, 27688, 35330, 42972, 50614, 58256
anti-influenza_Chain	4763	12405, 20047, 27689, 35331, 42973, 50615, 58257
anti-influenza_Chain	4764	12406, 20048, 27690, 35332, 42974, 50616, 58258
anti-influenza_Chain	4765	12407, 20049, 27691, 35333, 42975, 50617, 58259
anti-influenza_Chain	4766	12408, 20050, 27692, 35334, 42976, 50618, 58260
anti-influenza_Chain	4767	12409, 20051, 27693, 35335, 42977, 50619, 58261
anti-influenza_Chain	4768	12410, 20052, 27694, 35336, 42978, 50620, 58262
anti-influenza_Chain	4769	12411, 20053, 27695, 35337, 42979, 50621, 58263
anti-influenza_Chain	4770	12412, 20054, 27696, 35338, 42980, 50622, 58264
anti-influenza_Chain	4771	12413, 20055, 27697, 35339, 42981, 50623, 58265
anti-influenza_Chain	4772	12414, 20056, 27698, 35340, 42982, 50624, 58266
anti-influenza_Chain	4773	12415, 20057, 27699, 35341, 42983, 50625, 58267
anti-influenza_Chain	4774	12416, 20058, 27700, 35342, 42984, 50626, 58268
anti-influenza_Chain	4775	12417, 20059, 27701, 35343, 42985, 50627, 58269
anti-influenza_Chain	4776	12418, 20060, 27702, 35344, 42986, 50628, 58270
anti-influenza_Chain	4777	12419, 20061, 27703, 35345, 42987, 50629, 58271
anti-influenza_Chain	4778	12420, 20062, 27704, 35346, 42988, 50630, 58272

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza_Chain	4779	12421, 20063, 27705, 35347, 42989, 50631, 58273
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anti-influenza_Chain	4781	12423, 20065, 27707, 35349, 42991, 50633, 58275
anti-influenza_Chain	4782	12424, 20066, 27708, 35350, 42992, 50634, 58276
anti-influenza_Chain	4783	12425, 20067, 27709, 35351, 42993, 50635, 58277
anti-influenza_Chain	4784	12426, 20068, 27710, 35352, 42994, 50636, 58278
anti-influenza_Chain	4785	12427, 20069, 27711, 35353, 42995, 50637, 58279
anti-influenza_Chain	4786	12428, 20070, 27712, 35354, 42996, 50638, 58280
anti-influenza_Chain	4787	12429, 20071, 27713, 35355, 42997, 50639, 58281
anti-influenza_Chain	4788	12430, 20072, 27714, 35356, 42998, 50640, 58282
anti-influenza_Chain	4789	12431, 20073, 27715, 35357, 42999, 50641, 58283
anti-influenza_Chain	4790	12432, 20074, 27716, 35358, 43000, 50642, 58284
anti-influenza_Chain	4791	12433, 20075, 27717, 35359, 43001, 50643, 58285
anti-influenza_Chain	4792	12434, 20076, 27718, 35360, 43002, 50644, 58286
anti-influenza_Chain	4793	12435, 20077, 27719, 35361, 43003, 50645, 58287
anti-influenza_Chain	4794	12436, 20078, 27720, 35362, 43004, 50646, 58288
anti-influenza_Chain	4795	12437, 20079, 27721, 35363, 43005, 50647, 58289
anti-influenza_Chain	4796	12438, 20080, 27722, 35364, 43006, 50648, 58290
anti-influenza_Chain	4797	12439, 20081, 27723, 35365, 43007, 50649, 58291
anti-influenza_Chain	4798	12440, 20082, 27724, 35366, 43008, 50650, 58292
anti-influenza_Chain	4799	12441, 20083, 27725, 35367, 43009, 50651, 58293
anti-influenza_Chain	4800	12442, 20084, 27726, 35368, 43010, 50652, 58294
anti-influenza_Chain	4801	12443, 20085, 27727, 35369, 43011, 50653, 58295
anti-influenza_Chain	4802	12444, 20086, 27728, 35370, 43012, 50654, 58296
anti-influenza_Chain	4803	12445, 20087, 27729, 35371, 43013, 50655, 58297
anti-influenza_Chain	4804	12446, 20088, 27730, 35372, 43014, 50656, 58298
anti-influenza_Chain	4805	12447, 20089, 27731, 35373, 43015, 50657, 58299
anti-influenza_Chain	4806	12448, 20090, 27732, 35374, 43016, 50658, 58300
anti-influenza_Chain	4807	12449, 20091, 27733, 35375, 43017, 50659, 58301
anti-influenza_Chain	4808	12450, 20092, 27734, 35376, 43018, 50660, 58302
anti-influenza_Chain	4809	12451, 20093, 27735, 35377, 43019, 50661, 58303
anti-influenza_Chain	4810	12452, 20094, 27736, 35378, 43020, 50662, 58304
anti-influenza_Chain	4811	12453, 20095, 27737, 35379, 43021, 50663, 58305

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	4814	12456, 20098, 27740, 35382, 43024, 50666, 58308
anti-influenza_Chain	4815	12457, 20099, 27741, 35383, 43025, 50667, 58309
anti-influenza_Chain	4816	12458, 20100, 27742, 35384, 43026, 50668, 58310
anti-influenza_Chain	4817	12459, 20101, 27743, 35385, 43027, 50669, 58311
anti-influenza_Chain	4818	12460, 20102, 27744, 35386, 43028, 50670, 58312
anti-influenza_Chain	4819	12461, 20103, 27745, 35387, 43029, 50671, 58313
anti-influenza_Chain	4820	12462, 20104, 27746, 35388, 43030, 50672, 58314
anti-influenza_Chain	4821	12463, 20105, 27747, 35389, 43031, 50673, 58315
anti-influenza_Chain	4822	12464, 20106, 27748, 35390, 43032, 50674, 58316
anti-influenza_Chain	4823	12465, 20107, 27749, 35391, 43033, 50675, 58317
anti-influenza_Chain	4824	12466, 20108, 27750, 35392, 43034, 50676, 58318
anti-influenza_Chain	4825	12467, 20109, 27751, 35393, 43035, 50677, 58319
anti-influenza_Chain	4826	12468, 20110, 27752, 35394, 43036, 50678, 58320
anti-influenza_Chain	4827	12469, 20111, 27753, 35395, 43037, 50679, 58321
anti-influenza_Chain	4828	12470, 20112, 27754, 35396, 43038, 50680, 58322
anti-influenza_Chain	4829	12471, 20113, 27755, 35397, 43039, 50681, 58323
anti-influenza_Chain	4830	12472, 20114, 27756, 35398, 43040, 50682, 58324
anti-influenza_Chain	4831	12473, 20115, 27757, 35399, 43041, 50683, 58325
anti-influenza_Chain	4832	12474, 20116, 27758, 35400, 43042, 50684, 58326
anti-influenza_Chain	4833	12475, 20117, 27759, 35401, 43043, 50685, 58327
anti-influenza_Chain	4834	12476, 20118, 27760, 35402, 43044, 50686, 58328
anti-influenza_Chain	4835	12477, 20119, 27761, 35403, 43045, 50687, 58329
anti-influenza_Chain	4836	12478, 20120, 27762, 35404, 43046, 50688, 58330
anti-influenza_Chain	4837	12479, 20121, 27763, 35405, 43047, 50689, 58331
anti-influenza_Chain	4838	12480, 20122, 27764, 35406, 43048, 50690, 58332
anti-influenza_Chain	4839	12481, 20123, 27765, 35407, 43049, 50691, 58333
anti-influenza_Chain	4840	12482, 20124, 27766, 35408, 43050, 50692, 58334
anti-influenza_Chain	4841	12483, 20125, 27767, 35409, 43051, 50693, 58335
anti-influenza_Chain	4842	12484, 20126, 27768, 35410, 43052, 50694, 58336
anti-influenza_Chain	4843	12485, 20127, 27769, 35411, 43053, 50695, 58337
anti-influenza_Chain	4844	12486, 20128, 27770, 35412, 43054, 50696, 58338

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	4847	12489, 20131, 27773, 35415, 43057, 50699, 58341
anti-influenza_Chain	4848	12490, 20132, 27774, 35416, 43058, 50700, 58342
anti-influenza_Chain	4849	12491, 20133, 27775, 35417, 43059, 50701, 58343
anti-influenza_Chain	4850	12492, 20134, 27776, 35418, 43060, 50702, 58344
anti-influenza_Chain	4851	12493, 20135, 27777, 35419, 43061, 50703, 58345
anti-influenza_Chain	4852	12494, 20136, 27778, 35420, 43062, 50704, 58346
anti-influenza_Chain	4853	12495, 20137, 27779, 35421, 43063, 50705, 58347
anti-influenza_Chain	4854	12496, 20138, 27780, 35422, 43064, 50706, 58348
anti-influenza_Chain	4855	12497, 20139, 27781, 35423, 43065, 50707, 58349
anti-influenza_Chain	4856	12498, 20140, 27782, 35424, 43066, 50708, 58350
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anti-influenza_Chain	4858	12500, 20142, 27784, 35426, 43068, 50710, 58352
anti-influenza_Chain	4859	12501, 20143, 27785, 35427, 43069, 50711, 58353
anti-influenza_Chain	4860	12502, 20144, 27786, 35428, 43070, 50712, 58354
anti-influenza_Chain	4861	12503, 20145, 27787, 35429, 43071, 50713, 58355
anti-influenza_Chain	4862	12504, 20146, 27788, 35430, 43072, 50714, 58356
anti-influenza_Chain	4863	12505, 20147, 27789, 35431, 43073, 50715, 58357
anti-influenza_Chain	4864	12506, 20148, 27790, 35432, 43074, 50716, 58358
anti-influenza_Chain	4865	12507, 20149, 27791, 35433, 43075, 50717, 58359
anti-influenza_Chain	4866	12508, 20150, 27792, 35434, 43076, 50718, 58360
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anti-influenza_Chain	4869	12511, 20153, 27795, 35437, 43079, 50721, 58363
anti-influenza_Chain	4870	12512, 20154, 27796, 35438, 43080, 50722, 58364
anti-influenza_Chain	4871	12513, 20155, 27797, 35439, 43081, 50723, 58365
anti-influenza_Chain	4872	12514, 20156, 27798, 35440, 43082, 50724, 58366
anti-influenza_Chain	4873	12515, 20157, 27799, 35441, 43083, 50725, 58367
anti-influenza_Chain	4874	12516, 20158, 27800, 35442, 43084, 50726, 58368
anti-influenza_Chain	4875	12517, 20159, 27801, 35443, 43085, 50727, 58369
anti-influenza_Chain	4876	12518, 20160, 27802, 35444, 43086, 50728, 58370
anti-influenza_Chain	4877	12519, 20161, 27803, 35445, 43087, 50729, 58371

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	4880	12522, 20164, 27806, 35448, 43090, 50732, 58374
anti-influenza_Chain	4881	12523, 20165, 27807, 35449, 43091, 50733, 58375
anti-influenza_Chain	4882	12524, 20166, 27808, 35450, 43092, 50734, 58376
anti-influenza_Chain	4883	12525, 20167, 27809, 35451, 43093, 50735, 58377
anti-influenza_Chain	4884	12526, 20168, 27810, 35452, 43094, 50736, 58378
anti-influenza_Chain	4885	12527, 20169, 27811, 35453, 43095, 50737, 58379
anti-influenza_Chain	4886	12528, 20170, 27812, 35454, 43096, 50738, 58380
anti-influenza_Chain	4887	12529, 20171, 27813, 35455, 43097, 50739, 58381
anti-influenza_Chain	4888	12530, 20172, 27814, 35456, 43098, 50740, 58382
anti-influenza_Chain	4889	12531, 20173, 27815, 35457, 43099, 50741, 58383
anti-influenza_Chain	4890	12532, 20174, 27816, 35458, 43100, 50742, 58384
anti-influenza_Chain	4891	12533, 20175, 27817, 35459, 43101, 50743, 58385
anti-influenza_Chain	4892	12534, 20176, 27818, 35460, 43102, 50744, 58386
anti-influenza_Chain	4893	12535, 20177, 27819, 35461, 43103, 50745, 58387
anti-influenza_Chain	4894	12536, 20178, 27820, 35462, 43104, 50746, 58388
anti-influenza_Chain	4895	12537, 20179, 27821, 35463, 43105, 50747, 58389
anti-influenza_Chain	4896	12538, 20180, 27822, 35464, 43106, 50748, 58390
anti-influenza_Chain	4897	12539, 20181, 27823, 35465, 43107, 50749, 58391
anti-influenza_Chain	4898	12540, 20182, 27824, 35466, 43108, 50750, 58392
anti-influenza_Chain	4899	12541, 20183, 27825, 35467, 43109, 50751, 58393
anti-influenza_Chain	4900	12542, 20184, 27826, 35468, 43110, 50752, 58394
anti-influenza_Chain	4901	12543, 20185, 27827, 35469, 43111, 50753, 58395
anti-influenza_Chain	4902	12544, 20186, 27828, 35470, 43112, 50754, 58396
anti-influenza_Chain	4903	12545, 20187, 27829, 35471, 43113, 50755, 58397
anti-influenza_Chain	4904	12546, 20188, 27830, 35472, 43114, 50756, 58398
anti-influenza_Chain	4905	12547, 20189, 27831, 35473, 43115, 50757, 58399
anti-influenza_Chain	4906	12548, 20190, 27832, 35474, 43116, 50758, 58400
anti-influenza_Chain	4907	12549, 20191, 27833, 35475, 43117, 50759, 58401
anti-influenza_Chain	4908	12550, 20192, 27834, 35476, 43118, 50760, 58402
anti-influenza_Chain	4909	12551, 20193, 27835, 35477, 43119, 50761, 58403
anti-influenza_Chain	4910	12552, 20194, 27836, 35478, 43120, 50762, 58404

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	4913	12555, 20197, 27839, 35481, 43123, 50765, 58407
anti-influenza_Chain	4914	12556, 20198, 27840, 35482, 43124, 50766, 58408
anti-influenza_Chain	4915	12557, 20199, 27841, 35483, 43125, 50767, 58409
anti-influenza_Chain	4916	12558, 20200, 27842, 35484, 43126, 50768, 58410
anti-influenza_Chain	4917	12559, 20201, 27843, 35485, 43127, 50769, 58411
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anti-influenza_Chain	4919	12561, 20203, 27845, 35487, 43129, 50771, 58413
anti-influenza_Chain	4920	12562, 20204, 27846, 35488, 43130, 50772, 58414
anti-influenza_Chain	4921	12563, 20205, 27847, 35489, 43131, 50773, 58415
anti-influenza_Chain	4922	12564, 20206, 27848, 35490, 43132, 50774, 58416
anti-influenza_Chain	4923	12565, 20207, 27849, 35491, 43133, 50775, 58417
anti-influenza_Chain	4924	12566, 20208, 27850, 35492, 43134, 50776, 58418
anti-influenza_Chain	4925	12567, 20209, 27851, 35493, 43135, 50777, 58419
anti-influenza_Chain	4926	12568, 20210, 27852, 35494, 43136, 50778, 58420
anti-influenza_Chain	4927	12569, 20211, 27853, 35495, 43137, 50779, 58421
anti-influenza_Chain	4928	12570, 20212, 27854, 35496, 43138, 50780, 58422
anti-influenza_Chain	4929	12571, 20213, 27855, 35497, 43139, 50781, 58423
anti-influenza_Chain	4930	12572, 20214, 27856, 35498, 43140, 50782, 58424
anti-influenza_Chain	4931	12573, 20215, 27857, 35499, 43141, 50783, 58425
anti-influenza_Chain	4932	12574, 20216, 27858, 35500, 43142, 50784, 58426
anti-influenza_Chain	4933	12575, 20217, 27859, 35501, 43143, 50785, 58427
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anti-influenza_Chain	4935	12577, 20219, 27861, 35503, 43145, 50787, 58429
anti-influenza_Chain	4936	12578, 20220, 27862, 35504, 43146, 50788, 58430
anti-influenza_Chain	4937	12579, 20221, 27863, 35505, 43147, 50789, 58431
anti-influenza_Chain	4938	12580, 20222, 27864, 35506, 43148, 50790, 58432
anti-influenza_Chain	4939	12581, 20223, 27865, 35507, 43149, 50791, 58433
anti-influenza_Chain	4940	12582, 20224, 27866, 35508, 43150, 50792, 58434
anti-influenza_Chain	4941	12583, 20225, 27867, 35509, 43151, 50793, 58435
anti-influenza_Chain	4942	12584, 20226, 27868, 35510, 43152, 50794, 58436
anti-influenza_Chain	4943	12585, 20227, 27869, 35511, 43153, 50795, 58437

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza_Chain	4944	12586, 20228, 27870, 35512, 43154, 50796, 58438
anti-influenza_Chain	4945	12587, 20229, 27871, 35513, 43155, 50797, 58439
anti-influenza_Chain	4946	12588, 20230, 27872, 35514, 43156, 50798, 58440
anti-influenza_Chain	4947	12589, 20231, 27873, 35515, 43157, 50799, 58441
anti-influenza_Chain	4948	12590, 20232, 27874, 35516, 43158, 50800, 58442
anti-influenza_Chain	4949	12591, 20233, 27875, 35517, 43159, 50801, 58443
anti-influenza_Chain	4950	12592, 20234, 27876, 35518, 43160, 50802, 58444
anti-influenza_Chain	4951	12593, 20235, 27877, 35519, 43161, 50803, 58445
anti-influenza_Chain	4952	12594, 20236, 27878, 35520, 43162, 50804, 58446
anti-influenza_Chain	4953	12595, 20237, 27879, 35521, 43163, 50805, 58447
anti-influenza_Chain	4954	12596, 20238, 27880, 35522, 43164, 50806, 58448
anti-influenza_Chain	4955	12597, 20239, 27881, 35523, 43165, 50807, 58449
anti-influenza_Chain	4956	12598, 20240, 27882, 35524, 43166, 50808, 58450
anti-influenza_Chain	4957	12599, 20241, 27883, 35525, 43167, 50809, 58451
anti-influenza_Chain	4958	12600, 20242, 27884, 35526, 43168, 50810, 58452
anti-influenza_Chain	4959	12601, 20243, 27885, 35527, 43169, 50811, 58453
anti-influenza_Chain	4960	12602, 20244, 27886, 35528, 43170, 50812, 58454
anti-influenza_Chain	4961	12603, 20245, 27887, 35529, 43171, 50813, 58455
anti-influenza_Chain	4962	12604, 20246, 27888, 35530, 43172, 50814, 58456
anti-influenza_Chain	4963	12605, 20247, 27889, 35531, 43173, 50815, 58457
anti-influenza_Chain	4964	12606, 20248, 27890, 35532, 43174, 50816, 58458
anti-influenza_Chain	4965	12607, 20249, 27891, 35533, 43175, 50817, 58459
anti-influenza_Chain	4966	12608, 20250, 27892, 35534, 43176, 50818, 58460
anti-influenza_Chain	4967	12609, 20251, 27893, 35535, 43177, 50819, 58461
anti-influenza_Chain	4968	12610, 20252, 27894, 35536, 43178, 50820, 58462
anti-influenza_Chain	4969	12611, 20253, 27895, 35537, 43179, 50821, 58463
anti-influenza_Chain	4970	12612, 20254, 27896, 35538, 43180, 50822, 58464
anti-influenza_Chain	4971	12613, 20255, 27897, 35539, 43181, 50823, 58465
anti-influenza_Chain	4972	12614, 20256, 27898, 35540, 43182, 50824, 58466
anti-influenza_Chain	4973	12615, 20257, 27899, 35541, 43183, 50825, 58467
anti-influenza_Chain	4974	12616, 20258, 27900, 35542, 43184, 50826, 58468
anti-influenza_Chain	4975	12617, 20259, 27901, 35543, 43185, 50827, 58469
anti-influenza_Chain	4976	12618, 20260, 27902, 35544, 43186, 50828, 58470

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	4979	12621, 20263, 27905, 35547, 43189, 50831, 58473
anti-influenza_Chain	4980	12622, 20264, 27906, 35548, 43190, 50832, 58474
anti-influenza_Chain	4981	12623, 20265, 27907, 35549, 43191, 50833, 58475
anti-influenza_Chain	4982	12624, 20266, 27908, 35550, 43192, 50834, 58476
anti-influenza_Chain	4983	12625, 20267, 27909, 35551, 43193, 50835, 58477
anti-influenza_Chain	4984	12626, 20268, 27910, 35552, 43194, 50836, 58478
anti-influenza_Chain	4985	12627, 20269, 27911, 35553, 43195, 50837, 58479
anti-influenza_Chain	4986	12628, 20270, 27912, 35554, 43196, 50838, 58480
anti-influenza_Chain	4987	12629, 20271, 27913, 35555, 43197, 50839, 58481
anti-influenza_Chain	4988	12630, 20272, 27914, 35556, 43198, 50840, 58482
anti-influenza_Chain	4989	12631, 20273, 27915, 35557, 43199, 50841, 58483
anti-influenza_Chain	4990	12632, 20274, 27916, 35558, 43200, 50842, 58484
anti-influenza_Chain	4991	12633, 20275, 27917, 35559, 43201, 50843, 58485
anti-influenza_Chain	4992	12634, 20276, 27918, 35560, 43202, 50844, 58486
anti-influenza_Chain	4993	12635, 20277, 27919, 35561, 43203, 50845, 58487
anti-influenza_Chain	4994	12636, 20278, 27920, 35562, 43204, 50846, 58488
anti-influenza_Chain	4995	12637, 20279, 27921, 35563, 43205, 50847, 58489
anti-influenza_Chain	4996	12638, 20280, 27922, 35564, 43206, 50848, 58490
anti-influenza_Chain	4997	12639, 20281, 27923, 35565, 43207, 50849, 58491
anti-influenza_Chain	4998	12640, 20282, 27924, 35566, 43208, 50850, 58492
anti-influenza_Chain	4999	12641, 20283, 27925, 35567, 43209, 50851, 58493
anti-influenza_Chain	5000	12642, 20284, 27926, 35568, 43210, 50852, 58494
anti-influenza_Chain	5001	12643, 20285, 27927, 35569, 43211, 50853, 58495
anti-influenza_Chain	5002	12644, 20286, 27928, 35570, 43212, 50854, 58496
anti-influenza_Chain	5003	12645, 20287, 27929, 35571, 43213, 50855, 58497
anti-influenza_Chain	5004	12646, 20288, 27930, 35572, 43214, 50856, 58498
anti-influenza_Chain	5005	12647, 20289, 27931, 35573, 43215, 50857, 58499
anti-influenza_Chain	5006	12648, 20290, 27932, 35574, 43216, 50858, 58500
anti-influenza_Chain	5007	12649, 20291, 27933, 35575, 43217, 50859, 58501
anti-influenza_Chain	5008	12650, 20292, 27934, 35576, 43218, 50860, 58502
anti-influenza_Chain	5009	12651, 20293, 27935, 35577, 43219, 50861, 58503

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza_Chain	5010	12652, 20294, 27936, 35578, 43220, 50862, 58504
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anti-influenza_Chain	5012	12654, 20296, 27938, 35580, 43222, 50864, 58506
anti-influenza_Chain	5013	12655, 20297, 27939, 35581, 43223, 50865, 58507
anti-influenza_Chain	5014	12656, 20298, 27940, 35582, 43224, 50866, 58508
anti-influenza_Chain	5015	12657, 20299, 27941, 35583, 43225, 50867, 58509
anti-influenza_Chain	5016	12658, 20300, 27942, 35584, 43226, 50868, 58510
anti-influenza_Chain	5017	12659, 20301, 27943, 35585, 43227, 50869, 58511
anti-influenza_Chain	5018	12660, 20302, 27944, 35586, 43228, 50870, 58512
anti-influenza_Chain	5019	12661, 20303, 27945, 35587, 43229, 50871, 58513
anti-influenza_Chain	5020	12662, 20304, 27946, 35588, 43230, 50872, 58514
anti-influenza_Chain	5021	12663, 20305, 27947, 35589, 43231, 50873, 58515
anti-influenza_Chain	5022	12664, 20306, 27948, 35590, 43232, 50874, 58516
anti-influenza_Chain	5023	12665, 20307, 27949, 35591, 43233, 50875, 58517
anti-influenza_Chain	5024	12666, 20308, 27950, 35592, 43234, 50876, 58518
anti-influenza_Chain	5025	12667, 20309, 27951, 35593, 43235, 50877, 58519
anti-influenza_Chain	5026	12668, 20310, 27952, 35594, 43236, 50878, 58520
anti-influenza_Chain	5027	12669, 20311, 27953, 35595, 43237, 50879, 58521
anti-influenza_Chain	5028	12670, 20312, 27954, 35596, 43238, 50880, 58522
anti-influenza_Chain	5029	12671, 20313, 27955, 35597, 43239, 50881, 58523
anti-influenza_Chain	5030	12672, 20314, 27956, 35598, 43240, 50882, 58524
anti-influenza_Chain	5031	12673, 20315, 27957, 35599, 43241, 50883, 58525
anti-influenza_Chain	5032	12674, 20316, 27958, 35600, 43242, 50884, 58526
anti-influenza_Chain	5033	12675, 20317, 27959, 35601, 43243, 50885, 58527
anti-influenza_Chain	5034	12676, 20318, 27960, 35602, 43244, 50886, 58528
anti-influenza_Chain	5035	12677, 20319, 27961, 35603, 43245, 50887, 58529
anti-influenza_Chain	5036	12678, 20320, 27962, 35604, 43246, 50888, 58530
anti-influenza_Chain	5037	12679, 20321, 27963, 35605, 43247, 50889, 58531
anti-influenza_Chain	5038	12680, 20322, 27964, 35606, 43248, 50890, 58532
anti-influenza_Chain	5039	12681, 20323, 27965, 35607, 43249, 50891, 58533
anti-influenza_Chain	5040	12682, 20324, 27966, 35608, 43250, 50892, 58534
anti-influenza_Chain	5041	12683, 20325, 27967, 35609, 43251, 50893, 58535
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Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5046	12688, 20330, 27972, 35614, 43256, 50898, 58540
anti-influenza_Chain	5047	12689, 20331, 27973, 35615, 43257, 50899, 58541
anti-influenza_Chain	5048	12690, 20332, 27974, 35616, 43258, 50900, 58542
anti-influenza_Chain	5049	12691, 20333, 27975, 35617, 43259, 50901, 58543
anti-influenza_Chain	5050	12692, 20334, 27976, 35618, 43260, 50902, 58544
anti-influenza_Chain	5051	12693, 20335, 27977, 35619, 43261, 50903, 58545
anti-influenza_Chain	5052	12694, 20336, 27978, 35620, 43262, 50904, 58546
anti-influenza_Chain	5053	12695, 20337, 27979, 35621, 43263, 50905, 58547
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anti-influenza_Chain	5055	12697, 20339, 27981, 35623, 43265, 50907, 58549
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anti-influenza_Chain	5057	12699, 20341, 27983, 35625, 43267, 50909, 58551
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anti-influenza_Chain	5059	12701, 20343, 27985, 35627, 43269, 50911, 58553
anti-influenza_Chain	5060	12702, 20344, 27986, 35628, 43270, 50912, 58554
anti-influenza_Chain	5061	12703, 20345, 27987, 35629, 43271, 50913, 58555
anti-influenza_Chain	5062	12704, 20346, 27988, 35630, 43272, 50914, 58556
anti-influenza_Chain	5063	12705, 20347, 27989, 35631, 43273, 50915, 58557
anti-influenza_Chain	5064	12706, 20348, 27990, 35632, 43274, 50916, 58558
anti-influenza_Chain	5065	12707, 20349, 27991, 35633, 43275, 50917, 58559
anti-influenza_Chain	5066	12708, 20350, 27992, 35634, 43276, 50918, 58560
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anti-influenza_Chain	5069	12711, 20353, 27995, 35637, 43279, 50921, 58563
anti-influenza_Chain	5070	12712, 20354, 27996, 35638, 43280, 50922, 58564
anti-influenza_Chain	5071	12713, 20355, 27997, 35639, 43281, 50923, 58565
anti-influenza_Chain	5072	12714, 20356, 27998, 35640, 43282, 50924, 58566
anti-influenza_Chain	5073	12715, 20357, 27999, 35641, 43283, 50925, 58567
anti-influenza_Chain	5074	12716, 20358, 28000, 35642, 43284, 50926, 58568
anti-influenza_Chain	5075	12717, 20359, 28001, 35643, 43285, 50927, 58569

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5078	12720, 20362, 28004, 35646, 43288, 50930, 58572
anti-influenza_Chain	5079	12721, 20363, 28005, 35647, 43289, 50931, 58573
anti-influenza_Chain	5080	12722, 20364, 28006, 35648, 43290, 50932, 58574
anti-influenza_Chain	5081	12723, 20365, 28007, 35649, 43291, 50933, 58575
anti-influenza_Chain	5082	12724, 20366, 28008, 35650, 43292, 50934, 58576
anti-influenza_Chain	5083	12725, 20367, 28009, 35651, 43293, 50935, 58577
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anti-influenza_Chain	5085	12727, 20369, 28011, 35653, 43295, 50937, 58579
anti-influenza_Chain	5086	12728, 20370, 28012, 35654, 43296, 50938, 58580
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anti-influenza_Chain	5088	12730, 20372, 28014, 35656, 43298, 50940, 58582
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anti-influenza_Chain	5090	12732, 20374, 28016, 35658, 43300, 50942, 58584
anti-influenza_Chain	5091	12733, 20375, 28017, 35659, 43301, 50943, 58585
anti-influenza_Chain	5092	12734, 20376, 28018, 35660, 43302, 50944, 58586
anti-influenza_Chain	5093	12735, 20377, 28019, 35661, 43303, 50945, 58587
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anti-influenza_Chain	5096	12738, 20380, 28022, 35664, 43306, 50948, 58590
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anti-influenza_Chain	5098	12740, 20382, 28024, 35666, 43308, 50950, 58592
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anti-influenza_Chain	5101	12743, 20385, 28027, 35669, 43311, 50953, 58595
anti-influenza_Chain	5102	12744, 20386, 28028, 35670, 43312, 50954, 58596
anti-influenza_Chain	5103	12745, 20387, 28029, 35671, 43313, 50955, 58597
anti-influenza_Chain	5104	12746, 20388, 28030, 35672, 43314, 50956, 58598
anti-influenza_Chain	5105	12747, 20389, 28031, 35673, 43315, 50957, 58599
anti-influenza_Chain	5106	12748, 20390, 28032, 35674, 43316, 50958, 58600
anti-influenza_Chain	5107	12749, 20391, 28033, 35675, 43317, 50959, 58601
anti-influenza_Chain	5108	12750, 20392, 28034, 35676, 43318, 50960, 58602

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5111	12753, 20395, 28037, 35679, 43321, 50963, 58605
anti-influenza_Chain	5112	12754, 20396, 28038, 35680, 43322, 50964, 58606
anti-influenza_Chain	5113	12755, 20397, 28039, 35681, 43323, 50965, 58607
anti-influenza_Chain	5114	12756, 20398, 28040, 35682, 43324, 50966, 58608
anti-influenza_Chain	5115	12757, 20399, 28041, 35683, 43325, 50967, 58609
anti-influenza_Chain	5116	12758, 20400, 28042, 35684, 43326, 50968, 58610
anti-influenza_Chain	5117	12759, 20401, 28043, 35685, 43327, 50969, 58611
anti-influenza_Chain	5118	12760, 20402, 28044, 35686, 43328, 50970, 58612
anti-influenza_Chain	5119	12761, 20403, 28045, 35687, 43329, 50971, 58613
anti-influenza_Chain	5120	12762, 20404, 28046, 35688, 43330, 50972, 58614
anti-influenza_Chain	5121	12763, 20405, 28047, 35689, 43331, 50973, 58615
anti-influenza_Chain	5122	12764, 20406, 28048, 35690, 43332, 50974, 58616
anti-influenza_Chain	5123	12765, 20407, 28049, 35691, 43333, 50975, 58617
anti-influenza_Chain	5124	12766, 20408, 28050, 35692, 43334, 50976, 58618
anti-influenza_Chain	5125	12767, 20409, 28051, 35693, 43335, 50977, 58619
anti-influenza_Chain	5126	12768, 20410, 28052, 35694, 43336, 50978, 58620
anti-influenza_Chain	5127	12769, 20411, 28053, 35695, 43337, 50979, 58621
anti-influenza_Chain	5128	12770, 20412, 28054, 35696, 43338, 50980, 58622
anti-influenza_Chain	5129	12771, 20413, 28055, 35697, 43339, 50981, 58623
anti-influenza_Chain	5130	12772, 20414, 28056, 35698, 43340, 50982, 58624
anti-influenza_Chain	5131	12773, 20415, 28057, 35699, 43341, 50983, 58625
anti-influenza_Chain	5132	12774, 20416, 28058, 35700, 43342, 50984, 58626
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anti-influenza_Chain	5134	12776, 20418, 28060, 35702, 43344, 50986, 58628
anti-influenza_Chain	5135	12777, 20419, 28061, 35703, 43345, 50987, 58629
anti-influenza_Chain	5136	12778, 20420, 28062, 35704, 43346, 50988, 58630
anti-influenza_Chain	5137	12779, 20421, 28063, 35705, 43347, 50989, 58631
anti-influenza_Chain	5138	12780, 20422, 28064, 35706, 43348, 50990, 58632
anti-influenza_Chain	5139	12781, 20423, 28065, 35707, 43349, 50991, 58633
anti-influenza_Chain	5140	12782, 20424, 28066, 35708, 43350, 50992, 58634
anti-influenza_Chain	5141	12783, 20425, 28067, 35709, 43351, 50993, 58635

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5144	12786, 20428, 28070, 35712, 43354, 50996, 58638
anti-influenza_Chain	5145	12787, 20429, 28071, 35713, 43355, 50997, 58639
anti-influenza_Chain	5146	12788, 20430, 28072, 35714, 43356, 50998, 58640
anti-influenza_Chain	5147	12789, 20431, 28073, 35715, 43357, 50999, 58641
anti-influenza_Chain	5148	12790, 20432, 28074, 35716, 43358, 51000, 58642
anti-influenza_Chain	5149	12791, 20433, 28075, 35717, 43359, 51001, 58643
anti-influenza_Chain	5150	12792, 20434, 28076, 35718, 43360, 51002, 58644
anti-influenza_Chain	5151	12793, 20435, 28077, 35719, 43361, 51003, 58645
anti-influenza_Chain	5152	12794, 20436, 28078, 35720, 43362, 51004, 58646
anti-influenza_Chain	5153	12795, 20437, 28079, 35721, 43363, 51005, 58647
anti-influenza_Chain	5154	12796, 20438, 28080, 35722, 43364, 51006, 58648
anti-influenza_Chain	5155	12797, 20439, 28081, 35723, 43365, 51007, 58649
anti-influenza_Chain	5156	12798, 20440, 28082, 35724, 43366, 51008, 58650
anti-influenza_Chain	5157	12799, 20441, 28083, 35725, 43367, 51009, 58651
anti-influenza_Chain	5158	12800, 20442, 28084, 35726, 43368, 51010, 58652
anti-influenza_Chain	5159	12801, 20443, 28085, 35727, 43369, 51011, 58653
anti-influenza_Chain	5160	12802, 20444, 28086, 35728, 43370, 51012, 58654
anti-influenza_Chain	5161	12803, 20445, 28087, 35729, 43371, 51013, 58655
anti-influenza_Chain	5162	12804, 20446, 28088, 35730, 43372, 51014, 58656
anti-influenza_Chain	5163	12805, 20447, 28089, 35731, 43373, 51015, 58657
anti-influenza_Chain	5164	12806, 20448, 28090, 35732, 43374, 51016, 58658
anti-influenza_Chain	5165	12807, 20449, 28091, 35733, 43375, 51017, 58659
anti-influenza_Chain	5166	12808, 20450, 28092, 35734, 43376, 51018, 58660
anti-influenza_Chain	5167	12809, 20451, 28093, 35735, 43377, 51019, 58661
anti-influenza_Chain	5168	12810, 20452, 28094, 35736, 43378, 51020, 58662
anti-influenza_Chain	5169	12811, 20453, 28095, 35737, 43379, 51021, 58663
anti-influenza_Chain	5170	12812, 20454, 28096, 35738, 43380, 51022, 58664
anti-influenza_Chain	5171	12813, 20455, 28097, 35739, 43381, 51023, 58665
anti-influenza_Chain	5172	12814, 20456, 28098, 35740, 43382, 51024, 58666
anti-influenza_Chain	5173	12815, 20457, 28099, 35741, 43383, 51025, 58667
anti-influenza_Chain	5174	12816, 20458, 28100, 35742, 43384, 51026, 58668

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5177	12819, 20461, 28103, 35745, 43387, 51029, 58671
anti-influenza_Chain	5178	12820, 20462, 28104, 35746, 43388, 51030, 58672
anti-influenza_Chain	5179	12821, 20463, 28105, 35747, 43389, 51031, 58673
anti-influenza_Chain	5180	12822, 20464, 28106, 35748, 43390, 51032, 58674
anti-influenza_Chain	5181	12823, 20465, 28107, 35749, 43391, 51033, 58675
anti-influenza_Chain	5182	12824, 20466, 28108, 35750, 43392, 51034, 58676
anti-influenza_Chain	5183	12825, 20467, 28109, 35751, 43393, 51035, 58677
anti-influenza_Chain	5184	12826, 20468, 28110, 35752, 43394, 51036, 58678
anti-influenza_Chain	5185	12827, 20469, 28111, 35753, 43395, 51037, 58679
anti-influenza_Chain	5186	12828, 20470, 28112, 35754, 43396, 51038, 58680
anti-influenza_Chain	5187	12829, 20471, 28113, 35755, 43397, 51039, 58681
anti-influenza_Chain	5188	12830, 20472, 28114, 35756, 43398, 51040, 58682
anti-influenza_Chain	5189	12831, 20473, 28115, 35757, 43399, 51041, 58683
anti-influenza_Chain	5190	12832, 20474, 28116, 35758, 43400, 51042, 58684
anti-influenza_Chain	5191	12833, 20475, 28117, 35759, 43401, 51043, 58685
anti-influenza_Chain	5192	12834, 20476, 28118, 35760, 43402, 51044, 58686
anti-influenza_Chain	5193	12835, 20477, 28119, 35761, 43403, 51045, 58687
anti-influenza_Chain	5194	12836, 20478, 28120, 35762, 43404, 51046, 58688
anti-influenza_Chain	5195	12837, 20479, 28121, 35763, 43405, 51047, 58689
anti-influenza_Chain	5196	12838, 20480, 28122, 35764, 43406, 51048, 58690
anti-influenza_Chain	5197	12839, 20481, 28123, 35765, 43407, 51049, 58691
anti-influenza_Chain	5198	12840, 20482, 28124, 35766, 43408, 51050, 58692
anti-influenza_Chain	5199	12841, 20483, 28125, 35767, 43409, 51051, 58693
anti-influenza_Chain	5200	12842, 20484, 28126, 35768, 43410, 51052, 58694
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anti-influenza_Chain	5202	12844, 20486, 28128, 35770, 43412, 51054, 58696
anti-influenza_Chain	5203	12845, 20487, 28129, 35771, 43413, 51055, 58697
anti-influenza_Chain	5204	12846, 20488, 28130, 35772, 43414, 51056, 58698
anti-influenza_Chain	5205	12847, 20489, 28131, 35773, 43415, 51057, 58699
anti-influenza_Chain	5206	12848, 20490, 28132, 35774, 43416, 51058, 58700
anti-influenza_Chain	5207	12849, 20491, 28133, 35775, 43417, 51059, 58701

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5210	12852, 20494, 28136, 35778, 43420, 51062, 58704
anti-influenza_Chain	5211	12853, 20495, 28137, 35779, 43421, 51063, 58705
anti-influenza_Chain	5212	12854, 20496, 28138, 35780, 43422, 51064, 58706
anti-influenza_Chain	5213	12855, 20497, 28139, 35781, 43423, 51065, 58707
anti-influenza_Chain	5214	12856, 20498, 28140, 35782, 43424, 51066, 58708
anti-influenza_Chain	5215	12857, 20499, 28141, 35783, 43425, 51067, 58709
anti-influenza_Chain	5216	12858, 20500, 28142, 35784, 43426, 51068, 58710
anti-influenza_Chain	5217	12859, 20501, 28143, 35785, 43427, 51069, 58711
anti-influenza_Chain	5218	12860, 20502, 28144, 35786, 43428, 51070, 58712
anti-influenza_Chain	5219	12861, 20503, 28145, 35787, 43429, 51071, 58713
anti-influenza_Chain	5220	12862, 20504, 28146, 35788, 43430, 51072, 58714
anti-influenza_Chain	5221	12863, 20505, 28147, 35789, 43431, 51073, 58715
anti-influenza_Chain	5222	12864, 20506, 28148, 35790, 43432, 51074, 58716
anti-influenza_Chain	5223	12865, 20507, 28149, 35791, 43433, 51075, 58717
anti-influenza_Chain	5224	12866, 20508, 28150, 35792, 43434, 51076, 58718
anti-influenza_Chain	5225	12867, 20509, 28151, 35793, 43435, 51077, 58719
anti-influenza_Chain	5226	12868, 20510, 28152, 35794, 43436, 51078, 58720
anti-influenza_Chain	5227	12869, 20511, 28153, 35795, 43437, 51079, 58721
anti-influenza_Chain	5228	12870, 20512, 28154, 35796, 43438, 51080, 58722
anti-influenza_Chain	5229	12871, 20513, 28155, 35797, 43439, 51081, 58723
anti-influenza_Chain	5230	12872, 20514, 28156, 35798, 43440, 51082, 58724
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anti-influenza_Chain	5233	12875, 20517, 28159, 35801, 43443, 51085, 58727
anti-influenza_Chain	5234	12876, 20518, 28160, 35802, 43444, 51086, 58728
anti-influenza_Chain	5235	12877, 20519, 28161, 35803, 43445, 51087, 58729
anti-influenza_Chain	5236	12878, 20520, 28162, 35804, 43446, 51088, 58730
anti-influenza_Chain	5237	12879, 20521, 28163, 35805, 43447, 51089, 58731
anti-influenza_Chain	5238	12880, 20522, 28164, 35806, 43448, 51090, 58732
anti-influenza_Chain	5239	12881, 20523, 28165, 35807, 43449, 51091, 58733
anti-influenza_Chain	5240	12882, 20524, 28166, 35808, 43450, 51092, 58734

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5244	12886, 20528, 28170, 35812, 43454, 51096, 58738
anti-influenza_Chain	5245	12887, 20529, 28171, 35813, 43455, 51097, 58739
anti-influenza_Chain	5246	12888, 20530, 28172, 35814, 43456, 51098, 58740
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anti-influenza_Chain	5251	12893, 20535, 28177, 35819, 43461, 51103, 58745
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anti-influenza_Chain	5254	12896, 20538, 28180, 35822, 43464, 51106, 58748
anti-influenza_Chain	5255	12897, 20539, 28181, 35823, 43465, 51107, 58749
anti-influenza_Chain	5256	12898, 20540, 28182, 35824, 43466, 51108, 58750
anti-influenza_Chain	5257	12899, 20541, 28183, 35825, 43467, 51109, 58751
anti-influenza_Chain	5258	12900, 20542, 28184, 35826, 43468, 51110, 58752
anti-influenza_Chain	5259	12901, 20543, 28185, 35827, 43469, 51111, 58753
anti-influenza_Chain	5260	12902, 20544, 28186, 35828, 43470, 51112, 58754
anti-influenza_Chain	5261	12903, 20545, 28187, 35829, 43471, 51113, 58755
anti-influenza_Chain	5262	12904, 20546, 28188, 35830, 43472, 51114, 58756
anti-influenza_Chain	5263	12905, 20547, 28189, 35831, 43473, 51115, 58757
anti-influenza_Chain	5264	12906, 20548, 28190, 35832, 43474, 51116, 58758
anti-influenza_Chain	5265	12907, 20549, 28191, 35833, 43475, 51117, 58759
anti-influenza_Chain	5266	12908, 20550, 28192, 35834, 43476, 51118, 58760
anti-influenza_Chain	5267	12909, 20551, 28193, 35835, 43477, 51119, 58761
anti-influenza_Chain	5268	12910, 20552, 28194, 35836, 43478, 51120, 58762
anti-influenza_Chain	5269	12911, 20553, 28195, 35837, 43479, 51121, 58763
anti-influenza_Chain	5270	12912, 20554, 28196, 35838, 43480, 51122, 58764
anti-influenza_Chain	5271	12913, 20555, 28197, 35839, 43481, 51123, 58765
anti-influenza_Chain	5272	12914, 20556, 28198, 35840, 43482, 51124, 58766
anti-influenza_Chain	5273	12915, 20557, 28199, 35841, 43483, 51125, 58767

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5277	12919, 20561, 28203, 35845, 43487, 51129, 58771
anti-influenza_Chain	5278	12920, 20562, 28204, 35846, 43488, 51130, 58772
anti-influenza_Chain	5279	12921, 20563, 28205, 35847, 43489, 51131, 58773
anti-influenza_Chain	5280	12922, 20564, 28206, 35848, 43490, 51132, 58774
anti-influenza_Chain	5281	12923, 20565, 28207, 35849, 43491, 51133, 58775
anti-influenza_Chain	5282	12924, 20566, 28208, 35850, 43492, 51134, 58776
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anti-influenza_Chain	5284	12926, 20568, 28210, 35852, 43494, 51136, 58778
anti-influenza_Chain	5285	12927, 20569, 28211, 35853, 43495, 51137, 58779
anti-influenza_Chain	5286	12928, 20570, 28212, 35854, 43496, 51138, 58780
anti-influenza_Chain	5287	12929, 20571, 28213, 35855, 43497, 51139, 58781
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anti-influenza_Chain	5289	12931, 20573, 28215, 35857, 43499, 51141, 58783
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anti-influenza_Chain	5293	12935, 20577, 28219, 35861, 43503, 51145, 58787
anti-influenza_Chain	5294	12936, 20578, 28220, 35862, 43504, 51146, 58788
anti-influenza_Chain	5295	12937, 20579, 28221, 35863, 43505, 51147, 58789
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anti-influenza_Chain	5300	12942, 20584, 28226, 35868, 43510, 51152, 58794
anti-influenza_Chain	5301	12943, 20585, 28227, 35869, 43511, 51153, 58795
anti-influenza_Chain	5302	12944, 20586, 28228, 35870, 43512, 51154, 58796
anti-influenza_Chain	5303	12945, 20587, 28229, 35871, 43513, 51155, 58797
anti-influenza_Chain	5304	12946, 20588, 28230, 35872, 43514, 51156, 58798
anti-influenza_Chain	5305	12947, 20589, 28231, 35873, 43515, 51157, 58799
anti-influenza_Chain	5306	12948, 20590, 28232, 35874, 43516, 51158, 58800

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5309	12951, 20593, 28235, 35877, 43519, 51161, 58803
anti-influenza_Chain	5310	12952, 20594, 28236, 35878, 43520, 51162, 58804
anti-influenza_Chain	5311	12953, 20595, 28237, 35879, 43521, 51163, 58805
anti-influenza_Chain	5312	12954, 20596, 28238, 35880, 43522, 51164, 58806
anti-influenza_Chain	5313	12955, 20597, 28239, 35881, 43523, 51165, 58807
anti-influenza_Chain	5314	12956, 20598, 28240, 35882, 43524, 51166, 58808
anti-influenza_Chain	5315	12957, 20599, 28241, 35883, 43525, 51167, 58809
anti-influenza_Chain	5316	12958, 20600, 28242, 35884, 43526, 51168, 58810
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anti-influenza_Chain	5320	12962, 20604, 28246, 35888, 43530, 51172, 58814
anti-influenza_Chain	5321	12963, 20605, 28247, 35889, 43531, 51173, 58815
anti-influenza_Chain	5322	12964, 20606, 28248, 35890, 43532, 51174, 58816
anti-influenza_Chain	5323	12965, 20607, 28249, 35891, 43533, 51175, 58817
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anti-influenza_Chain	5325	12967, 20609, 28251, 35893, 43535, 51177, 58819
anti-influenza_Chain	5326	12968, 20610, 28252, 35894, 43536, 51178, 58820
anti-influenza_Chain	5327	12969, 20611, 28253, 35895, 43537, 51179, 58821
anti-influenza_Chain	5328	12970, 20612, 28254, 35896, 43538, 51180, 58822
anti-influenza_Chain	5329	12971, 20613, 28255, 35897, 43539, 51181, 58823
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anti-influenza_Chain	5334	12976, 20618, 28260, 35902, 43544, 51186, 58828
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anti-influenza_Chain	5336	12978, 20620, 28262, 35904, 43546, 51188, 58830
anti-influenza_Chain	5337	12979, 20621, 28263, 35905, 43547, 51189, 58831
anti-influenza_Chain	5338	12980, 20622, 28264, 35906, 43548, 51190, 58832
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Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5342	12984, 20626, 28268, 35910, 43552, 51194, 58836
anti-influenza_Chain	5343	12985, 20627, 28269, 35911, 43553, 51195, 58837
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anti-influenza_Chain	5345	12987, 20629, 28271, 35913, 43555, 51197, 58839
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anti-influenza_Chain	5347	12989, 20631, 28273, 35915, 43557, 51199, 58841
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anti-influenza_Chain	5350	12992, 20634, 28276, 35918, 43560, 51202, 58844
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anti-influenza_Chain	5352	12994, 20636, 28278, 35920, 43562, 51204, 58846
anti-influenza_Chain	5353	12995, 20637, 28279, 35921, 43563, 51205, 58847
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anti-influenza_Chain	5355	12997, 20639, 28281, 35923, 43565, 51207, 58849
anti-influenza_Chain	5356	12998, 20640, 28282, 35924, 43566, 51208, 58850
anti-influenza_Chain	5357	12999, 20641, 28283, 35925, 43567, 51209, 58851
anti-influenza_Chain	5358	13000, 20642, 28284, 35926, 43568, 51210, 58852
anti-influenza_Chain	5359	13001, 20643, 28285, 35927, 43569, 51211, 58853
anti-influenza_Chain	5360	13002, 20644, 28286, 35928, 43570, 51212, 58854
anti-influenza_Chain	5361	13003, 20645, 28287, 35929, 43571, 51213, 58855
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anti-influenza_Chain	5363	13005, 20647, 28289, 35931, 43573, 51215, 58857
anti-influenza_Chain	5364	13006, 20648, 28290, 35932, 43574, 51216, 58858
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anti-influenza_Chain	5366	13008, 20650, 28292, 35934, 43576, 51218, 58860
anti-influenza_Chain	5367	13009, 20651, 28293, 35935, 43577, 51219, 58861
anti-influenza_Chain	5368	13010, 20652, 28294, 35936, 43578, 51220, 58862
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anti-influenza_Chain	5370	13012, 20654, 28296, 35938, 43580, 51222, 58864
anti-influenza_Chain	5371	13013, 20655, 28297, 35939, 43581, 51223, 58865
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Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5375	13017, 20659, 28301, 35943, 43585, 51227, 58869
anti-influenza_Chain	5376	13018, 20660, 28302, 35944, 43586, 51228, 58870
anti-influenza_Chain	5377	13019, 20661, 28303, 35945, 43587, 51229, 58871
anti-influenza_Chain	5378	13020, 20662, 28304, 35946, 43588, 51230, 58872
anti-influenza_Chain	5379	13021, 20663, 28305, 35947, 43589, 51231, 58873
anti-influenza_Chain	5380	13022, 20664, 28306, 35948, 43590, 51232, 58874
anti-influenza_Chain	5381	13023, 20665, 28307, 35949, 43591, 51233, 58875
anti-influenza_Chain	5382	13024, 20666, 28308, 35950, 43592, 51234, 58876
anti-influenza_Chain	5383	13025, 20667, 28309, 35951, 43593, 51235, 58877
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anti-influenza_Chain	5385	13027, 20669, 28311, 35953, 43595, 51237, 58879
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anti-influenza_Chain	5387	13029, 20671, 28313, 35955, 43597, 51239, 58881
anti-influenza_Chain	5388	13030, 20672, 28314, 35956, 43598, 51240, 58882
anti-influenza_Chain	5389	13031, 20673, 28315, 35957, 43599, 51241, 58883
anti-influenza_Chain	5390	13032, 20674, 28316, 35958, 43600, 51242, 58884
anti-influenza_Chain	5391	13033, 20675, 28317, 35959, 43601, 51243, 58885
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anti-influenza_Chain	5393	13035, 20677, 28319, 35961, 43603, 51245, 58887
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anti-influenza_Chain	5397	13039, 20681, 28323, 35965, 43607, 51249, 58891
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anti-influenza_Chain	5399	13041, 20683, 28325, 35967, 43609, 51251, 58893
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anti-influenza_Chain	5401	13043, 20685, 28327, 35969, 43611, 51253, 58895
anti-influenza_Chain	5402	13044, 20686, 28328, 35970, 43612, 51254, 58896
anti-influenza_Chain	5403	13045, 20687, 28329, 35971, 43613, 51255, 58897
anti-influenza_Chain	5404	13046, 20688, 28330, 35972, 43614, 51256, 58898
anti-influenza_Chain	5405	13047, 20689, 28331, 35973, 43615, 51257, 58899

Name	Protein SEQ ID NO	RNA SEQ ID NO
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anti-influenza_Chain	5408	13050, 20692, 28334, 35976, 43618, 51260, 58902
anti-influenza_Chain	5409	13051, 20693, 28335, 35977, 43619, 51261, 58903
anti-influenza_Chain	5410	13052, 20694, 28336, 35978, 43620, 51262, 58904
anti-influenza_Chain	5411	13053, 20695, 28337, 35979, 43621, 51263, 58905
anti-influenza_Chain	5412	13054, 20696, 28338, 35980, 43622, 51264, 58906
anti-influenza_Chain	5413	13055, 20697, 28339, 35981, 43623, 51265, 58907
anti-influenza_Chain	5414	13056, 20698, 28340, 35982, 43624, 51266, 58908
anti-influenza_Chain	5415	13057, 20699, 28341, 35983, 43625, 51267, 58909
anti-influenza_Chain	5416	13058, 20700, 28342, 35984, 43626, 51268, 58910
anti-influenza_Chain	5417	13059, 20701, 28343, 35985, 43627, 51269, 58911
anti-influenza_Chain	5418	13060, 20702, 28344, 35986, 43628, 51270, 58912
anti-influenza_Chain	5419	13061, 20703, 28345, 35987, 43629, 51271, 58913
anti-influenza_Chain	5420	13062, 20704, 28346, 35988, 43630, 51272, 58914
anti-influenza_Chain	5421	13063, 20705, 28347, 35989, 43631, 51273, 58915
anti-influenza_Chain	5422	13064, 20706, 28348, 35990, 43632, 51274, 58916
anti-influenza_Chain	5423	13065, 20707, 28349, 35991, 43633, 51275, 58917
anti-influenza_Chain	5424	13066, 20708, 28350, 35992, 43634, 51276, 58918
anti-influenza_Chain	5425	13067, 20709, 28351, 35993, 43635, 51277, 58919
anti-influenza_Chain	5426	13068, 20710, 28352, 35994, 43636, 51278, 58920
anti-influenza_Chain	5427	13069, 20711, 28353, 35995, 43637, 51279, 58921
anti-influenza_Chain	5428	13070, 20712, 28354, 35996, 43638, 51280, 58922
anti-influenza_Chain	5429	13071, 20713, 28355, 35997, 43639, 51281, 58923
anti-influenza_Chain	5430	13072, 20714, 28356, 35998, 43640, 51282, 58924
anti-influenza_Chain	5431	13073, 20715, 28357, 35999, 43641, 51283, 58925
anti-influenza_Chain	5432	13074, 20716, 28358, 36000, 43642, 51284, 58926
anti-influenza_Chain	5433	13075, 20717, 28359, 36001, 43643, 51285, 58927
anti-influenza_Chain	5434	13076, 20718, 28360, 36002, 43644, 51286, 58928
anti-influenza_Chain	5435	13077, 20719, 28361, 36003, 43645, 51287, 58929
anti-influenza_Chain	5436	13078, 20720, 28362, 36004, 43646, 51288, 58930
anti-influenza_Chain	5437	13079, 20721, 28363, 36005, 43647, 51289, 58931
anti-influenza_Chain	5438	13080, 20722, 28364, 36006, 43648, 51290, 58932

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza_Chain	5439	13081, 20723, 28365, 36007, 43649, 51291, 58933
anti-influenza_Chain	5440	13082, 20724, 28366, 36008, 43650, 51292, 58934
anti-influenza_Chain	5441	13083, 20725, 28367, 36009, 43651, 51293, 58935
anti-influenza_Chain	5442	13084, 20726, 28368, 36010, 43652, 51294, 58936
anti-influenza_Chain	5443	13085, 20727, 28369, 36011, 43653, 51295, 58937
anti-influenza_Chain	5444	13086, 20728, 28370, 36012, 43654, 51296, 58938
anti-influenza_Chain	5445	13087, 20729, 28371, 36013, 43655, 51297, 58939
anti-influenza_Chain	5446	13088, 20730, 28372, 36014, 43656, 51298, 58940
anti-influenza_Chain	5447	13089, 20731, 28373, 36015, 43657, 51299, 58941
anti-influenza_Chain	5448	13090, 20732, 28374, 36016, 43658, 51300, 58942
anti-influenza_Chain	5449	13091, 20733, 28375, 36017, 43659, 51301, 58943
anti-influenza_Chain	5450	13092, 20734, 28376, 36018, 43660, 51302, 58944
anti-influenza_Chain	5451	13093, 20735, 28377, 36019, 43661, 51303, 58945
anti-influenza_Chain	5452	13094, 20736, 28378, 36020, 43662, 51304, 58946
anti-influenza_Chain	5453	13095, 20737, 28379, 36021, 43663, 51305, 58947
anti-influenza_Chain	5454	13096, 20738, 28380, 36022, 43664, 51306, 58948
anti-influenza_Chain	5455	13097, 20739, 28381, 36023, 43665, 51307, 58949
anti-influenza_Chain	5456	13098, 20740, 28382, 36024, 43666, 51308, 58950
anti-influenza_Chain	5457	13099, 20741, 28383, 36025, 43667, 51309, 58951
anti-influenza_Chain	5458	13100, 20742, 28384, 36026, 43668, 51310, 58952
anti-influenza_Chain	5459	13101, 20743, 28385, 36027, 43669, 51311, 58953
anti-influenza_Chain	5460	13102, 20744, 28386, 36028, 43670, 51312, 58954
anti-influenza_Chain	5461	13103, 20745, 28387, 36029, 43671, 51313, 58955
anti-influenza_Chain	5462	13104, 20746, 28388, 36030, 43672, 51314, 58956
anti-influenza_Chain	5463	13105, 20747, 28389, 36031, 43673, 51315, 58957
anti-influenza_Chain	5464	13106, 20748, 28390, 36032, 43674, 51316, 58958
anti-influenza_Chain	5465	13107, 20749, 28391, 36033, 43675, 51317, 58959
anti-influenza_Chain	5466	13108, 20750, 28392, 36034, 43676, 51318, 58960
anti-influenza_Chain	5467	13109, 20751, 28393, 36035, 43677, 51319, 58961
anti-influenza_Chain	5468	13110, 20752, 28394, 36036, 43678, 51320, 58962
anti-influenza_Chain	5469	13111, 20753, 28395, 36037, 43679, 51321, 58963
anti-influenza_Chain	5470	13112, 20754, 28396, 36038, 43680, 51322, 58964
anti-influenza_Chain	5471	13113, 20755, 28397, 36039, 43681, 51323, 58965

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza_Chain	5472	13114, 20756, 28398, 36040, 43682, 51324, 58966
anti-influenza_Chain	5473	13115, 20757, 28399, 36041, 43683, 51325, 58967
anti-influenza_Chain	5474	13116, 20758, 28400, 36042, 43684, 51326, 58968
anti-influenza_Chain	5475	13117, 20759, 28401, 36043, 43685, 51327, 58969
anti-influenza_Chain	5476	13118, 20760, 28402, 36044, 43686, 51328, 58970
anti-influenza_Chain	5477	13119, 20761, 28403, 36045, 43687, 51329, 58971
anti-influenza_Chain	5478	13120, 20762, 28404, 36046, 43688, 51330, 58972
anti-influenza_Chain	5479	13121, 20763, 28405, 36047, 43689, 51331, 58973
anti-influenza_Chain	5480	13122, 20764, 28406, 36048, 43690, 51332, 58974
anti-influenza_Chain	5481	13123, 20765, 28407, 36049, 43691, 51333, 58975
anti-influenza_Chain	5482	13124, 20766, 28408, 36050, 43692, 51334, 58976
anti-influenza_Chain	5483	13125, 20767, 28409, 36051, 43693, 51335, 58977
anti-influenza_Chain	5484	13126, 20768, 28410, 36052, 43694, 51336, 58978
anti-influenza_Chain	5485	13127, 20769, 28411, 36053, 43695, 51337, 58979
anti-influenza_Chain	5486	13128, 20770, 28412, 36054, 43696, 51338, 58980
anti-influenza_Chain	5487	13129, 20771, 28413, 36055, 43697, 51339, 58981
anti-influenza_Chain	5488	13130, 20772, 28414, 36056, 43698, 51340, 58982
anti-influenza_Chain	5489	13131, 20773, 28415, 36057, 43699, 51341, 58983
anti-influenza_Chain	5490	13132, 20774, 28416, 36058, 43700, 51342, 58984
anti-influenza_Chain	5491	13133, 20775, 28417, 36059, 43701, 51343, 58985
anti-influenza_Chain	5492	13134, 20776, 28418, 36060, 43702, 51344, 58986
anti-influenza_Chain	5493	13135, 20777, 28419, 36061, 43703, 51345, 58987
anti-influenza_Chain	5494	13136, 20778, 28420, 36062, 43704, 51346, 58988
anti-influenza_Chain	5495	13137, 20779, 28421, 36063, 43705, 51347, 58989
anti-influenza_Chain	5496	13138, 20780, 28422, 36064, 43706, 51348, 58990
anti-influenza_Chain	5497	13139, 20781, 28423, 36065, 43707, 51349, 58991
anti-influenza_Chain	5498	13140, 20782, 28424, 36066, 43708, 51350, 58992
anti-influenza_Chain	5499	13141, 20783, 28425, 36067, 43709, 51351, 58993
anti-influenza_Chain	5500	13142, 20784, 28426, 36068, 43710, 51352, 58994
anti-influenza_Chain	5501	13143, 20785, 28427, 36069, 43711, 51353, 58995
anti-influenza_Chain	5502	13144, 20786, 28428, 36070, 43712, 51354, 58996
anti-influenza_Chain	5503	13145, 20787, 28429, 36071, 43713, 51355, 58997
anti-influenza_Chain	5504	13146, 20788, 28430, 36072, 43714, 51356, 58998

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza_Chain	5505	13147, 20789, 28431, 36073, 43715, 51357, 58999
anti-influenza_Chain	5506	13148, 20790, 28432, 36074, 43716, 51358, 59000
anti-influenza_Chain	5507	13149, 20791, 28433, 36075, 43717, 51359, 59001
anti-influenza_Chain	5508	13150, 20792, 28434, 36076, 43718, 51360, 59002
anti-influenza_Chain	5509	13151, 20793, 28435, 36077, 43719, 51361, 59003
anti-influenza_Chain	5510	13152, 20794, 28436, 36078, 43720, 51362, 59004
anti-influenza_Chain	5511	13153, 20795, 28437, 36079, 43721, 51363, 59005
anti-influenza_Chain	5512	13154, 20796, 28438, 36080, 43722, 51364, 59006
anti-influenza_Chain	5513	13155, 20797, 28439, 36081, 43723, 51365, 59007
anti-influenza_Chain	5514	13156, 20798, 28440, 36082, 43724, 51366, 59008
anti-influenza_Chain	5515	13157, 20799, 28441, 36083, 43725, 51367, 59009
anti-influenza_Chain	5516	13158, 20800, 28442, 36084, 43726, 51368, 59010
anti-influenza_Chain	5517	13159, 20801, 28443, 36085, 43727, 51369, 59011
anti-influenza_Chain	5518	13160, 20802, 28444, 36086, 43728, 51370, 59012
anti-influenza_Chain	5519	13161, 20803, 28445, 36087, 43729, 51371, 59013
anti-influenza_Chain	5520	13162, 20804, 28446, 36088, 43730, 51372, 59014
anti-influenza_Chain	5521	13163, 20805, 28447, 36089, 43731, 51373, 59015
anti-influenza_Chain	5522	13164, 20806, 28448, 36090, 43732, 51374, 59016
anti-influenza_Chain	5523	13165, 20807, 28449, 36091, 43733, 51375, 59017
anti-influenza_Chain	5524	13166, 20808, 28450, 36092, 43734, 51376, 59018
anti-influenza_Chain	5525	13167, 20809, 28451, 36093, 43735, 51377, 59019
anti-influenza_Chain	5526	13168, 20810, 28452, 36094, 43736, 51378, 59020
anti-influenza_Chain	5527	13169, 20811, 28453, 36095, 43737, 51379, 59021
anti-influenza_Chain	5528	13170, 20812, 28454, 36096, 43738, 51380, 59022
anti-influenza_Chain	5529	13171, 20813, 28455, 36097, 43739, 51381, 59023
anti-influenza_Chain	5530	13172, 20814, 28456, 36098, 43740, 51382, 59024
anti-influenza_Chain	5531	13173, 20815, 28457, 36099, 43741, 51383, 59025
anti-influenza_Chain	5532	13174, 20816, 28458, 36100, 43742, 51384, 59026
anti-influenza_Chain	5533	13175, 20817, 28459, 36101, 43743, 51385, 59027
anti-influenza_Chain	5534	13176, 20818, 28460, 36102, 43744, 51386, 59028
anti-influenza_Chain	5535	13177, 20819, 28461, 36103, 43745, 51387, 59029
anti-influenza_Chain	5536	13178, 20820, 28462, 36104, 43746, 51388, 59030
anti-influenza_Chain	5537	13179, 20821, 28463, 36105, 43747, 51389, 59031

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-influenza_Chain	5538	13180, 20822, 28464, 36106, 43748, 51390, 59032
anti-influenza_Chain	5539	13181, 20823, 28465, 36107, 43749, 51391, 59033
anti-OX40_LightChain	5540	13182, 20824, 28466, 36108, 43750, 51392, 59034
anti-OX40_LightChain	5541	13183, 20825, 28467, 36109, 43751, 51393, 59035
anti-OX40_LightChain	5542	13184, 20826, 28468, 36110, 43752, 51394, 59036
anti-OX40_LightChain	5543	13185, 20827, 28469, 36111, 43753, 51395, 59037
anti-OX40_LightChain	5544	13186, 20828, 28470, 36112, 43754, 51396, 59038
anti-OX40_LightChain	5545	13187, 20829, 28471, 36113, 43755, 51397, 59039
anti-OX40_LightChain	5546	13188, 20830, 28472, 36114, 43756, 51398, 59040
anti-OX40_LightChain	5547	13189, 20831, 28473, 36115, 43757, 51399, 59041
anti-OX40_LightChain	5548	13190, 20832, 28474, 36116, 43758, 51400, 59042
anti-OX40_LightChain	5549	13191, 20833, 28475, 36117, 43759, 51401, 59043
anti-OX40_LightChain	5550	13192, 20834, 28476, 36118, 43760, 51402, 59044
anti-OX40_LightChain	5551	13193, 20835, 28477, 36119, 43761, 51403, 59045
anti-OX40_LightChain	5552	13194, 20836, 28478, 36120, 43762, 51404, 59046
anti-OX40_LightChain	5553	13195, 20837, 28479, 36121, 43763, 51405, 59047
anti-OX40_HeavyChain	5554	13196, 20838, 28480, 36122, 43764, 51406, 59048
anti-OX40_HeavyChain	5555	13197, 20839, 28481, 36123, 43765, 51407, 59049
anti-OX40_HeavyChain	5556	13198, 20840, 28482, 36124, 43766, 51408, 59050
anti-OX40_HeavyChain	5557	13199, 20841, 28483, 36125, 43767, 51409, 59051
anti-OX40_HeavyChain	5558	13200, 20842, 28484, 36126, 43768, 51410, 59052
anti-OX40_HeavyChain	5559	13201, 20843, 28485, 36127, 43769, 51411, 59053
anti-OX40_HeavyChain	5560	13202, 20844, 28486, 36128, 43770, 51412, 59054
anti-OX40_HeavyChain	5561	13203, 20845, 28487, 36129, 43771, 51413, 59055
anti-OX40_HeavyChain	5562	13204, 20846, 28488, 36130, 43772, 51414, 59056
anti-OX40_HeavyChain	5563	13205, 20847, 28489, 36131, 43773, 51415, 59057
anti-OX40_HeavyChain	5564	13206, 20848, 28490, 36132, 43774, 51416, 59058
anti-OX40_HeavyChain	5565	13207, 20849, 28491, 36133, 43775, 51417, 59059
anti-OX40_HeavyChain	5566	13208, 20850, 28492, 36134, 43776, 51418, 59060
anti-OX40_HeavyChain	5567	13209, 20851, 28493, 36135, 43777, 51419, 59061
anti-OX40_HeavyChain	5568	13210, 20852, 28494, 36136, 43778, 51420, 59062
anti-OX40_HeavyChain	5569	13211, 20853, 28495, 36137, 43779, 51421, 59063
anti-OX40_HeavyChain	5570	13212, 20854, 28496, 36138, 43780, 51422, 59064

Name	Protein SEQ ID NO	RNA SEQ ID NO
anti-OX40_HeavyChain	5571	13213, 20855, 28497, 36139, 43781, 51423, 59065
anti-OX40_HeavyChain	5572	13214, 20856, 28498, 36140, 43782, 51424, 59066
anti-OX40_HeavyChain	5573	13215, 20857, 28499, 36141, 43783, 51425, 59067
anti-OX40_HeavyChain	5574	13216, 20858, 28500, 36142, 43784, 51426, 59068
anti-OX40_HeavyChain	5575	13217, 20859, 28501, 36143, 43785, 51427, 59069
anti-OX40_HeavyChain	5576	13218, 20860, 28502, 36144, 43786, 51428, 59070
anti-OX40_HeavyChain	5577	13219, 20861, 28503, 36145, 43787, 51429, 59071
anti-OX40_HeavyChain	5578	13220, 20862, 28504, 36146, 43788, 51430, 59072
anti-OX40_HeavyChain	5579	13221, 20863, 28505, 36147, 43789, 51431, 59073
anti-OX40_HeavyChain	5580	13222, 20864, 28506, 36148, 43790, 51432, 59074
anti-OX40_HeavyChain	5581	13223, 20865, 28507, 36149, 43791, 51433, 59075
anti-OX40_HeavyChain	5582	13224, 20866, 28508, 36150, 43792, 51434, 59076
anti-OX40_HeavyChain	5583	13225, 20867, 28509, 36151, 43793, 51435, 59077
anti-OX40_HeavyChain	5584	13226, 20868, 28510, 36152, 43794, 51436, 59078
anti-OX40_HeavyChain	5585	13227, 20869, 28511, 36153, 43795, 51437, 59079
anti-OX40_HeavyChain	5586	13228, 20870, 28512, 36154, 43796, 51438, 59080
anti-OX40_HeavyChain	5587	13229, 20871, 28513, 36155, 43797, 51439, 59081
anti-OX40_HeavyChain	5588	13230, 20872, 28514, 36156, 43798, 51440, 59082
anti-OX40_LightChain	5589	13231, 20873, 28515, 36157, 43799, 51441, 59083
anti-OX40_LightChain	5590	13232, 20874, 28516, 36158, 43800, 51442, 59084
anti-OX40_LightChain	5591	13233, 20875, 28517, 36159, 43801, 51443, 59085
anti-OX40_LightChain	5592	13234, 20876, 28518, 36160, 43802, 51444, 59086
anti-OX40_LightChain	5593	13235, 20877, 28519, 36161, 43803, 51445, 59087
anti-OX40_HeavyChain	5594	13236, 20878, 28520, 36162, 43804, 51446, 59088
anti-OX40_HeavyChain	5595	13237, 20879, 28521, 36163, 43805, 51447, 59089
anti-OX40_HeavyChain	5596	13238, 20880, 28522, 36164, 43806, 51448, 59090
anti-OX40_HeavyChain	5597	13239, 20881, 28523, 36165, 43807, 51449, 59091
anti-OX40_HeavyChain	5598	13240, 20882, 28524, 36166, 43808, 51450, 59092
anti-OX40_LightChain	5599	13241, 20883, 28525, 36167, 43809, 51451, 59093
anti-OX40_HeavyChain	5600	13242, 20884, 28526, 36168, 43810, 51452, 59094

In a preferred embodiment the at least one coding sequence of the RNA according to the present invention encodes an antibody, i.e. in particular a full length ("complete") antibody. In other words, it is preferred that a full length ("complete") antibody is encoded by a single RNA (molecule). This may be realized by a monocistronic RNA (wherein heavy and light chain or fragments thereof such as the respective variable regions may, for example, be connected via a peptidic linker) or by a bi- or multicistronic RNA, wherein different fragments of the antibody, such as the heavy chain (or a fragment thereof, e.g. the heavy chain variable region) and the light chain (or a fragment thereof, e.g. the light chain variable region), are encoded in separate cistrons as described herein. It is also preferred that the at least one coding sequence of the RNA according to the present invention encodes a fragment of an antibody only, such as the heavy chain (or a fragment thereof, e.g. the heavy chain variable region) or the light chain (or a fragment thereof, e.g. the light chain variable region), with the corresponding fragment(s) required for a functional antibody being encoded by another RNA (molecule) according to the present invention.

For example, for the antibody abagovomab, the RNA according to the present invention may encode

(i) the heavy chain (amino acid sequence according to SEQ ID NO: 2), for example by an RNA sequence according to any of SEQ ID NOs: 7644, 15286, 22928, 30570, 38212, 45854, 53496, or a fragment or variant thereof; and

(ii) the light chain (amino acid sequence according to SEQ ID NO: 3), for example by an RNA sequence according to any of SEQ ID NOs: 7645, 15287, 22929, 30571, 38213, 45855, 53497, or a fragment or variant thereof

in a monocistronic (e.g., connected by a peptide linker) or in a multicistronic, in particular bicistronic, manner as described herein. Alternatively, the RNA according to the present invention may encode the heavy chain (amino acid sequence according to SEQ ID NO: 2), for example by an RNA sequence according to any of SEQ ID NOs: 7644, 15286, 22928, 30570, 38212, 45854, 53496, or a fragment or variant thereof, only and the corresponding light chain (amino acid sequence according to SEQ ID NO: 3), for example by an RNA sequence according to any of SEQ ID NOs: 7645, 15287, 22929, 30571, 38213, 45855, 53497, or a fragment or variant thereof, may be encoded by a separate RNA (molecule). The latter option applies in particular in the context of a combination according to the present invention as described herein and of certain embodiments of the composition and of the kit as described herein. In summary, by all of the above options RNA encoding a (functional) antibody abagovomab can be provided. Other antibodies may be provided in a similar manner based on the information, which can be retrieved from Table 3.

Preferably, the at least one coding sequence of the RNA according to the present invention encodes an antibody or a fragment or variant thereof, in particular an antigen-binding fragment or variant thereof, as described above.

More preferably, the at least one coding sequence of the RNA according to the present invention encodes a heavy chain and/or a light chain of an antibody, or a fragment or variant of a heavy chain and/or of a light chain of an antibody, in particular an antigen-binding fragment or variant of a heavy chain and/or of a light chain of an antibody.

Even more preferably, the at least one coding sequence of the RNA according to the present invention encodes a heavy chain variable region and/or a light chain variable region of an antibody, or an antigen-binding fragment or variant of a heavy chain variable region and/or a light chain variable region of an antibody.

Table 4 below shows the amino acid positions of the heavy chain variable region and of the light chain variable region as well as of the heavy chain constant region and of the light chain constant region in the heavy chain and light chain amino acid sequences of exemplified antibodies, respectively. Those sequences of the heavy chain variable region and of the light chain variable region as well as of the heavy chain constant region and of the light chain constant region are preferably encoded by the RNA according to the present invention as described herein. In Table 4 a variable region of, for example, "1-119" means that amino acids 1-119 of the respective amino acid sequence ("Protein SEQ ID NO") form the variable region. The first column identifies whether the amino acid sequence ("Protein SEQ ID NO") is of the heavy chain or of the light chain. Accordingly, the skilled person can easily identify the heavy chain variable region, the light chain variable region as well as the heavy chain constant region and the light chain constant region of the exemplified antibodies based on the information in Table 4. Moreover, on basis of that information on amino acid sequence level, the skilled person can easily identify the corresponding RNA sequence fragments (i.e. the RNA sequences encoding the heavy chain/light chain constant region/variable region respectively), in particular by using the RNA sequences shown in Table 3 corresponding to the antibody of interest's amino acid sequence.

Table 4: Variable regions and constant regions of exemplified antibodies

Name	Protein SEQ ID NO	Variable Region	Constant Region
AAB-003_gamma1-Chain	1	1-119	120-449
Abagovomab_HeavyChain	2	1-119	120-443
Abagovomab_LightChain	3	1-107	108-214
Abciximab_HeavyChain	4	1-119	120-450
Abciximab_LightChain	5	1-107	108-214
Abituzumab_HeavyChain1	6	1-118	119-447
Abituzumab_LightChain1	7	1-107	108-214
Abrilumab_HeavyChain1	8	1-118	119-444
Abrilumab_LightChain1	9	1-107	108-214
Abrilumab_LightChain1_variant2	10	1-106	107-213
Actoxumab_HeavyChain1	11	1-119	120-449
Actoxumab_LightChain1	12	1-108	109-215
Adalimumab_HeavyChain	13	1-121	122-224
Adalimumab_LightChain	14	1-107	108-214
Aducanumab_HeavyChain1	15	1-124	125-453
Aducanumab_LightChain1	16	1-107	108-214
Afasevikumab_HeavyChain1	17	1-123	124-453
Afasevikumab_LightChain1	18	1-108	109-215
Aflibercept_Fusion_protein1	19	1-120	121-431
Afutuzuab_HeavyChain1	20	1-117	118-444
Afutuzuab_LightChain1	21	1-110	111-217
Afutuzumab_HeavyChain1	22	1-119	120-449
Afutuzumab_LightChain1	23	1-112	113-219
Alacizumab_pegol_HeavyChain1	24	1-115	116-228
Alacizumab_pegol_LightChain1	25	1-107	108-214
Alemtuzumab_HeavyChain	26	1-121	122-451
Alemtuzumab_HeavyChain_variant_1bey_H	27	1-121	122-219
Alemtuzumab_HeavyChain_variant_1ce1_H	28	1-121	122-220
Alemtuzumab_HeavyChain_variant_8005_H	29	1-121	122-437
Alemtuzumab_LightChain	30	1-107	108-211
Alemtuzumab_LightChain_variant_8005_L	31	1-107	108-214

Name	Protein SEQ ID NO	Variable Region	Constant Region
Alirocumab_HeavyChain1	32	1-118	119-447
Alirocumab_LightChain1	33	1-113	114-220
ALX-0061_HeavyChain1	34	1-121	122-245
Amatuximab_HeavyChain1	35	1-119	120-449
Amatuximab_LightChain1	36	1-106	107-213
Anetumab_ravtansine_HeavyChain1	37	1-120	121-450
Anetumab_ravtansine_LightChain1	38	1-111	112-217
Anifrolumab_HeavyChain1	39	1-117	118-447
Anifrolumab_LightChain1	40	1-108	109-215
Anrukinzumab_HeavyChain1	41	1-118	119-448
Anrukinzumab_LightChain1	42	1-111	112-218
Apolizumab_HeavyChain1	43	1-107	108-214
Apolizumab_LightChain1	44	1-116	117-446
Apomab_HeavyChain	45	1-120	121-126
Apomab_LightChain	46	1-108	109-108
Aquaporumab_LightChain	47	1-108	109-215
Arcitumomab_99tc_HeavyChain	48	1-121	122-442
Arcitumomab_99tc_LightChain	49	1-106	107-213
Ascrinvacumab_HeavyChain1	50	1-118	119-443
Ascrinvacumab_LightChain1	51	1-108	109-215
Aselizuab_HeavyChain1	52	1-114	115-438
Aselizuab_HeavyChain2	53	1-114	115-437
Aselizuab_LightChain1	54	1-109	110-216
Atezolizumab_HeavyChain1	55	1-118	119-448
Atezolizumab_LightChain1	56	1-107	108-214
Atinumab_HeavyChain1	57	1-114	115-441
Atinumab_LightChain1	58	1-107	108-214
Atlizuab_HeavyChain1	59	1-116	117-443
Atlizuab_LightChain1	60	1-106	107-213
Aurograb_SingleChain	61	1-123	124-264
Avelumab_HeavyChain1	62	1-120	121-450
Avelumab_LightChain1	63	1-110	111-216

Name	Protein SEQ ID NO	Variable Region	Constant Region
Bapineuzumab_HeavyChainl	64	1-112	113-219
Bapineuzumab_LightChainl	65	1-119	120-448
Basiliximab_HeavyChain	66	1-115	116-446
Basiliximab_LightChain	67	1-104	105-210
Bavituximab_HeavyChain	68	1-120	121-450
Bavituximab_LightChain	69	1-107	108-214
Bavituximab_LightChain_variant_8734_L	70	1-107	108-208
Begelomab_HeavyChainl	71	1-120	121-456
Begelomab_LightChainl	72	1-106	107-213
Benralizumab_HeavyChainl	73	1-121	122-451
Benralizumab_LightChainl	74	1-107	108-214
Betalutin_HeavyChainl	75	1-107	108-214
Betalutin_LightChainl	76	1-119	120-443
Bevacituzuab_HeavyChainl	77	1-121	122-448
Bevacituzuab_LightChainl	78	1-106	107-213
Bevacizumab_154-aspartic_acid_LightChain	79	1-107	108-213
Bevacizumab_154-substitution_deriv_LightChain	80	1-107	108-213
Bevacizumab_180-serine_HeavyChain	81	1-123	124-224
Bevacizumab_180-substitution_deriv_HeavyCahin	82	1-123	124-224
Bevacizumab_beta_HeavyChainl	83	1-123	124-453
Bevacizumab_beta_LightChainl	84	1-107	108-214
Bevacizumab_FcDomain	85	1-120	121-229
Bevacizumab_HeavyChain	86	1-123	124-224
Bevacizumab_HeavyChain_variantl	87	1-112	113-476
Bevacizumab_HeavyChain_V-Region	88	1-123	124-123
Bevacizumab_LightChainl	89	1-132	133-239
Bevacizumab_LightChain2	90	1-130	131-237
Bevacizumab_LightChain	91	1-107	108-214
Bevacizumab_LightChain_VJ-Region	92	1-107	108-108
Bevacizumab_LightChain_V-Region	93	1-107	108-107
Bevacizumab-rhuMAb-VEGF_HeavyChain_gammal-Chain_VDJ-Region	94	1-123	124-123

Name	Protein SEQ ID NO	Variable Region	Constant Region
Bevacizumab-rhuMAb-VEGF_LightChain_VJ-Region	95	1-107	108-107
Bevacizumab_gamma1-Chain	96	1-123	124-447
Bevacizumab_gamma1-Chain_CH3-Region_mutein	97	1-123	124-453
Bezlotoxumab_HeavyChain1	98	1-119	120-449
Bezlotoxumab_LightChain1	99	1-108	109-215
Bimagrumab_HeavyChain1	100	1-115	116-445
Bimagrumab_HeavyChain	101	1-115	116-444
Bimagrumab_LightChain1	102	1-111	112-217
Bimekizumab_HeavyChain1	103	1-125	126-455
Bimekizumab_LightChain1	104	1-107	108-214
Bleselumab_HeavyChain1	105	1-121	122-448
Bleselumab_LightChain1	106	1-106	107-213
Blinatumomab_HeavyChain1	107	1-111	112-504
Blinatumomab_SingleChain	108	1-111	112-505
Blinatumumab_SingleChain_variable_fragment_fusion_protein_(bite)	109	1-111	112-504
Blontuvetmab_HeavyChain	110	1-113	114-448
Blontuvetmab_LightChain	111	1-113	114-219
Blosozumab_HeavyChain1	112	1-118	119-444
Blosozumab_LightChain1	113	1-107	108-214
Bococizumab_HeavyChain1	114	1-118	119-444
Bococizumab_LightChain1	115	1-107	108-214
Brentuximab_vedotin_HeavyChain1	116	1-117	118-446
Brentuximab_vedotin_LightChain1	117	1-111	112-218
Briakinumab_HeavyChain1	118	1-115	116-445
Briakinumab_LightChain1	119	1-111	112-217
Brodalumab_HeavyChain1	120	1-116	117-442
Brodalumab_LightChain1	121	1-107	108-214
Brolucizumab_HeavyChain1	122	1-110	111-252
Brolucizumab_scFv_fragment	123	1-110	111-252
Brontictuzumab_HeavyChain1	124	1-121	122-447
Brontictuzumab_LightChain1	125	1-109	110-215

Name	Protein SEQ ID NO	Variable Region	Constant Region
BTT-1023_HeavyChain1	126	1-117	118-444
BTT-1023_LightChain1	127	1-107	108-214
Burosumab_HeavyChain1	128	1-106	107-213
Burosumab_LightChain1	129	1-117	118-447
Canakinumab_HeavyChain1	130	1-119	120-455
Canakinumab_HeavyChain	131	1-118	119-448
Canakinumab_LightChain1	132	1-108	109-217
Canakinumab_LightChain	133	1-107	108-214
Canakinumab_LightChain_variant_8836_L	134	1-118	119-394
Cantuzumab_HeavyChain1	135	1-69	70-399
Cantuzumab_HeavyChain	136	1-119	120-449
Cantuzumab_LightChain1	137	1-112	113-219
Cantuzumab_mertansine_HeavyChain1	138	1-112	113-219
Cantuzumab_mertansine_LightChain1	139	1-119	120-448
Cantuzumab_ravtansine_HeavyChain1	140	1-119	120-449
Cantuzumab_ravtansine_LightChain1	141	1-112	113-219
Caplacizumab	142	1-120	121-259
Caplacizumab_HeavyChain1	143	1-120	121-259
Caplacizumab_HeavyChain1	144	1-120	121-259
Carlumab_HeavyChain1	145	1-119	120-449
Carlumab_LightChain1	146	1-109	110-216
Cergutuzumab_amunaleukin_HeavyChain1	147	1-121	122-451
Cergutuzumab_amunaleukin_HeavyChain2	148	1-121	122-599
Cergutuzumab_amunaleukin_LightChain1	149	1-108	109-215
Certolizumab_pegol_HeavyChain1	150	1-118	119-229
Certolizumab_pegol_HeavyChain	151	1-107	108-214
Certolizumab_pegol_LightChain1	152	1-107	108-214
Certolizumab_pegol_LightChain	153	1-118	119-229
Cetuximab_HeavyChain	154	1-119	120-452
Cetuximab_HeavyChain_variant	155	1-119	120-449
Cetuximab_LightChain	156	1-107	108-213
Cetuximab_LightChain_variant	157	1-107	108-214

Name	Protein SEQ ID NO	Variable Region	Constant Region
Citatuzumab_bogatox_HeavyChain1	158	1-122	123-225
Citatuzumab_bogatox_LightChain1	159	1-112	113-481
Cixutumumab_HeavyChain1	160	1-130	131-460
Cixutumumab_LightChain1	161	1-108	109-214
Clazakizumab_HeavyChain1	162	1-120	121-450
Clazakizumab_LightChain1	163	1-110	111-217
Clivatuzumab_tetraxetan_HeavyChain1	164	1-119	120-449
Clivatuzumab_tetraxetan_LightChain1	165	1-108	109-215
Codrituzumab_HeavyChain1	166	1-115	116-445
Codrituzumab_LightChain1	167	1-112	113-219
Coltuximab_ravtansine_HeavyChain1	168	1-120	121-450
Coltuximab_ravtansine_LightChain1	169	1-104	105-211
Conatumumab_CV_HeavyChain	170	1-123	124-458
Conatumumab_CV_LightChain	171	1-109	110-218
Conatumumab_HeavyChain1	172	1-122	123-452
Conatumumab_HeavyChain	173	1-122	123-452
Conatumumab_LightChain1	174	1-108	109-215
Conatumumab_LightChain	175	1-108	109-215
Concizumab_HeavyChain1	176	1-121	122-448
Concizumab_LightChain1	177	1-112	113-219
Crenezumab_HeavyChain1	178	1-112	113-438
Crenezumab_LightChain1	179	1-112	113-219
Crotedumab_HeavyChain1	180	1-107	108-214
Crotedumab_HeavyChain2	181	1-107	108-214
Crotedumab_LightChain1	182	1-128	129-455
Crotedumab_LightChain2	183	1-128	129-455
Dacetuzumab_HeavyChain1	184	1-114	115-444
Dacetuzumab_LightChain1	185	1-112	113-219
Dacliximab_LightChain_VJ-Region	186	1-106	107-106
Dacliximab_gamma2-Chain_VDJ-Region	187	1-116	117-116
Daclizumab_HeavyChain	188	1-116	117-442
Daclizumab_LightChain	189	1-106	107-210

Name	Protein SEQ ID NO	Variable Region	Constant Region
Dalotuzumab_HeavyChain1	190	1-117	118-447
Dalotuzumab_LightChain1	191	1-112	113-219
Dapirolizumab_pegol_HeavyChain1	192	1-118	119-229
Dapirolizumab_pegol_LightChain1	193	1-107	108-214
Daratumumab_HeavyChain1	194	1-122	123-452
Daratumumab_LightChain1	195	1-107	108-214
Dectrekumab_HeavyChain1	196	1-120	121-450
Dectrekumab_LightChain1	197	1-109	110-216
Demcizumab_HeavyChain1	198	1-119	120-444
Demcizumab_LightChain1	199	1-111	112-218
Denintuzumab_mafodotin_HeavyChain1	200	1-120	121-450
Denintuzumab_mafodotin_LightChain1	201	1-106	107-213
Denosumab_HeavyChain	202	1-122	123-452
Denosumab_LightChain	203	1-108	109-215
Depatuxizumab_HeavyChain1	204	1-107	108-214
Depatuxizumab_LightChain1	205	1-116	117-446
Depatuxizumab_mafodotin_HeavyChain1	206	1-107	108-214
Depatuxizumab_mafodotin_LightChain1	207	1-116	117-446
Dinutuximab_beta_HeavyChain1	208	1-113	114-443
Dinutuximab_beta_LightChain1	209	1-113	114-221
Dinutuximab_HeavyChain1	210	1-113	114-443
Dinutuximab_LightChain1	211	1-113	114-221
Dinutuximab_LightChain	212	1-113	114-220
Diridavumab_HeavyChain1	213	1-121	122-450
Diridavumab_LightChain1	214	1-111	112-217
Domagrozumab_HeavyChain1	215	1-116	117-446
Domagrozumab_HeavyChain	216	1-116	117-445
Domagrozumab_LightChain1	217	1-107	108-214
Drozituab_HeavyChain1	218	1-119	120-445
Drozituab_LightChain1	219	1-107	108-213
Drozitumab_HeavyChain1	220	1-121	122-451
Drozitumab_LightChain1	221	1-107	108-213

Name	Protein SEQ ID NO	Variable Region	Constant Region
Duligotumab_HeavyChain1	222	1-121	122-451
Duligotumab_LightChain1	223	1-107	108-214
Duligotuzumab_HeavyChain1	224	1-121	122-451
Duligotuzumab_LightChain1	225	1-107	108-214
Dupilumab_HeavyChain1	226	1-125	126-451
Dupilumab_LightChain1	227	1-112	113-219
Durvalumab_HeavyChain1	228	1-121	122-451
Durvalumab_LightChain1	229	1-108	109-215
Dusigitumab_HeavyChain1	230	1-120	121-446
Dusigitumab_LightChain1	231	1-111	112-217
Ecromeximab_HeavyChain1	232	1-107	108-214
Ecromeximab_LightChain1	233	1-119	120-449
Eculizumab_HeavyChain1	234	1-107	108-214
Eculizumab_LightChain1	235	1-121	122-447
Efalizumab_HeavyChain	236	1-125	126-125
Efalizumab_LightChain	237	1-108	109-108
Efungumab_SingleChain_variable_fragment	238	1-122	123-256
Eldelumab_HeavyChain1	239	1-124	125-454
Eldelumab_LightChain1	240	1-109	110-216
Elgemtumab_HeavyChain1	241	1-117	118-447
Elgemtumab_LightChain1	242	1-107	108-214
Elotuzumab_HeavyChain1	243	1-119	120-449
Elotuzumab_LightChain1	244	1-107	108-214
Emactuzumab_HeavyChain1	245	1-116	117-446
Emactuzumab_LightChain1	246	1-106	107-213
Emibetuzumab_HeavyChain1	247	1-115	116-441
Emibetuzumab_LightChain1	248	1-108	109-215
Emicizumab_HeavyChain1	249	1-123	124-448
Emicizumab_HeavyChain2	250	1-119	120-444
Emicizumab_LightChain1	251	1-107	108-214
Enavatuzumab_HeavyChain1	252	1-119	120-449
Enavatuzumab_LightChain1	253	1-111	112-218

Name	Protein SEQ ID NO	Variable Region	Constant Region
Enfortumab_HeavyChain	254	1-117	118-447
Enfortumab_LightChain	255	1-107	108-214
Enfortumab_vedotin_HeavyChain1	256	1-117	118-447
Enfortumab_vedotin_LightChain1	257	1-107	108-214
Enoblituzumab_HeavyChain	258	1-122	123-452
Enoblituzumab_LightChain	259	1-107	108-214
Enokizumab_HeavyChain1	260	1-122	123-452
Enokizumab_LightChain1	261	1-107	108-214
Enokizumab_LightChain	262	1-107	108-204
Enoticumab_HeavyChain1	263	1-123	124-452
Enoticumab_LightChain1	264	1-107	108-214
Ensituximab_HeavyChain1	265	1-113	114-443
Ensituximab_LightChain1	266	1-106	107-213
Ensituximab_SingleChain_variable_fragment	267	1-122	123-256
Entolimod_chain1	268	1-120	121-329
Epratuzumab_HeavyChain	269	1-116	117-446
Epratuzumab_LightChain	270	1-112	113-219
Eptacog_beta_HeavyChain1	271	1-120	121-255
Eptacog_beta_LightChain1	272	1-107	108-152
Erlizuab_HeavyChain1	273	1-119	120-236
Erlizuab_LightChain1	274	1-106	107-213
Etaracizumab_HeavyChain1	275	1-117	118-447
Etaracizumab_LightChain1	276	1-107	108-214
Etrolizuab_HeavyChain1	277	1-116	117-442
Etrolizuab_HeavyChain2	278	1-116	117-442
Etrolizuab_LightChain1	279	1-106	107-213
Etrolizumab_HeavyChain1	280	1-117	118-446
Etrolizumab_LightChain1	281	1-107	108-214
Evinacumab_HeavyChain1	282	1-126	127-453
Evinacumab_LightChain1	283	1-107	108-214
Evolocumab_HeavyChain1	284	1-115	116-441
Evolocumab_LightChain1	285	1-109	110-215

Name	Protein SEQ ID NO	Variable Region	Constant Region
Exbivirumab_HeavyChain1	286	1-121	122-451
Exbivirumab_LightChain1	287	1-108	109-214
Farletuzumab_HeavyChain1	288	1-119	120-449
Farletuzumab_LightChain1	289	1-110	111-217
Fasinumab_HeavyChain1	290	1-119	120-446
Fasinumab_LightChain1	291	1-107	108-214
Fezakinumab_HeavyChain1	292	1-121	122-450
Fezakinumab_LightChain1	293	1-111	112-217
FG-3019_HeavyChain1	294	1-107	108-214
FG-3019_LightChain1	295	1-120	121-449
Fibatuzumab_HeavyChain1	296	1-118	119-448
Fibatuzumab_LightChain1	297	1-107	108-214
Ficlatuzumab_HeavyChain1	298	1-118	119-448
Ficlatuzumab_HeavyChain	299	1-117	118-447
Ficlatuzumab_LightChain1	300	1-107	108-214
Figitumumab_HeavyChain1	301	1-125	126-450
Figitumumab_LightChain1	302	1-107	108-214
Firivumab_HeavyChain1	303	1-123	124-453
Firivumab_LightChain1	304	1-107	108-214
Flanvotumab_HeavyChain1	305	1-119	120-449
Flanvotumab_LightChain1	306	1-108	109-215
Fletikumab_HeavyChain1	307	1-127	128-454
Fletikumab_LightChain1	308	1-107	108-214
Fontolizumab_HeavyChain1	309	1-107	108-214
Fontolizumab_LightChain1	310	1-117	118-447
Foralumab_HeavyChain1	311	1-118	119-448
Foralumab_LightChain1	312	1-108	109-215
Foravirumab_HeavyChain1	313	1-119	120-448
Foravirumab_HeavyChain	314	1-119	120-448
Foravirumab_LightChain1	315	1-107	108-214
Fresolimumab_HeavyChain1	316	1-120	121-447
Fresolimumab_LightChain1	317	1-108	109-215

Name	Protein SEQ ID NO	Variable Region	Constant Region
Fulranumab_HeavyChain1	318	1-123	124-449
Fulranumab_LightChain1	319	1-107	108-214
Futuximab_HeavyChain1	320	1-123	124-452
Futuximab_LightChain1	321	1-107	108-214
Galcanezumab_HeavyChain1	322	1-119	120-445
Galcanezumab_LightChain1	323	1-107	108-214
Galiximab_HeavyChain1	324	1-110	111-216
Galiximab_LightChain1	325	1-127	128-457
Ganitumab_HeavyChain1	326	1-119	120-449
Ganitumab_LightChain1	327	1-112	113-219
Gantenerumab_HeavyChain1	328	1-126	127-456
Gantenerumab_LightChain1	329	1-108	109-215
Gemtuzumab_HeavyChain1	330	1-116	117-116
Gemtuzumab_HeavyChain2	331	1-117	118-117
Gemtuzumab_LightChain2	332	1-107	108-107
Gemtuzumab_ozogamicin_LightChain1	333	1-106	107-106
Gevokizumab_HeavyChain1	334	1-120	121-445
Gevokizumab_LightChain1	335	1-107	108-214
Girentuximab_HeavyChain1	336	1-119	120-449
Girentuximab_LightChain1	337	1-107	108-214
Glembatumumab_HeavyChain1	338	1-119	120-445
Glembatumumab_LightChain1	339	1-108	109-215
Goilixiab_HeavyChain1	340	1-116	117-444
Goilixiab_LightChain1	341	1-106	107-213
Guselkumab_HeavyChain1	342	1-117	118-446
Guselkumab_LightChain1	343	1-111	112-217
HuMab-001_HeavyChain_VDJ-Region	344	1-120	121-120
HuMab-001_LightChain_VJ-Region	345	1-107	108-107
HuMab-005_HeavyChain_gamma-Chain_VDJ-Region	346	1-122	123-122
HuMab-005_LightChain_VJ-Region	347	1-107	108-107
HuMab-006_HeavyChain_VDJ-Region	348	1-119	120-119
HuMab-006_LightChain_VJ-Region	349	1-108	109-108

Name	Protein SEQ ID NO	Variable Region	Constant Region
HuMab-019_HeavyChain_VDJ-Region	350	1-120	121-120
HuMab-021_HeavyChain_VDJ-Region	351	1-120	121-120
HuMab-021_LightChain_VJ-Region	352	1-107	108-107
HuMab-025_HeavyChain_VDJ-Region	353	1-120	121-120
HuMab-025_LightChain_VJ-Region	354	1-107	108-107
HuMab-027_HeavyChain_VDJ-Region	355	1-120	121-120
HuMab-032_HeavyChain_VDJ-Region	356	1-120	121-120
HuMab-032_LightChain_VJ-Region	357	1-107	108-107
HuMab-033_HeavyChain_VDJ-Region	358	1-121	122-121
HuMab-035_HeavyChain_VDJ-Region	359	1-120	121-120
HuMab-036_HeavyChain_VDJ-Region	360	1-120	121-120
HuMab-036_LightChain_VJ-Region	361	1-107	108-107
HuMab-041_HeavyChain_VDJ-Region	362	1-122	123-122
HuMab-044_HeavyChain_VDJ-Region	363	1-122	123-122
HuMab-049_HeavyChain_VDJ-Region	364	1-119	120-119
HuMab-049_LightChain_VJ-Region	365	1-107	108-107
HuMab-050_HeavyChain_VDJ-Region	366	1-119	120-119
HuMab-050_LightChain_VJ-Region	367	1-107	108-107
HuMab-054_HeavyChain_VDJ-Region	368	1-120	121-120
HuMab-054_LightChain_VJ-Region	369	1-107	108-107
HuMab-055_HeavyChain_VDJ-Region	370	1-119	120-119
HuMab-059_HeavyChain_VDJ-Region	371	1-122	123-122
HuMab-059_LightChain_VJ-Region	372	1-108	109-108
HuMab-060_HeavyChain_VDJ-Region	373	1-122	123-122
HuMab-060_LightChain_VJ-Region	374	1-109	110-109
HuMab-067_HeavyChain_VDJ-Region	375	1-122	123-122
HuMab-072_HeavyChain_VDJ-Region	376	1-122	123-122
HuMab-072_LightChain_VJ-Region	377	1-109	110-109
HuMab-084_HeavyChain_VDJ-Region	378	1-121	122-121
HuMab-084_LightChain_VJ-Region	379	1-107	108-107
HuMab-091_HeavyChain_VDJ-Region	380	1-120	121-120
HuMab-091_LightChain_VJ-Region	381	1-107	108-107

Name	Protein SEQ ID NO	Variable Region	Constant Region
HuMab-093_HeavyChain_VDJ-Region	382	1-122	123-122
HuMab-098_HeavyChain_VDJ-Region	383	1-124	125-124
HuMab-098_LightChain_VJ-Region	384	1-107	108-107
HuMab-100_HeavyChain_VDJ-Region	385	1-124	125-124
HuMab-106_HeavyChain_VDJ-Region	386	1-124	125-124
HuMab-106_LightChain_VJ-Region	387	1-107	108-107
HuMab_10F8_HeavyChain_V-Region	388	1-117	118-117
HuMab_10F8_HeavyChain_V-Region_Precursor	389	1-136	137-136
HuMab_10F8_LightChain_V-Region	390	1-107	108-107
HuMab_10F8_LightChain_V-Region_Precursor	391	1-127	128-127
HuMab-111_HeavyChain_VDJ-Region	392	1-119	120-119
HuMab-111_LightChain_VJ-Region	393	1-107	108-107
HuMab-123_HeavyChain_VDJ-Region	394	1-121	122-121
HuMab-123_LightChain_VJ-Region	395	1-107	108-107
HuMab-124_HeavyChain_VDJ-Region	396	1-121	122-121
HuMab-125_HeavyChain_VDJ-Region	397	1-124	125-124
HuMab-125_LightChain_VJ-Region	398	1-107	108-107
HuMab-127_HeavyChain_VDJ-Region	399	1-123	124-123
HuMab-127_LightChain_VJ-Region	400	1-107	108-107
HuMab-129_HeavyChain_VDJ-Region	401	1-119	120-119
HuMab-129_LightChain_VJ-Region	402	1-106	107-106
HuMab-132_HeavyChain_VDJ-Region	403	1-125	126-125
HuMab-132_LightChain_VJ-Region	404	1-108	109-108
HuMab-143_HeavyChain_VDJ-Region	405	1-120	121-120
HuMab-143_LightChain_VJ-Region	406	1-107	108-107
HuMab-150_HeavyChain_VDJ-Region	407	1-122	123-122
HuMab-150_LightChain_VJ-Region	408	1-107	108-107
HuMab-152_HeavyChain_VDJ-Region	409	1-121	122-121
HuMab-152_LightChain_VJ-Region	410	1-107	108-107
HuMab-153_HeavyChain_VDJ-Region	411	1-121	122-121
HuMab-153_LightChain_VJ-Region	412	1-107	108-107
HuMab-159_HeavyChain_VDJ-Region	413	1-126	127-126

Name	Protein SEQ ID NO	Variable Region	Constant Region
HuMab-159_LightChain_VJ-Region	414	1-107	108-107
HuMab-160_HeavyChain_VDJ-Region	415	1-121	122-121
HuMab-160_LightChain_VJ-Region	416	1-107	108-107
HuMab-162_HeavyChain_VDJ-Region	417	1-124	125-124
HuMab-162_LightChain_VJ-Region	418	1-107	108-107
HuMab-163_HeavyChain_VDJ-Region	419	1-122	123-122
HuMab-163_LightChain_VJ-Region	420	1-107	108-107
HuMab-166_HeavyChain_VDJ-Region	421	1-121	122-121
HuMab-166_LightChain_VJ-Region	422	1-107	108-107
HuMab-167_HeavyChain_VDJ-Region	423	1-121	122-121
HuMab-169_HeavyChain_VDJ-Region	424	1-121	122-121
HuMab-169_LightChain_VJ-Region	425	1-107	108-107
HuMab-7D8_HeavyChain_VH-Region	426	1-122	123-122
HuMab-7D8_HeavyChain_V-Region	427	1-122	123-122
HuMab-7D8_LightChain_VL-Region	428	1-107	108-107
HuMab-7D8_LightChain_V-Region	429	1-107	108-107
huMAb-anti-MSP10.1_LightChain_VJ-Region	430	1-108	109-108
huMAb-anti-MSP10.2_LightChain_VJ-Region	431	1-108	109-108
HUMAB-Clone_18_VJ-Region	432	1-108	109-108
HUMAB-Clone_22_VJ-Region	433	1-108	109-108
HuMab-L612_μChain_VDJ-Region_Precursor	434	1-139	140-144
HuMab_LC5002-002_LightChain_V-Region	435	1-107	108-107
HuMab_LC5002-002_gamma1-Chain_V-Region	436	1-119	120-119
HuMab_LC5002-003_LightChain_V-Region	437	1-107	108-107
HuMab_LC5002-003_gamma1-Chain_V-Region	438	1-119	120-119
HuMab_LC5002-005_LightChain_V-Region	439	1-107	108-107
HuMab_LC5002-005_gamma1-Chain_V-Region	440	1-118	119-118
HuMab_LC5002-007_LightChain_V-Region	441	1-107	108-107
HuMab_LC5002-007_gamma1-Chain_V-Region	442	1-123	124-123
HuMab_LC5002-018_gamma1-Chain_V-Region	443	1-119	120-119
Ibalizumab_HeavyChain1	444	1-122	123-449
Ibalizumab_LightChain1	445	1-112	113-219

Name	Protein SEQ ID NO	Variable Region	Constant Region
Ibritumomab_tiuxetan_HeavyChain	446	1-122	123-443
Ibritumomab_tiuxetan_LightChain	447	1-106	107-209
Icrucumab_HeavyChain1	448	1-126	127-456
Icrucumab_LightChain1	449	1-108	109-215
Idarucizumab_HeavyChain1	450	1-122	123-225
Idarucizumab_LightChain1	451	1-112	113-219
Igatuzuab_HeavyChain1	452	1-120	121-444
Igatuzuab_LightChain1	453	1-105	106-212
IGF-1R_HUMAB-1A_HeavyChain	454	1-119	120-119
IGF-1R_HUMAB-23_HeavyChain	455	1-119	120-119
IGF-1R_HUMAB-23_LightChain	456	1-107	108-107
IGF-1R_HUMAB-8_HeavyChain	457	1-119	120-119
IGF-1R_HUMAB-8_LightChain	458	1-107	108-107
Imab1_LightChain	459	1-129	130-236
Imab1_gamma1-Chain	460	1-133	134-227
Imalumab_HeavyChain1	461	1-118	119-448
Imalumab_LightChain1	462	1-107	108-214
Imgatuzumab_HeavyChain1	463	1-120	121-449
Imgatuzumab_LightChain1	464	1-106	107-213
Inclacumab_HeavyChain1	465	1-124	125-451
Inclacumab_LightChain1	466	1-107	108-214
Indatuximab_ravtansine_HeavyChain1	467	1-122	123-449
Indatuximab_ravtansine_LightChain1	468	1-107	108-214
Indusatumab_vedotin_HeavyChain1	469	1-119	120-449
Indusatumab_vedotin_LightChain1	470	1-107	108-214
Inebilizumab_HeavyChain1	471	1-121	122-451
Inebilizumab_LightChain1	472	1-111	112-218
Insulin_peglispro_Fragment1	473	1-30	31-30
Insulin_peglispro_Fragment2	474	1-21	22-21
Interferon_beta-1b_chain1	475	1-120	121-165
Intetumumab_HeavyChain1	476	1-119	120-449
Intetumumab_LightChain1	477	1-108	109-215

Name	Protein SEQ ID NO	Variable Region	Constant Region
Iodine_(124I)_Girentuximab_HeavyChainI	478	1-119	120-449
Iodine_(124I)_Girentuximab_LightChainI	479	1-107	108-214
Iodine_(131I)_Derlotuxiab_biotin_HeavyChainI	480	1-117	118-445
Iodine_(131I)_Derlotuxiab_biotin_LightChainI	481	1-106	107-213
Iodine_(131I)_Derlotuximab_biotin_HeavyChainI	482	1-120	121-450
Iodine_(131I)_Derlotuximab_biotin_LightChainI	483	1-108	109-215
Ipilimumab_HeavyChain	484	1-118	119-448
Ipilimumab_LightChain	485	1-108	109-215
Iratumumab_HeavyChainI	486	1-107	108-107
Iratumumab_LightChainI	487	1-62	63-62
Isatuximab_HeavyChainI	488	1-120	121-450
Isatuximab_LightChainI	489	1-107	108-214
Itolizumab_HeavyChainI	490	1-119	120-449
Itolizumab_LightChainI	491	1-107	108-214
Ixekizumab_HeavyChainI	492	1-119	120-445
Ixekizumab_LightChainI	493	1-112	113-219
Labetuzumab_govitecan_HeavyChainI	494	1-119	120-449
Labetuzumab_govitecan_LightChainI	495	1-106	107-213
Lambrolizumab_HeavyChainI	496	1-120	121-447
Lambrolizumab_LightChainI	497	1-111	112-218
Lampalizumab_HeavyChainI	498	1-115	116-223
Lampalizumab_LightChainI	499	1-107	108-214
Lanadelumab_HeavyChainI	500	1-122	123-451
Lanadelumab_LightChainI	501	1-106	107-213
Landogrozumab_HeavyChainI	502	1-113	114-439
Landogrozumab_LightChainI	503	1-108	109-215
Laprituximab_emtansine_HeavyChainI	504	1-119	120-448
Laprituximab_emtansine_LightChainI	505	1-107	108-214
Lealesoab_HeavyChainI	506	1-119	120-438
Lealesoab_LightChainI	507	1-112	113-218
Lebrikizumab_HeavyChainI	508	1-120	121-445
Lebrikizumab_LightChainI	509	1-111	112-218

Name	Protein SEQ ID NO	Variable Region	Constant Region
Lenercept_chainI	510	1-120	121-409
Lenzilumab_HeavyChainI	511	1-119	120-449
Lenzilumab_LightChainI	512	1-107	108-214
Lerdelimumab_HeavyChainI	513	1-115	116-442
Lerdelimumab_LightChainI	514	1-109	110-215
Lexatumumab_HeavyChainI	515	1-122	123-457
Lexatumumab_HeavyChain	516	1-121	122-451
Lexatumumab_LightChainI	517	1-109	110-217
Lexatumumab_LightChain	518	1-108	109-214
Libivirumab_HeavyChainI	519	1-112	113-219
Libivirumab_LightChainI	520	1-129	130-459
Lifastuzumab_HeavyChain	521	1-120	121-450
Lifastuzumab_LightChain	522	1-112	113-219
Lifastuzumab_vedotin_HeavyChainI	523	1-119	120-449
Lifastuzumab_vedotin_LightChainI	524	1-112	113-219
Ligelizumab_HeavyChainI	525	1-123	124-453
Ligelizumab_LightChainI	526	1-107	108-214
Lilotomab_HeavyChainI	527	1-119	120-443
Lilotomab_LightChainI	528	1-107	108-214
Lintuzumab_HeavyChainI	529	1-111	112-218
Lintuzumab_LightChainI	530	1-116	117-446
Lirilumab_HeavyChainI	531	1-123	124-450
Lirilumab_LightChainI	532	1-107	108-214
Lodelcizumab_HeavyChainI	533	1-118	119-448
Lodelcizumab_LightChainI	534	1-106	107-213
Lokivetmab_HeavyChainI	535	1-118	119-452
Lokivetmab_LightChainI	536	1-111	112-217
Lorvotuzumab_mertansine_HeavyChainI	537	1-118	119-448
Lorvotuzumab_mertansine_LightChainI	538	1-112	113-219
Lpathomab_VL	539	1-112	113-112
Lpathomab_gammaI-Chain_VDJ-Region	540	1-122	123-122
Lucatumumab_HeavyChainI	541	1-120	121-450

Name	Protein SEQ ID NO	Variable Region	Constant Region
Lucatumumab_LightChain1	542	1-112	113-219
Lulizumab_pegol_LightChain1	543	1-109	110-109
Lulizumab_pegol_LightChain	544	1-108	109-108
Lumiliximab_HeavyChain1	545	1-107	108-214
Lumiliximab_LightChain1	546	1-68	69-398
Lumretuzumab_HeavyChain1	547	1-120	121-449
Lumretuzumab_LightChain1	548	1-113	114-221
Lutetium_(177Lu)_lilotomab_satetraxetan_HeavyChain1	549	1-119	120-443
Lutetium_(177Lu)_lilotomab_satetraxetan_LightChain1	550	1-107	108-214
Margetuximab_HeavyChain1	551	1-120	121-450
Margetuximab_LightChain1	552	1-107	108-214
Marzeptacog_alfa_HeavyChain1	553	1-120	121-254
Marzeptacog_alfa_LightChain1	554	1-107	108-152
Matuzumab_HeavyChain1_variant_3c08_H	555	1-121	122-223
Matuzumab_HeavyChain1_variant_3c09_C	556	1-121	122-223
Matuzumab_LightChain1_variant_3c08_L	557	1-106	107-212
Matuzumab_LightChain1_variant_3c09_B	558	1-106	107-212
Mavrilimumab_HeavyChain1	559	1-120	121-447
Mavrilimumab_LightChain1	560	1-111	112-217
MDX-1303_HeavyChain1	561	1-108	109-215
MDX-1303_LightChain1	562	1-123	124-453
Mepolizumab_HeavyChain1	563	1-113	114-220
Mepolizumab_LightChain1	564	1-119	120-449
Metelimumab_HeavyChain1	565	1-107	108-213
Metelimumab_LightChain1	566	1-123	124-450
Milatuzumab_HeavyChain1	567	1-120	121-450
Milatuzumab_LightChain1	568	1-112	113-219
Mirvetuximab_HeavyChain1	569	1-118	119-447
Mirvetuximab_LightChain1	570	1-111	112-218
Modotuximab_HeavyChain1	571	1-119	120-448
Modotuximab_LightChain1	572	1-112	113-219
Mogamulizumab_HeavyChain1	573	1-119	120-449

Name	Protein SEQ ID NO	Variable Region	Constant Region
Mogamulizumab_LightChain1	574	1-112	113-219
Monalizumab_HeavyChain1	575	1-125	126-452
Monalizumab_LightChain1	576	1-107	108-214
Motavizumab_HeavyChain	577	1-120	121-450
Motavizumab_HeavyChain_variant	578	1-120	121-450
Motavizumab_LightChain	579	1-106	107-213
Motavizumab_LightChain_variant	580	1-106	107-213
Moxetumomab_pasudotox_HeavyChain1	581	1-120	121-476
Moxetumomab_pasudotox_LightChain1	582	1-108	109-108
Muromonab-CD3_HeavyChain	583	1-119	120-450
Muromonab-CD3_LightChain	584	1-106	107-213
Namilumab_HeavyChain1	585	1-119	120-449
Namilumab_LightChain1	586	1-107	108-214
Naptumomab_estafenatox_HeavyChain	587	1-120	121-458
Naptumomab_estafenatox_LightChain	588	1-107	108-214
Narnatumab_HeavyChain1	589	1-122	123-452
Narnatumab_LightChain1	590	1-107	108-214
Natalizumab_HeavyChain1	591	1-106	107-213
Natalizumab_LightChain1	592	1-123	124-450
Navicixizumab_HeavyChain1	593	1-119	120-445
Navicixizumab_HeavyChain2	594	1-121	122-447
Navicixizumab_LightChain1	595	1-111	112-218
Navivumab_HeavyChain1	596	1-126	127-456
Navivumab_LightChain1	597	1-108	109-215
Ndimab-varB_HeavyChain	598	1-126	127-724
Ndimab-varB_LightChain	599	1-108	109-215
Necitumumab_HeavyChain1	600	1-121	122-451
Necitumumab_LightChain1	601	1-107	108-214
Neliximab_HeavyChain_VH-Region	602	1-124	125-132
Neliximab_HeavyChain_VH-Region_variant1	603	1-124	125-124
Neliximab_LightChain_VL-Region	604	1-106	107-106
Neliximab_LightChain_VL-Region_variant1	605	1-106	107-118

Name	Protein SEQ ID NO	Variable Region	Constant Region
Nemolizumab_HeavyChain1	606	1-121	122-445
Nemolizumab_LightChain1	607	1-107	108-214
Nesvacumab_HeavyChain1	608	1-122	123-452
Nesvacumab_LightChain1	609	1-107	108-214
Neuradiab_HeavyChain1	610	1-112	113-219
Neuradiab_LightChain1	611	1-118	119-454
Nimotuzumab_HeavyChain1	612	1-114	115-114
Nimotuzumab_LightChain1	613	1-123	124-123
Nivolumab_HeavyChain1	614	1-113	114-440
Nivolumab_LightChain1	615	1-107	108-214
Obiltoxaximab_HeavyChain1	616	1-119	120-449
Obiltoxaximab_LightChain1	617	1-107	108-214
Obinutuzumab_HeavyChain1	618	1-119	120-449
Obinutuzumab_LightChain1	619	1-112	113-219
Ocaratuzumab_HeavyChain1	620	1-121	122-450
Ocaratuzumab_LightChain1	621	1-106	107-213
Ocrelizumab_HeavyChain1	622	1-106	107-213
Ocrelizumab_LightChain1	623	1-122	123-452
Ofatumumab_HeavyChain1	624	1-107	108-214
Ofatumumab_LightChain1	625	1-122	123-452
Olaratumab_HeavyChain1	626	1-127	128-457
Olaratumab_LightChain1	627	1-107	108-214
Olizuab_HeavyChain1	628	1-120	121-447
Olizuab_LightChain1	629	1-110	111-217
Olokizumab_HeavyChain1	630	1-120	121-447
Olokizumab_LightChain1	631	1-107	108-214
Omalizumab_HeavyChain	632	1-121	122-447
Omalizumab_LightChain	633	1-111	112-215
Onartuzumab_HeavyChain1	634	1-119	120-449
Onartuzumab_HeavyChain2	635	1-120	121-227
Onartuzumab_LightChain1	636	1-113	114-220
Ontuxizumab_HeavyChain1	637	1-124	125-454

Name	Protein SEQ ID NO	Variable Region	Constant Region
Ontuxizumab_LightChain1	638	1-108	109-215
Opicinumab_HeavyChain1	639	1-118	119-447
Opicinumab_LightChain1	640	1-108	109-215
Oportuzumab_monatox_HeavyChain1	641	1-118	119-648
Oportuzumab_monatox_SingleChain_variable_fragment	642	1-118	119-647
Oreptacog_alfa_HeavyChain1	643	1-120	121-254
Oreptacog_alfa_LightChain1	644	1-107	108-152
Orticumab_HeavyChain1	645	1-121	122-451
Orticumab_LightChain1	646	1-110	111-216
Otelixizumab_HeavyChain1	647	1-119	120-449
Otelixizumab_LightChain1	648	1-110	111-216
Otlertuzumab_HeavyChain1	649	1-116	117-483
Oxelumab_HeavyChain1	650	1-120	121-449
Oxelumab_LightChain1	651	1-107	108-214
Ozanezumab_HeavyChain1	652	1-113	114-443
Ozanezumab_LightChain1	653	1-112	113-219
Ozoralizumab_HeavyChain1	654	1-115	116-363
Palivizumab_HeavyChain	655	1-120	121-450
Palivizumab_LightChain	656	1-106	107-213
Palivizumab_VH-Region	657	1-120	121-120
Pamrevlumab_HeavyChain1	658	1-120	121-449
Pamrevlumab_LightChain1	659	1-107	108-214
Panitumumab_HeavyChain1	660	1-107	108-214
Panitumumab_LightChain1	661	1-119	120-435
Pankoab_HeavyChain1	662	1-114	115-442
Pankoab_LightChain1	663	1-110	111-217
Pankoab_LightChain2	664	1-110	111-217
PankoMab_HeavyChain_VDJ-Region	665	1-117	118-117
PankoMab_LightChain_VJ-Region	666	1-112	113-113
Panobacumab_HeavyChain1	667	1-116	117-570
Panobacumab_LightChain1	668	1-112	113-219
Panobacumab_LightChain2	669	1-120	121-138

Name	Protein SEQ ID NO	Variable Region	Constant Region
Parsatuzumab_HeavyChain1	670	1-123	124-453
Parsatuzumab_LightChain1	671	1-112	113-219
Pascolizumab_HeavyChain1	672	1-111	112-218
Pascolizumab_LightChain1	673	1-121	122-451
Pasotuxizumab_HeavyChain1	674	1-121	122-504
Pasotuxizumab_SingleChain	675	1-121	122-505
Pateclizumab_HeavyChain1	676	1-118	119-447
Pateclizumab_LightChain1	677	1-107	108-214
Patritumab_HeavyChain1	678	1-117	118-447
Patritumab_hinge-CH2-CH3	679	1-120	121-227
Patritumab_LightChain1	680	1-113	114-220
Pembrolizumab_HeavyChain1	681	1-120	121-447
Pembrolizumab_LightChain1	682	1-111	112-218
Perakizumab_HeavyChain1	683	1-122	123-452
Perakizumab_LightChain1	684	1-108	109-215
Pertuzuab_HeavyChain1	685	1-117	118-444
Pertuzuab_LightChain1	686	1-106	107-213
Pertuzumab_HeavyChain	687	1-107	108-214
Pertuzumab_LightChain	688	1-119	120-448
Pexelizumab_h5gl.1-scFv	689	1-111	112-250
Pexelizumab_h5gl.1VHC_+_F_Heavy_Chain_V-Region	690	1-115	116-115
Pexelizumab_h5gl.1VHC_+_F_Light_Chain_V-Region	691	1-106	107-106
PF-05082566_HeavyChain1	692	1-116	117-442
PF-05082568_LightChain1	693	1-108	109-214
Pidilizumab_HeavyChain1	694	1-117	118-447
Pidilizumab_LightChain1	695	1-106	107-213
Pinatuzumab_vedotin_HeavyChain1	696	1-120	121-450
Pinatuzumab_vedotin_LightChain1	697	1-112	113-219
Placulumab_chain1	698	1-107	108-341
Placulumab_HeavyChain1	699	1-107	108-341
Plozalizumab_HeavyChain1	700	1-117	118-447
Plozalizumab_LightChain1	701	1-112	113-219

Name	Protein SEQ ID NO	Variable Region	Constant Region
Pogalizumab_HeavyChain1	702	1-117	118-447
Pogalizumab_LightChain1	703	1-107	108-214
Polatuzumab_vedotin_HeavyChain1	704	1-117	118-447
Polatuzumab_vedotin_LightChain1	705	1-111	112-218
Ponezumab_HeavyChain1	706	1-116	117-442
Ponezumab_LightChain1	707	1-112	113-219
Pritoxaximab_HeavyChain1	708	1-122	123-454
Pritoxaximab_LightChain1	709	1-107	108-214
Pritumumab_HeavyChain1	710	1-107	108-214
Pritumumab_LightChain1	711	1-120	121-450
Quilizumab_HeavyChain1	712	1-117	118-447
Quilizumab_LightChain1	713	1-112	113-219
Racotumomab_HeavyChain1	714	1-121	122-445
Racotumomab_LightChain1	715	1-107	108-214
Racotumomab_scVH-VH'-VH_chain	716	1-115	116-363
Radretumab_HeavyChain1	717	1-116	117-357
Radretumab_j_chain	718	1-120	121-138
Rafivirumab_HeavyChain1	719	1-127	128-456
Rafivirumab_HeavyChain	720	1-127	128-456
Rafivirumab_LightChain1	721	1-112	113-218
Rafivirumab_LightChain	722	1-112	113-218
Ralpancizumab_HeavyChain1	723	1-118	119-444
Ralpancizumab_LightChain1	724	1-107	108-214
Ramucirumab_HeavyChain1	725	1-116	117-446
Ramucirumab_LightChain1	726	1-107	108-214
Ranibiziuab_HeavyChain1	727	1-121	122-229
Ranibiziuab_LightChain1	728	1-107	108-214
Ranibizumab_fab_fragment	729	1-107	108-213
Ranibizumab_HeavyChain	730	1-123	124-231
Ranibizumab_LightChain	731	1-123	124-218
Ranibizumab_LightChain_variant	732	1-107	108-214
Refanezumab_HeavyChain1	733	1-126	127-456

Name	Protein SEQ ID NO	Variable Region	Constant Region
Refanezumab_LightChain1	734	1-112	113-219
REGN2810_HeavyChain1	735	1-115	116-438
REGN2810_LightChain1	736	1-106	107-213
rhuMab_HER2(9C1)_LightChain	737	1-110	111-217
rhuMab_HER2_HeavyChain	738	1-74	75-405
rhuMab_HER2_LightChain	739	1-107	108-214
rhuMab_HER2_LightChain_variant1	740	1-106	107-106
rhuMab_HER2_LightChain_variant2	741	1-107	108-214
rhuMab_HER2_LightChain_variant3	742	1-107	108-214
rhuMab_HER2_LightChain_variant4	743	1-108	109-215
rhuMab_HER2_LightChain_V-Region	744	1-107	108-107
rhuMab_HER2_gamma1-Chain	745	1-120	121-450
rhuMab_HER2_gamma1-Chain	746	1-120	121-450
rhuMab_HER2_gamma1-Chain_rhuMab_HER2_LightChain_sc4D5	747	1-120	121-243
rhuMab_HER2_gamma1-Chain_variant1	748	1-120	121-450
rhuMab_HER2_gamma1-Chain_variant2	749	1-120	121-450
rhuMab_HER2_gamma1-Chain_variant3	750	1-120	121-450
rhuMab_HER2_gamma1-Chain_V-Region	751	1-120	121-120
rhuMAb-VEGF_HeavyChain1	752	1-123	124-453
rhuMAb-VEGF_LightChain1	753	1-107	108-214
rhuMAb-VEGF_LightChain	754	1-107	108-214
rhuMAb-VEGF_LightChain_VG-Region	755	1-107	108-107
rhuMAb-VEGF_gamma1-Chain	756	1-123	124-453
rhuMAb-VEGF_gamma1-Chain_VDG-Region	757	1-123	124-123
Rilotumumab_HeavyChain1	758	1-120	121-446
Rilotumumab_LightChain1	759	1-108	109-215
Rilotumumab_scFv-CH_chain	760	1-116	117-357
Rinucumab_HeavyChain1	761	1-122	123-449
Rinucumab_HeavyChain	762	1-122	123-448
Rinucumab_LightChain1	763	1-108	109-215
Risankizumab_HeavyChain1	764	1-120	121-449
Risankizumab_LightChain1	765	1-107	108-214

Name	Protein SEQ ID NO	Variable Region	Constant Region
Rituximab_HeavyChain	766	1-121	122-451
Rituximab_HeavyChain_variant	767	1-121	122-451
Rituximab_LightChain	768	1-106	107-213
Rivabazumab_pegol_HeavyChainl	769	1-124	125-238
Rivabazumab_pegol_LightChainl	770	1-107	108-214
Robatumumab_HeavyChainl	771	1-118	119-448
Robatumumab_LightChainl	772	1-107	108-214
Roledumab_HeavyChainl	773	1-126	127-456
Roledumab_LightChainl	774	1-107	108-214
Romosozumab_fab_fragment	775	1-107	108-213
Romosozumab_HeavyChainl	776	1-123	124-449
Romosozumab_LightChainl	777	1-107	108-214
Rontalizuab_HeavyChainl	778	1-116	117-442
Rontalizuab_LightChainl	779	1-109	110-216
Rontalizumab_HeavyChainl	780	1-117	118-447
Rontalizumab_LightChainl	781	1-111	112-218
Rovalpituzumab_tesirine_HeavyChainl	782	1-118	119-447
Rovalpituzumab_tesirine_LightChainl	783	1-107	108-214
Rovelizumab_HeavyChainl	784	1-111	112-218
Rovelizumab_LightChainl	785	1-120	121-447
Ruplizumab_HeavyChainl	786	1-111	112-218
Ruplizumab_LightChainl	787	1-118	119-447
Sacituzumab_govitecan_HeavyChainl	788	1-121	122-451
Sacituzumab_govitecan_LightChainl	789	1-107	108-214
Samalizumab_HeavyChainl	790	1-117	118-442
Samalizumab_LightChainl	791	1-107	108-214
Sarilumab_HeavyChainl	792	1-116	117-446
Sarilumab_LightChainl	793	1-107	108-214
Satumomab_pendetide_HeavyChain	794	1-114	115-432
Satumomab_pendetide_LightChain	795	1-107	108-210
Secukinumab_HeavyChainl	796	1-127	128-457
Secukinumab_LightChainl	797	1-108	109-215

Name	Protein SEQ ID NO	Variable Region	Constant Region
Seribantumab_HeavyChain1	798	1-119	120-445
Seribantumab_LightChain1	799	1-111	112-217
Setoxaximab_HeavyChain1	800	1-121	122-451
Setoxaximab_LightChain1	801	1-113	114-220
Sifalimumab_HeavyChain1	802	1-116	117-446
Sifalimumab_LightChain1	803	1-108	109-215
Siltuximab_HeavyChain1	804	1-119	120-449
Siltuximab_LightChain1	805	1-106	107-213
Simtuzumab_HeavyChain1	806	1-116	117-443
Simtuzumab_LightChain1	807	1-112	113-219
Sirukumab_HeavyChain1	808	1-119	120-449
Sirukumab_LightChain1	809	1-106	107-213
Sofituzumab_vedotin_HeavyChain1	810	1-116	117-446
Sofituzumab_vedotin_LightChain1	811	1-107	108-214
Solanezumab_HeavyChain1	812	1-112	113-441
Solanezumab_HeavyChain	813	1-112	113-442
Solanezumab_LightChain1	814	1-112	113-219
Solitomab_HeavyChain1	815	1-113	114-502
Solitomab_SingleChain	816	1-113	114-503
Sonepcizumab_LightChain_Precursor	817	1-127	128-234
Sonepcizumab_gamma1-Chain_Precursor	818	1-140	141-455
Stamulumab_HeavyChain1	819	1-105	106-211
Stamulumab_LightChain1	820	1-117	118-446
Suptavumab_HeavyChain1	821	1-107	108-214
Suptavumab_LightChain1	822	1-123	124-452
Suvizumab_HeavyChain1	823	1-118	119-448
Suvizumab_LightChain1	824	1-113	114-220
Tabalumab_HeavyChain1	825	1-123	124-450
Tabalumab_LightChain1	826	1-107	108-214
Tacatuzuab_HeavyChain1	827	1-117	118-444
Tacatuzuab_LightChain1	828	1-105	106-212
Tadocizumab_fab_fragment_HeavyChain	829	1-119	120-226

Name	Protein SEQ ID NO	Variable Region	Constant Region
Tadocizumab_fab_fragment_LightChain	830	1-107	108-194
Talizumab_HeavyChain1	831	1-107	108-214
Talizumab_LightChain1	832	1-123	124-453
Tamtuvetmab_HeavyChain1	833	1-107	108-213
Tamtuvetmab_LightChain1	834	1-121	122-456
Tanezumab_HeavyChain	835	1-120	121-120
Tanezumab_LightChain	836	1-107	108-109
Tarextumab_HeavyChain1	837	1-115	116-441
Tarextumab_LightChain1	838	1-108	109-215
Tefibazumab_HeavyChain1	839	1-112	113-112
Tefibazumab_LightChain1	840	1-121	122-121
Tenatumomab_HeavyChain1	841	1-120	121-456
Tenatumomab_LightChain1	842	1-112	113-219
Teneliximab_HeavyChain1	843	1-107	108-214
Teneliximab_LightChain1	844	1-122	123-452
Teplizumab_HeavyChain1	845	1-119	120-449
Teplizumab_LightChain1	846	1-106	107-213
Teprotumumab_HeavyChain1	847	1-118	119-448
Teprotumumab_LightChain1	848	1-108	109-215
Tesidolumab_HeavyChain1	849	1-116	117-446
Tesidolumab_LightChain1	850	1-108	109-214
Tezepelumab_HeavyChain1	851	1-122	123-448
Tezepelumab_LightChain1	852	1-108	109-214
ThioMAb-chMA79b-HC(A118C)_HeavyChain	853	1-117	118-446
ThioMab-huI0A8.v1-HC(A118C)_HeavyChain	854	1-119	120-449
ThioMab-huI0A8.v1-HC(V205C)_HeavyChain	855	1-119	120-449
ThioMab-huI0A8.v1-LC(A118C)_LightChain	856	1-107	108-214
ThioMab-huI0A8.v1-LC(V205C)_LightChain	857	1-107	108-214
ThioMAb-huMA79b.v17-HC(A118C)_HeavyChain	858	1-117	118-446
ThioMAb-huMA79b.v17-HC(A118C)_LightChain	859	1-111	112-218
ThioMAb-huMA79b.v18-HC(A118C)_HeavyChain	860	1-117	118-446
ThioMAb-huMA79b.v28-HC(A118C)_LightChain	861	1-111	112-218

Name	Protein SEQ ID NO	Variable Region	Constant Region
ThioMAb-huMA79b.v28-LC(V205C)_LightChain	862	1-111	112-218
Ticiliuab_HeavyChain1	863	1-122	123-444
Ticiliuab_LightChain1	864	1-106	107-213
Tigatuzumab_HeavyChain1	865	1-119	120-449
Tigatuzumab_HeavyChain	866		
Tigatuzumab_LightChain1	867	1-106	107-213
Tigatuzumab_LightChain	868	1-107	108-216
Tildrakizumab_HeavyChain1	869	1-116	117-446
Tildrakizumab_LightChain1	870	1-107	108-214
Tisotumab_vedotin_HeavyChain1	871	1-118	119-448
Tisotumab_vedotin_LightChain1	872	1-107	108-214
Tocilizumab_HeavyChain1	873	1-107	108-214
Tocilizumab_LightChain1	874	1-119	120-447
Tosatoxumab_HeavyChain1	875	1-121	122-451
Tosatoxumab_LightChain1	876	1-111	112-217
Tositumomab_HeavyChain	877	1-123	124-447
Tositumomab_LightChain	878	1-106	107-210
Tovetumab_HeavyChain1	879	1-120	121-446
Tovetumab_LightChain1	880	1-108	109-215
Tralokinumab_HeavyChain1	881	1-122	123-449
Tralokinumab_LightChain1	882	1-108	109-214
Trastuzuab_HeavyChain1	883	1-118	119-444
Trastuzuab_LightChain1	884		
Trastuzumab_emtansine_HeavyChain1	885	1-120	121-449
Trastuzumab_emtansine_LightChain1	886	1-107	108-214
Trastuzumab_HeavyChain1	887		
Trastuzumab_HeavyChain	888	1-120	121-451
Trastuzumab_HeavyChain_variant_1n8z_B	889	1-120	121-220
Trastuzumab_HeavyChain_variant_7637_H	890	1-15	
Trastuzumab_LightChain1	891	1-107	108-214
Trastuzumab_LightChain_variant_1n8z_A	892	1-107	108-214
Trastuzumab_LightChain_variant_7637_L	893	1-107	108-214

Name	Protein SEQ ID NO	Variable Region	Constant Region
TRC-105_HeavyChain1	894	1-118	119-448
TRC-105_LightChain1	895	1-106	107-213
Tregalizumab_HeavyChain1	896	1-124	125-454
Tregalizumab_LightChain1	897	1-111	112-218
Tremelimumab_HeavyChain1	898	1-107	108-214
Tremelimumab_LightChain1	899	1-125	126-451
Trevogrumab_HeavyChain1	900	1-120	121-447
Trevogrumab_LightChain1	901	1-107	108-214
Tucotuzumab_celmoleukin_HeavyChain1	902	1-106	107-213
Tucotuzumab_celmoleukin_LightChain1	903	1-116	117-579
Ublituximab_HeavyChain1	904	1-118	119-448
Ublituximab_LightChain1	905	1-106	107-213
Ulocuplumab_HeavyChain1	906	1-125	126-451
Ulocuplumab_LightChain1	907	1-107	108-214
Urelumab_HeavyChain1	908	1-121	122-448
Urelumab_LightChain1	909	1-107	108-216
Urtoxazumab_HeavyChain1	910	1-107	108-214
Urtoxazumab_LightChain1	911	1-119	120-449
Ustekinumab_HeavyChain1	912	1-107	108-214
Ustekinumab_LightChain1	913	1-119	120-449
Vadastuximab_talirine_HeavyChain1	914	1-117	118-447
Vadastuximab_talirine_LightChain1	915	1-107	108-214
Vandortuzumab_vedotin_HeavyChain1	916	1-124	125-454
Vandortuzumab_vedotin_LightChain1	917	1-113	114-221
Vantictumab_HeavyChain1	918	1-118	119-443
Vantictumab_LightChain1	919	1-107	108-213
Vanucizumab_HeavyChain1	920	1-129	130-463
Vanucizumab_HeavyChain2	921	1-123	124-453
Vanucizumab_LightChain1	922	1-110	111-213
Vanucizumab_LightChain2	923	1-107	108-214
Varlilumab_HeavyChain1	924	1-119	120-452
Varlilumab_LightChain1	925	1-107	108-214

Name	Protein SEQ ID NO	Variable Region	Constant Region
Vatelizumab_HeavyChain1	926	1-119	120-446
Vatelizumab_LightChain1	927	1-106	107-213
Vedolizumab_HeavyChain1	928	1-121	122-451
Vedolizumab_LightChain1	929	1-112	113-219
Veltuzumab_HeavyChain1	930	1-121	122-451
Veltuzumab_LightChain1	931	1-106	107-213
Vesencumab_HeavyChain1	932	1-123	124-453
Vesencumab_LightChain1	933	1-107	108-214
Visilizumab_HeavyChain1	934	1-106	107-213
Visilizumab_LightChain1	935	1-120	121-446
Volociximab_HeavyChain	936	1-124	125-451
Volociximab_LightChain	937	1-108	109-215
Vorsetuzumab_HeavyChain1	938	1-118	119-448
Vorsetuzumab_LightChain1	939	1-111	112-218
Vorsetuzumab_mafodotin_HeavyChain1	940	1-118	119-448
Vorsetuzumab_mafodotin_LightChain1	941	1-111	112-218
Yttrium_(90Y)_clivatuzumab_tetraxetan_HeavyChain1	942	1-119	120-449
Yttrium_(90Y)_clivatuzumab_tetraxetan_LightChain1	943	1-108	109-215
Yttrium_Y_90_epratuzumab_tetraxetan_HeavyChain1	944	1-112	113-219
Yttrium_Y_90_epratuzumab_tetraxetan_LightChain1	945	1-116	117-446
Yttrium_Y_90_epratuzumab_HeavyChain1	946	1-115	116-442
Yttrium_Y_90_epratuzumab_LightChain1	947	1-111	112-218
Zalutumumab_HeavyChain1	948	1-107	108-214
Zalutumumab_LightChain1	949	1-125	126-455
Zanolimumab_HO_HeavyChain	950	1-115	116-444
Zanolimumab_LO_LightChain	951	1-108	109-214
Zatuximab_HeavyChain1	952	1-119	120-448
Zatuximab_LightChain1	953	1-112	113-219

Accordingly, it is preferred that the at least one coding sequence of the RNA according to the present invention encodes a heavy chain variable region and/or a light chain variable region of an antibody, or an antigen-binding fragment or variant of a heavy chain variable region and/or a light chain variable region of an antibody. Preferably, the heavy chain variable region and/or the

light chain variable region encoded by the at least one coding sequence comprises or consists of an amino acid sequence as described in Table 4 above.

Table 5 below shows the amino acid positions of the heavy chain and light chain CDRs in the heavy chain and light chain amino acid sequences of exemplified antibodies, which are preferably encoded by the RNA according to the present invention as described herein. Thereby, a CDR of, for example, "22-41" means that amino acids 22-41 of the respective amino acid sequence ("Protein SEQ ID NO") form the respective CDR. The first column identifies whether the amino acid sequence ("Protein SEQ ID NO") is of the heavy chain or of the light chain. Similarly to the variable regions/constant regions shown in Table 4, the skilled person can easily identify the heavy chain CDR's (CDRH1, CDRH2, CDRH3) and the light chain CDR's (CDRL1, CDRL2, CDRL3) of the exemplified antibodies based on the information in Table 5. Moreover, on basis of that information on amino acid sequence level, the skilled person can easily identify the corresponding RNA sequence fragments (i.e. the RNA sequences encoding the heavy chain/light chain CDR's, respectively), in particular by using the RNA sequences shown in Table 3 corresponding to the antibody of interest's amino acid sequence.

Table 5: CDRs of exemplified antibodies

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
AAB-003_gamma1-Chain	1	22-41		94-113
Abagovomab_HeavyChain	2	22-41	51-60	94-113
Abagovomab_LightChain	3	22-41	29-38	86-105
Abciximab_HeavyChain	4	22-41		94-113
Abciximab_LightChain	5	22-41	48-57	86-105
Abituzumab_HeavyChain1	6	22-41		94-113
Abituzumab_LightChain1	7	22-41	48-57	86-105
Abrilumab_HeavyChain1	8	22-41	59-68	94-113
Abrilumab_LightChain1	9	22-41	48-57	86-105
Abrilumab_LightChain1_variant2	10	22-41	47-56	85-104
Actoxumab_HeavyChain1	11	22-41		94-113
Actoxumab_LightChain1	12	22-41	49-58	87-106
Adalimumab_HeavyChain	13	22-41		94-113
Adalimumab_LightChain	14	22-41	48-57	86-105
Aducanumab_HeavyChain1	15	22-41		94-113
Aducanumab_LightChain1	16	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Afasevikumab_HeavyChain1	17	22-41		94-113
Afasevikumab_LightChain1	18	22-41	48-57	86-105
Aflibercept_Fusion_protein1	19	22-41		
Afutuzuab_HeavyChain1	20	22-41		92-111
Afutuzuab_LightChain1	21	22-41	52-61	89-108
Afutuzumab_HeavyChain1	22	22-41		94-113
Afutuzumab_LightChain1	23	22-41	53-62	91-110
Alacizumab_pegol_HeavyChain1	24	22-41		94-113
Alacizumab_pegol_LightChain1	25	22-41	48-57	86-105
Alemtuzumab_HeavyChain	26	22-41		96-115
Alemtuzumab_HeavyChain_variant_1bey_H	27	22-41		96-115
Alemtuzumab_HeavyChain_variant_1cel_H	28	22-41		96-115
Alemtuzumab_HeavyChain_variant_8005_H	29	22-41		96-115
Alemtuzumab_LightChain	30	22-41	48-57	86-105
Alemtuzumab_LightChain_variant_8005_L	31	22-41	48-57	86-105
Alirocumab_HeavyChain1	32	22-41		94-113
Alirocumab_LightChain1	33	22-41	54-63	92-111
ALX-0061_HeavyChain1	34	22-41		93-112
Amatuximab_HeavyChain1	35	22-41		
Amatuximab_LightChain1	36	22-41	47-56	85-104
Anetumab_ravtansine_HeavyChain1	37	22-41		94-113
Anetumab_ravtansine_LightChain1	38	22-41	50-59	88-107
Anifrolumab_HeavyChain1	39	22-41	51-60	94-113
Anifrolumab_LightChain1	40	22-41	49-58	87-106
Anrukinzumab_HeavyChain1	41	22-41		93-112
Anrukinzumab_LightChain1	42	22-41	52-61	90-109
Apolizumab_HeavyChain1	43	22-41		93-112
Apolizumab_LightChain1	44	22-41	29-38	86-105
Apomab_HeavyChain	45	22-41		93-112
Apomab_LightChain	46	22-41	46-55	84-103
Aquaporumab_LightChain	47	22-41		87-106
Arcitumomab_99tc_HeavyChain	48	22-41	376-385	96-115
Arcitumomab_99tc_LightChain	49	22-41	47-56	85-104

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Ascrinvacumab_HeavyChain1	50	22-41	53-62	95-114
Ascrinvacumab_LightChain1	51	22-41	49-58	87-106
Aselizuab_HeavyChain1	52	22-41		91-110
Aselizuab_HeavyChain2	53	22-41		91-110
Aselizuab_LightChain1	54	22-41	50-59	88-107
Atezolizumab_HeavyChain1	55	22-41		94-113
Atezolizumab_LightChain1	56	22-41	48-57	86-105
Atinumab_HeavyChain1	57	22-41		94-113
Atinumab_LightChain1	58	22-41	48-57	86-105
Atlizuab_HeavyChain1	59	22-41		92-111
Atlizuab_LightChain1	60	22-41	47-56	85-104
Aurograb_SingleChain	61	22-41	192-201	230-249
Avelumab_HeavyChain1	62	22-41	51-60	94-113
Avelumab_LightChain1	63	22-41	50-59	88-107
Bapineuzumab_HeavyChain1	64	22-41		94-113
Bapineuzumab_LightChain1	65	22-41	53-62	91-110
Basiliximab_HeavyChain	66	22-41	49-58	92-111
Basiliximab_LightChain	67	22-41	47-56	85-104
Bavituximab_HeavyChain	68	22-41		94-113
Bavituximab_LightChain	69	22-41	48-57	86-105
Bavituximab_LightChain_variant_8734_L	70	22-41	48-57	86-105
Begelomab_HeavyChain1	71	22-41	415-424	
Begelomab_LightChain1	72	22-41	47-56	85-104
Benralizumab_HeavyChain1	73	22-41		
Benralizumab_LightChain1	74	22-41	48-57	86-105
Betalutin_HeavyChain1	75	22-41		94-113
Betalutin_LightChain1	76	22-41		86-105
Bevacituzuab_HeavyChain1	77	22-41		92-111
Bevacituzuab_LightChain1	78	22-41	47-56	85-104
Bevacizumab_154-aspartic_acid_LightChain	79	22-41	48-57	86-105
Bevacizumab_154-substitution_deriv_LightChain	80	22-41	48-57	86-105
Bevacizumab_180-serine_HeavyChain	81	22-41		94-113
Bevacizumab_180-substitution_deriv_HeavyCahin	82	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Bevacizumab_beta_HeavyChain1	83	22-41		94-113
Bevacizumab_beta_LightChain1	84	22-41	48-57	86-105
Bevacizumab_FcDomain	85	22-41		
Bevacizumab_HeavyChain	86	22-41		94-113
Bevacizumab_HeavyChain_variant1	87	22-41		117-136
Bevacizumab_HeavyChain_V-Region	88	22-41		94-113
Bevacizumab_LightChain1	89	22-41	73-82	111-130
Bevacizumab_LightChain2	90	22-41	71-80	109-128
Bevacizumab_LightChain	91	22-41	48-57	86-105
Bevacizumab_LightChain_VJ-Region	92	22-41	48-57	86-105
Bevacizumab_LightChain_V-Region	93	22-41	48-57	86-105
Bevacizumab-rhuMAb-VEGF_HeavyChain_gamma1-Chain_VDJ-Region	94	22-41		94-113
Bevacizumab-rhuMAb-VEGF_LightChain_VJ-Region	95	22-41	48-57	86-105
Bevacizumab_gamma1-Chain	96	22-41		94-113
Bevacizumab_gamma1-Chain_CH3-Region_mutein	97	22-41		94-113
Bezlotoxumab_HeavyChain1	98	22-41		94-113
Bezlotoxumab_LightChain1	99	22-41	49-58	87-106
Bimagrumab_HeavyChain1	100	22-41		94-113
Bimagrumab_HeavyChain	101	22-41		94-113
Bimagrumab_LightChain1	102	22-41	50-59	88-107
Bimekizumab_HeavyChain1	103	22-41	107-116	94-113
Bimekizumab_LightChain1	104	22-41	48-57	86-105
Bleselumab_HeavyChain1	105	22-41	53-62	95-114
Bleselumab_LightChain1	106	22-41	48-57	86-105
Blinatumomab_HeavyChain1	107	22-41	52-61	349-368
Blinatumomab_SingleChain	108	22-41	52-61	349-368
Blinatumumab_SingleChain_variable_fragment_fusion_protein_(bite)	109	22-41	52-61	349-368
Blontuvetmab_HeavyChain	110	22-41		94-113
Blontuvetmab_LightChain	111	22-41	54-63	
Blosozumab_HeavyChain1	112	22-41		94-113
Blosozumab_LightChain1	113	22-41	48-57	86-105
Bococizumab_HeavyChain1	114	22-41		94-113
Bococizumab_LightChain1	115	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Brentuximab_vedotin_HeavyChain1	116	22-41	51-60	
Brentuximab_vedotin_LightChain1	117	22-41	52-61	90-109
Briakinumab_HeavyChain1	118	22-41		94-113
Briakinumab_LightChain1	119	22-41	49-58	87-106
Brodalumab_HeavyChain1	120	22-41		94-113
Brodalumab_LightChain1	121	22-41	48-57	86-105
Brolucizumab_HeavyChain1	122	22-41	49-58	87-106
Brolucizumab_scFv_fragment	123	22-41	49-58	87-106
Brontictuzumab_HeavyChain1	124	22-41		94-113
Brontictuzumab_LightChain1	125	22-41		88-107
BTT-1023_HeavyChain1	126	22-41		94-113
BTT-1023_LightChain1	127	22-41	48-57	86-105
Burosumab_HeavyChain1	128	22-41		94-113
Burosumab_LightChain1	129	22-41	48-57	86-105
Canakinumab_HeavyChain1	130	22-41		94-113
Canakinumab_HeavyChain	131	22-41		94-113
Canakinumab_LightChain1	132	22-41		86-105
Canakinumab_LightChain	133	22-41		86-105
Canakinumab_LightChain_variant_8836_L	134	22-41		94-113
Cantuzumab_HeavyChain1	135	22-41		
Cantuzumab_HeavyChain	136	22-41		
Cantuzumab_LightChain1	137	22-41	53-62	91-110
Cantuzumab_mertansine_HeavyChain1	138	22-41		
Cantuzumab_mertansine_LightChain1	139	22-41	53-62	91-110
Cantuzumab_ravtansine_HeavyChain1	140	22-41		
Cantuzumab_ravtansine_LightChain1	141	22-41	53-62	91-110
Caplacizumab	142	22-41		94-113
Caplacizumab_HeavyChain1	143	22-41		94-113
Caplacizumab_HeavyChain1	144	22-41		94-113
Carlumab_HeavyChain1	145	22-41	102-111	94-113
Carlumab_LightChain1	146	22-41	49-58	87-106
Cergutuzumab_amunaleukin_HeavyChain1	147	22-41		94-113
Cergutuzumab_amunaleukin_HeavyChain2	148	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Cergutuzumab_amunaleukin_LightChain1	149	22-41	48-57	86-105
Certolizumab_pegol_HeavyChain1	150	22-41	59-68	94-113
Certolizumab_pegol_HeavyChain	151	22-41	59-68	94-113
Certolizumab_pegol_LightChain1	152	22-41	48-57	86-105
Certolizumab_pegol_LightChain	153	22-41	48-57	86-105
Cetuximab_HeavyChain	154	22-41	92-101	93-112
Cetuximab_HeavyChain_variant	155	22-41	92-101	93-112
Cetuximab_LightChain	156	22-41		86-105
Cetuximab_LightChain_variant	157	22-41		86-105
Citatuzumab_bogatox_HeavyChain1	158	22-41		100-119
Citatuzumab_bogatox_LightChain1	159	22-41	53-62	91-110
Cixutumumab_HeavyChain1	160	22-41		94-113
Cixutumumab_LightChain1	161	22-41	47-56	85-104
Clazakizumab_HeavyChain1	162	22-41	51-60	93-112
Clazakizumab_LightChain1	163	22-41	48-57	86-105
Clivatuzumab_tetraxetan_HeavyChain1	164	22-41		94-113
Clivatuzumab_tetraxetan_LightChain1	165	22-41	49-58	
Codrituzumab_HeavyChain1	166	22-41		94-113
Codrituzumab_LightChain1	167	22-41	53-62	91-110
Coltuximab_ravtansine_HeavyChain1	168	22-41		94-113
Coltuximab_ravtansine_LightChain1	169	22-41	47-56	85-104
Conatumumab_CV_HeavyChain	170	22-41		95-114
Conatumumab_CV_LightChain	171	22-41	49-58	87-106
Conatumumab_HeavyChain1	172	22-41		95-114
Conatumumab_HeavyChain	173	22-41		95-114
Conatumumab_LightChain1	174	22-41	49-58	87-106
Conatumumab_LightChain	175	22-41	49-58	87-106
Concizumab_HeavyChain1	176	22-41		94-113
Concizumab_LightChain1	177	22-41	53-62	91-110
Crenezumab_HeavyChain1	178	22-41		94-113
Crenezumab_LightChain1	179	22-41	53-62	91-110
Crotedumab_HeavyChain1	180	22-41		94-113
Crotedumab_HeavyChain2	181	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Crotedumab_LightChain1	182	22-41	48-57	86-105
Crotedumab_LightChain2	183	22-41	48-57	86-105
Dacetuzumab_HeavyChain1	184	22-41	101-110	94-113
Dacetuzumab_LightChain1	185	22-41	53-62	
Dacliximab_LightChain_VJ-Region	186	22-41	47-56	85-104
Dacliximab_gamma2-Chain_VDJ-Region	187	22-41		94-113
Daclizumab_HeavyChain	188	22-41		94-113
Daclizumab_LightChain	189	22-41	47-56	85-104
Dalotuzumab_HeavyChain1	190	22-41		
Dalotuzumab_LightChain1	191	22-41		
Dapirolizumab_pegol_HeavyChain1	192	22-41		93-112
Dapirolizumab_pegol_LightChain1	193	22-41	48-57	86-105
Daratumumab_HeavyChain1	194	22-41		
Daratumumab_LightChain1	195	22-41	48-57	86-105
Dectrekumab_HeavyChain1	196	22-41		94-113
Dectrekumab_LightChain1	197	22-41	48-57	86-105
Demcizumab_HeavyChain1	198	22-41		94-113
Demcizumab_LightChain1	199	22-41	52-61	90-109
Denintuzumab_mafodotin_HeavyChain1	200	22-41		95-114
Denintuzumab_mafodotin_LightChain1	201	22-41	47-56	85-104
Denosumab_HeavyChain	202	22-41		94-113
Denosumab_LightChain	203	22-41	49-58	
Depatuxizumab_HeavyChain1	204	22-41		94-113
Depatuxizumab_LightChain1	205	22-41	48-57	86-105
Depatuxizumab_mafodotin_HeavyChain1	206	22-41		94-113
Depatuxizumab_mafodotin_LightChain1	207	22-41	48-57	86-105
Dinutuximab_beta_HeavyChain1	208	22-41		94-113
Dinutuximab_beta_LightChain1	209	22-41		
Dinutuximab_HeavyChain1	210	22-41		94-113
Dinutuximab_LightChain1	211	22-41		
Dinutuximab_LightChain	212	22-41		
Diridavumab_HeavyChain1	213	22-41		94-113
Diridavumab_LightChain1	214	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Domagrozumab_HeavyChain1	215	22-41		94-113
Domagrozumab_HeavyChain	216	22-41		94-113
Domagrozumab_LightChain1	217	22-41	48-57	86-105
Drozituab_HeavyChain1	218	22-41		92-111
Drozituab_LightChain1	219	22-41	46-55	84-103
Drozitumab_HeavyChain1	220	22-41		94-113
Drozitumab_LightChain1	221	22-41	46-55	84-103
Duligotumab_HeavyChain1	222	22-41		94-113
Duligotumab_LightChain1	223	22-41	48-57	86-105
Duligotuzumab_HeavyChain1	224	22-41		94-113
Duligotuzumab_LightChain1	225	22-41	48-57	86-105
Dupilumab_HeavyChain1	226	22-41		94-113
Dupilumab_LightChain1	227	22-41	53-62	91-110
Durvalumab_HeavyChain1	228	22-41		94-113
Durvalumab_LightChain1	229	22-41	49-58	87-106
Dusigitumab_HeavyChain1	230	22-41		94-113
Dusigitumab_LightChain1	231	22-41	49-58	87-106
Ecromeximab_HeavyChain1	232	22-41		
Ecromeximab_LightChain1	233	22-41		
Eculizumab_HeavyChain1	234	22-41		93-112
Eculizumab_LightChain1	235	22-41	29-38	86-105
Efalizumab_HeavyChain	236	22-41	103-112	96-115
Efalizumab_LightChain	237	22-41	48-57	86-105
Efungumab_SingleChain_variable_fragment	238	22-41	185-194	96-115
Eldelumab_HeavyChain1	239	22-41	93-102	94-113
Eldelumab_LightChain1	240	22-41	49-58	87-106
Elgemtumab_HeavyChain1	241	22-41		94-113
Elgemtumab_LightChain1	242	22-41	48-57	86-105
Elotuzumab_HeavyChain1	243	22-41		94-113
Elotuzumab_LightChain1	244	22-41	48-57	86-105
Emactuzumab_HeavyChain1	245	22-41		93-112
Emactuzumab_LightChain1	246	22-41	48-57	86-105
Emibetuzumab_HeavyChain1	247	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Emibetuzumab_LightChain1	248	22-41	32-41	87-106
Emicizumab_HeavyChain1	249	22-41		94-113
Emicizumab_HeavyChain2	250	22-41	59-68	
Emicizumab_LightChain1	251	22-41	48-57	86-105
Enavatuzumab_HeavyChain1	252	22-41		96-115
Enavatuzumab_LightChain1	253	22-41		90-109
Enfortumab_HeavyChain	254	22-41	58-67	94-113
Enfortumab_LightChain	255	22-41	48-57	86-105
Enfortumab_vedotin_HeavyChain1	256	22-41	58-67	94-113
Enfortumab_vedotin_LightChain1	257	22-41	48-57	86-105
Enoblituzumab_HeavyChain	258	22-41	58-67	94-113
Enoblituzumab_LightChain	259	22-41	48-57	86-105
Enokizumab_HeavyChain1	260	22-41		94-113
Enokizumab_LightChain1	261	22-41	48-57	86-105
Enokizumab_LightChain	262	22-41	48-57	86-105
Enoticumab_HeavyChain1	263	22-41		94-113
Enoticumab_LightChain1	264	22-41	48-57	86-105
Ensituximab_HeavyChain1	265	22-41		93-112
Ensituximab_LightChain1	266	22-41	47-56	85-104
Ensituximab_SingleChain_variable_fragment	267	22-41	185-194	96-115
Entolimod_chain1	268	22-41		
Epratuzumab_HeavyChain	269	22-41		
Epratuzumab_LightChain	270	22-41	54-63	92-111
Eptacog_beta_HeavyChain1	271	22-41		
Eptacog_beta_LightChain1	272	22-41		
Erlizuab_HeavyChain1	273	22-41		89-108
Erlizuab_LightChain1	274	22-41	47-56	85-104
Etaracizumab_HeavyChain1	275	22-41		94-113
Etaracizumab_LightChain1	276	22-41		86-105
Etrolizuab_HeavyChain1	277	22-41		92-111
Etrolizuab_HeavyChain2	278	22-41		92-111
Etrolizuab_LightChain1	279	22-41		85-104
Etrolizumab_HeavyChain1	280	22-41		93-112

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Etrolizumab_LightChain1	281	22-41		86-105
Evinacumab_HeavyChain1	282	22-41		
Evinacumab_LightChain1	283	22-41	48-57	86-105
Evolocumab_HeavyChain1	284	22-41		94-113
Evolocumab_LightChain1	285	22-41	50-59	88-107
Exbivirumab_HeavyChain1	286	22-41		
Exbivirumab_LightChain1	287	22-41		85-104
Farletuzumab_HeavyChain1	288	22-41		
Farletuzumab_LightChain1	289	22-41	49-58	87-106
Fasinumab_HeavyChain1	290	22-41	59-68	94-113
Fasinumab_LightChain1	291	22-41	48-57	86-105
Fezakinumab_HeavyChain1	292	22-41		94-113
Fezakinumab_LightChain1	293	22-41	50-59	88-107
FG-3019_HeavyChain1	294	22-41		93-112
FG-3019_LightChain1	295	22-41	48-57	86-105
Fibatuzumab_HeavyChain1	296	22-41	51-60	94-113
Fibatuzumab_LightChain1	297	22-41	48-57	86-105
Ficlatuzumab_HeavyChain1	298	22-41		94-113
Ficlatuzumab_HeavyChain	299	22-41		93-112
Ficlatuzumab_LightChain1	300	22-41	48-57	
Figitumumab_HeavyChain1	301	22-41		94-113
Figitumumab_LightChain1	302	22-41	48-57	86-105
Firivumab_HeavyChain1	303	22-41		94-113
Firivumab_LightChain1	304	22-41	85-94	
Flanvotumab_HeavyChain1	305	22-41	93-102	94-113
Flanvotumab_LightChain1	306	22-41	48-57	86-105
Fletikumab_HeavyChain1	307	22-41		94-113
Fletikumab_LightChain1	308	22-41	48-57	86-105
Fontolizumab_HeavyChain1	309	22-41		94-113
Fontolizumab_LightChain1	310	22-41	48-57	86-105
Foralumab_HeavyChain1	311	22-41		94-113
Foralumab_LightChain1	312	22-41	48-57	86-105
Foravirumab_HeavyChain1	313	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Foravirumab_HeavyChain	314	22-41		94-113
Foravirumab_LightChain1	315	22-41	48-57	86-105
Fresolimumab_HeavyChain1	316	22-41		94-113
Fresolimumab_LightChain1	317	22-41	49-58	87-106
Fulranumab_HeavyChain1	318	22-41		94-113
Fulranumab_LightChain1	319	22-41	48-57	86-105
Futuximab_HeavyChain1	320	22-41	51-60	94-113
Futuximab_LightChain1	321	22-41	48-57	
Galcanezumab_HeavyChain1	322	22-41	51-60	94-113
Galcanezumab_LightChain1	323	22-41	48-57	86-105
Galiximab_HeavyChain1	324	22-41		95-114
Galiximab_LightChain1	325	22-41	49-58	87-106
Ganitumab_HeavyChain1	326	22-41	52-61	94-113
Ganitumab_LightChain1	327	22-41	53-62	91-110
Gantenerumab_HeavyChain1	328	22-41		94-113
Gantenerumab_LightChain1	329	22-41	49-58	87-106
Gemtuzumab_HeavyChain1	330	22-41		94-113
Gemtuzumab_HeavyChain2	331	22-41	102-111	
Gemtuzumab_LightChain2	332	22-41		86-105
Gemtuzumab_ozogamicin_LightChain1	333	22-41	47-56	85-104
Gevokizumab_HeavyChain1	334	22-41		
Gevokizumab_LightChain1	335	22-41	48-57	
Girentuximab_HeavyChain1	336	22-41		
Girentuximab_LightChain1	337	22-41	48-57	
Glembatumumab_HeavyChain1	338	22-41	53-62	95-114
Glembatumumab_LightChain1	339	22-41	48-57	86-105
Goilixiab_HeavyChain1	340	22-41		94-113
Goilixiab_LightChain1	341	22-41	47-56	85-104
Guselkumab_HeavyChain1	342	22-41		94-113
Guselkumab_LightChain1	343	22-41	50-59	88-107
HuMab-001_HeavyChain_VDJ-Region	344	22-41		93-112
HuMab-001_LightChain_VJ-Region	345	22-41		86-105
HuMab-005_HeavyChain_gamma-Chain_VDJ-Region	346	22-41	51-60	94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
HuMab-005_LightChain_VJ-Region	347	22-41	49-58	87-106
HuMab-006_HeavyChain_VDJ-Region	348	22-41		94-113
HuMab-006_LightChain_VJ-Region	349	22-41	48-57	86-105
HuMab-019_HeavyChain_VDJ-Region	350	22-41		93-112
HuMab-021_HeavyChain_VDJ-Region	351	22-41		93-112
HuMab-021_LightChain_VJ-Region	352	22-41	48-57	86-105
HuMab-025_HeavyChain_VDJ-Region	353	22-41		93-112
HuMab-025_LightChain_VJ-Region	354	22-41	48-57	86-105
HuMab-027_HeavyChain_VDJ-Region	355	22-41		93-112
HuMab-032_HeavyChain_VDJ-Region	356	22-41	104-113	93-112
HuMab-032_LightChain_VJ-Region	357	22-41	48-57	86-105
HuMab-033_HeavyChain_VDJ-Region	358	22-41		94-113
HuMab-035_HeavyChain_VDJ-Region	359	22-41	24-33	93-112
HuMab-036_HeavyChain_VDJ-Region	360	22-41		93-112
HuMab-036_LightChain_VJ-Region	361	22-41	48-57	86-105
HuMab-041_HeavyChain_VDJ-Region	362	22-41	51-60	94-113
HuMab-044_HeavyChain_VDJ-Region	363	22-41		94-113
HuMab-049_HeavyChain_VDJ-Region	364	22-41		94-113
HuMab-049_LightChain_VJ-Region	365	22-41	48-57	86-105
HuMab-050_HeavyChain_VDJ-Region	366	22-41		94-113
HuMab-050_LightChain_VJ-Region	367	22-41	48-57	86-105
HuMab-054_HeavyChain_VDJ-Region	368	22-41		93-112
HuMab-054_LightChain_VJ-Region	369	22-41	48-57	86-105
HuMab-055_HeavyChain_VDJ-Region	370	22-41		94-113
HuMab-059_HeavyChain_VDJ-Region	371	22-41		94-113
HuMab-059_LightChain_VJ-Region	372	22-41	49-58	87-106
HuMab-060_HeavyChain_VDJ-Region	373	22-41	51-60	94-113
HuMab-060_LightChain_VJ-Region	374	22-41	49-58	87-106
HuMab-067_HeavyChain_VDJ-Region	375	22-41	51-60	94-113
HuMab-072_HeavyChain_VDJ-Region	376	22-41	51-60	94-113
HuMab-072_LightChain_VJ-Region	377	22-41	49-58	87-106
HuMab-084_HeavyChain_VDJ-Region	378	22-41		94-113
HuMab-084_LightChain_VJ-Region	379	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
HuMab-091_HeavyChain_VDJ-Region	380	22-41	51-60	93-112
HuMab-091_LightChain_VJ-Region	381	22-41	48-57	86-105
HuMab-093_HeavyChain_VDJ-Region	382	22-41	51-60	94-113
HuMab-098_HeavyChain_VDJ-Region	383	22-41		94-113
HuMab-098_LightChain_VJ-Region	384	22-41	48-57	86-105
HuMab-100_HeavyChain_VDJ-Region	385	22-41		94-113
HuMab-106_HeavyChain_VDJ-Region	386	22-41	51-60	94-113
HuMab-106_LightChain_VJ-Region	387	22-41	49-58	87-106
HuMab_10F8_HeavyChain_V-Region	388	22-41		94-113
HuMab_10F8_HeavyChain_V-Region_Precursor	389	22-41		113-132
HuMab_10F8_LightChain_V-Region	390	22-41	49-58	87-106
HuMab_10F8_LightChain_V-Region_Precursor	391	22-41	69-78	107-126
HuMab-111_HeavyChain_VDJ-Region	392	22-41		94-113
HuMab-111_LightChain_VJ-Region	393	22-41	49-58	87-106
HuMab-123_HeavyChain_VDJ-Region	394	22-41	59-68	94-113
HuMab-123_LightChain_VJ-Region	395	22-41	48-57	86-105
HuMab-124_HeavyChain_VDJ-Region	396	22-41	59-68	94-113
HuMab-125_HeavyChain_VDJ-Region	397	22-41		94-113
HuMab-125_LightChain_VJ-Region	398	22-41	48-57	86-105
HuMab-127_HeavyChain_VDJ-Region	399	22-41	31-40	94-113
HuMab-127_LightChain_VJ-Region	400	22-41	48-57	86-105
HuMab-129_HeavyChain_VDJ-Region	401	22-41		94-113
HuMab-129_LightChain_VJ-Region	402	22-41	48-57	86-105
HuMab-132_HeavyChain_VDJ-Region	403	22-41		94-113
HuMab-132_LightChain_VJ-Region	404	22-41	48-57	86-105
HuMab-143_HeavyChain_VDJ-Region	405	22-41		93-112
HuMab-143_LightChain_VJ-Region	406	22-41	48-57	86-105
HuMab-150_HeavyChain_VDJ-Region	407	22-41	51-60	94-113
HuMab-150_LightChain_VJ-Region	408	22-41	49-58	87-106
HuMab-152_HeavyChain_VDJ-Region	409	22-41		94-113
HuMab-152_LightChain_VJ-Region	410	22-41	48-57	86-105
HuMab-153_HeavyChain_VDJ-Region	411	22-41		94-113
HuMab-153_LightChain_VJ-Region	412	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
HuMab-159_HeavyChain_VDJ-Region	413	22-41	51-60	94-113
HuMab-159_LightChain_VJ-Region	414	22-41	48-57	86-105
HuMab-160_HeavyChain_VDJ-Region	415	22-41		
HuMab-160_LightChain_VJ-Region	416	22-41	48-57	86-105
HuMab-162_HeavyChain_VDJ-Region	417	22-41		94-113
HuMab-162_LightChain_VJ-Region	418	22-41	48-57	86-105
HuMab-163_HeavyChain_VDJ-Region	419	22-41	51-60	94-113
HuMab-163_LightChain_VJ-Region	420	22-41	49-58	87-106
HuMab-166_HeavyChain_VDJ-Region	421	22-41		94-113
HuMab-166_LightChain_VJ-Region	422	22-41	48-57	86-105
HuMab-167_HeavyChain_VDJ-Region	423	22-41		94-113
HuMab-169_HeavyChain_VDJ-Region	424	22-41	59-68	94-113
HuMab-169_LightChain_VJ-Region	425	22-41	48-57	86-105
HuMab-7D8_HeavyChain_VH-Region	426	22-41		94-113
HuMab-7D8_HeavyChain_V-Region	427	22-41		94-113
HuMab-7D8_LightChain_VL-Region	428	22-41	48-57	86-105
HuMab-7D8_LightChain_V-Region	429	22-41	48-57	86-105
huMAb-anti-MSP10.1_LightChain_VJ-Region	430	22-41	49-58	87-106
huMAb-anti-MSP10.2_LightChain_VJ-Region	431	22-41	49-58	87-106
HUMAB-Clone_18_VJ-Region	432	22-41	48-57	86-105
HUMAB-Clone_22_VJ-Region	433	22-41	48-57	86-105
HuMab-L612_µChain_VDJ-Region_Precursor	434	22-41		113-132
HuMab_LC5002-002_LightChain_V-Region	435	22-41	48-57	86-105
HuMab_LC5002-002_gamma1-Chain_V-Region	436	22-41	31-40	94-113
HuMab_LC5002-003_LightChain_V-Region	437	22-41	48-57	86-105
HuMab_LC5002-003_gamma1-Chain_V-Region	438	22-41	31-40	94-113
HuMab_LC5002-005_LightChain_V-Region	439	22-41	48-57	86-105
HuMab_LC5002-005_gamma1-Chain_V-Region	440	22-41	103-112	94-113
HuMab_LC5002-007_LightChain_V-Region	441	22-41	49-58	87-106
HuMab_LC5002-007_gamma1-Chain_V-Region	442	22-41		94-113
HuMab_LC5002-018_gamma1-Chain_V-Region	443	22-41	31-40	94-113
Ibalizumab_HeavyChain1	444	22-41		94-113
Ibalizumab_LightChain1	445	22-41	54-63	92-111

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Ibritumomab_tiuxetan_HeavyChain	446	22-41	51-60	
Ibritumomab_tiuxetan_LightChain	447	22-41	47-56	85-104
Icrucumab_HeavyChain1	448	22-41		94-113
Icrucumab_LightChain1	449	22-41	49-58	87-106
Idarucizumab_HeavyChain1	450	22-41		93-112
Idarucizumab_LightChain1	451	22-41	53-62	91-110
Igatuzuab_HeavyChain1	452	22-41		92-111
Igatuzuab_LightChain1	453	22-41	47-56	85-104
IGF-1R_HUMAB-1A_HeavyChain	454	22-41		93-112
IGF-1R_HUMAB-23_HeavyChain	455	22-41		
IGF-1R_HUMAB-23_LightChain	456	22-41	48-57	86-105
IGF-1R_HUMAB-8_HeavyChain	457	22-41		93-112
IGF-1R_HUMAB-8_LightChain	458	22-41	48-57	86-105
Imab1_LightChain	459	22-41	70-79	108-127
Imab1_gamma1-Chain	460	22-41		112-131
Imalumab_HeavyChain1	461	22-41	31-40	94-113
Imalumab_LightChain1	462	22-41		86-105
Imgatuzumab_HeavyChain1	463	22-41		94-113
Imgatuzumab_LightChain1	464	22-41	48-57	86-105
Inclacumab_HeavyChain1	465	22-41	57-66	93-112
Inclacumab_LightChain1	466	22-41	48-57	86-105
Indatuximab_ravtansine_HeavyChain1	467	22-41	59-68	94-113
Indatuximab_ravtansine_LightChain1	468	22-41	48-57	86-105
Indusatumab_vedotin_HeavyChain1	469	22-41		93-112
Indusatumab_vedotin_LightChain1	470	22-41	48-57	86-105
Inebilizumab_HeavyChain1	471	22-41	51-60	94-113
Inebilizumab_LightChain1	472	22-41		90-109
Insulin_peglispro_Fragment1	473	22-30		
Insulin_peglispro_Fragment2	474	22-21		
Interferon_beta-1b_chain1	475	22-41	58-67	
Intetumumab_HeavyChain1	476	22-41		94-113
Intetumumab_LightChain1	477	22-41	48-57	86-105
Iodine_(124I)_Girentuximab_HeavyChain1	478	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Iodine_(124I)_Girentuximab_LightChainI	479	22-41	48-57	
Iodine_(131I)_Derlotuxiab_biotin_HeavyChainI	480	22-41		91-110
Iodine_(131I)_Derlotuxiab_biotin_LightChainI	481	22-41	47-56	85-104
Iodine_(131I)_Derlotuximab_biotin_HeavyChainI	482	22-41		93-112
Iodine_(131I)_Derlotuximab_biotin_LightChainI	483	22-41	49-58	87-106
Ipilimumab_HeavyChain	484	22-41	93-102	94-113
Ipilimumab_LightChain	485	22-41	49-58	87-106
Iratumumab_HeavyChainI	486	22-41		
Iratumumab_LightChainI	487	22-41	48-57	86-105
Isatuximab_HeavyChainI	488	22-41	51-60	94-113
Isatuximab_LightChainI	489	22-41	48-57	86-105
Itolizumab_HeavyChainI	490	22-41	58-67	94-113
Itolizumab_LightChainI	491	22-41	48-57	86-105
Ixekizumab_HeavyChainI	492	22-41		94-113
Ixekizumab_LightChainI	493	22-41	53-62	91-110
Labetuzumab_govitecan_HeavyChainI	494	22-41		
Labetuzumab_govitecan_LightChainI	495	22-41	48-57	86-105
Lambrolizumab_HeavyChainI	496	22-41		94-113
Lambrolizumab_LightChainI	497	22-41	52-61	90-109
Lampalizumab_HeavyChainI	498	22-41		94-113
Lampalizumab_LightChainI	499	22-41		86-105
Lanadelumab_HeavyChainI	500	22-41	51-60	94-113
Lanadelumab_LightChainI	501	22-41	48-57	86-105
Landogrozumab_HeavyChainI	502	22-41		94-113
Landogrozumab_LightChainI	503	22-41	49-58	87-106
Laprituximab_emtansine_HeavyChainI	504	22-41	51-60	94-113
Laprituximab_emtansine_LightChainI	505	22-41		86-105
Lealesoab_HeavyChainI	506	22-41		
Lealesoab_LightChainI	507	22-41	53-62	91-110
Lebrikizumab_HeavyChainI	508	22-41		93-112
Lebrikizumab_LightChainI	509	22-41	52-61	90-109
Lenercept_chainI	510	22-41		
Lenzilumab_HeavyChainI	511	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Lenzilumab_LightChain1	512	22-41	48-57	86-105
Lerdelimumab_HeavyChain1	513	22-41		94-113
Lerdelimumab_LightChain1	514	22-41	47-56	85-104
Lexatumumab_HeavyChain1	515	22-41		94-113
Lexatumumab_HeavyChain	516	22-41		94-113
Lexatumumab_LightChain1	517	22-41	47-56	85-104
Lexatumumab_LightChain	518	22-41	47-56	85-104
Libivirumab_HeavyChain1	519	22-41		94-113
Libivirumab_LightChain1	520	22-41	53-62	91-110
Lifastuzumab_HeavyChain	521	22-41		94-113
Lifastuzumab_LightChain	522	22-41	53-62	91-110
Lifastuzumab_vedotin_HeavyChain1	523	22-41		93-112
Lifastuzumab_vedotin_LightChain1	524	22-41	53-62	91-110
Ligelizumab_HeavyChain1	525	22-41		94-113
Ligelizumab_LightChain1	526	22-41	48-57	86-105
Lilotomab_HeavyChain1	527	22-41		94-113
Lilotomab_LightChain1	528	22-41		86-105
Lintuzumab_HeavyChain1	529	22-41	51-60	94-113
Lintuzumab_LightChain1	530	22-41	52-61	90-109
Lirilumab_HeavyChain1	531	22-41		94-113
Lirilumab_LightChain1	532	22-41	48-57	86-105
Lodelcizumab_HeavyChain1	533	22-41		94-113
Lodelcizumab_LightChain1	534	22-41	47-56	85-104
Lokivetmab_HeavyChain1	535	22-41		94-113
Lokivetmab_LightChain1	536	22-41	52-61	90-109
Lorvotuzumab_mertansine_HeavyChain1	537	22-41	58-67	94-113
Lorvotuzumab_mertansine_LightChain1	538	22-41	53-62	91-110
Lpathomab_VL	539	22-41	53-62	
Lpathomab_gamma1-Chain_VDJ-Region	540	22-41		
Lucatumumab_HeavyChain1	541	22-41		94-113
Lucatumumab_LightChain1	542	22-41		91-110
Lulizumab_pegol_LightChain1	543	22-41	48-57	86-105
Lulizumab_pegol_LightChain	544	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Lumiliximab_HeavyChain1	545	22-41		
Lumiliximab_LightChain1	546	22-41	48-57	86-105
Lumretuzumab_HeavyChain1	547	22-41	51-60	94-113
Lumretuzumab_LightChain1	548	22-41	54-63	92-111
Lutetium_(177Lu)_lilotomab_satetraxetan_HeavyChain1	549	22-41		94-113
Lutetium_(177Lu)_lilotomab_satetraxetan_LightChain1	550	22-41		86-105
Margetuximab_HeavyChain1	551	22-41	51-60	94-113
Margetuximab_LightChain1	552	22-41	48-57	86-105
Marzeptacog_alfa_HeavyChain1	553	22-41		
Marzeptacog_alfa_LightChain1	554	22-41		
Matuzumab_HeavyChain1_variant_3c08_H	555	22-41		94-113
Matuzumab_HeavyChain1_variant_3c09_C	556	22-41		94-113
Matuzumab_LightChain1_variant_3c08_L	557	22-41	47-56	85-104
Matuzumab_LightChain1_variant_3c09_B	558	22-41	47-56	85-104
Mavrilimumab_HeavyChain1	559	22-41		94-113
Mavrilimumab_LightChain1	560	22-41	50-59	88-107
MDX-1303_HeavyChain1	561	22-41		94-113
MDX-1303_LightChain1	562	22-41	49-58	87-106
Mepolizumab_HeavyChain1	563	22-41		93-112
Mepolizumab_LightChain1	564	22-41	54-63	92-111
Metelimumab_HeavyChain1	565	22-41		94-113
Metelimumab_LightChain1	566	22-41	48-57	86-105
Milatuzumab_HeavyChain1	567	22-41		
Milatuzumab_LightChain1	568	22-41	53-62	
Mirvetuximab_HeavyChain1	569	22-41		94-113
Mirvetuximab_LightChain1	570	22-41	52-61	90-109
Modotuximab_HeavyChain1	571	22-41		94-113
Modotuximab_LightChain1	572	22-41	53-62	91-110
Mogamulizumab_HeavyChain1	573	22-41		94-113
Mogamulizumab_LightChain1	574	22-41	53-62	91-110
Monalizumab_HeavyChain1	575	22-41		94-113
Monalizumab_LightChain1	576	22-41	29-38	86-105
Motavizumab_HeavyChain	577	22-41		95-114

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Motavizumab_HeavyChain_variant	578	22-41		95-114
Motavizumab_LightChain	579	22-41	47-56	85-104
Motavizumab_LightChain_variant	580	22-41	47-56	85-104
Moxetumomab_pasudotox_HeavyChain1	581	22-41	32-41	95-114
Moxetumomab_pasudotox_LightChain1	582	22-41	49-58	
Muromonab-CD3_HeavyChain	583	22-41		94-113
Muromonab-CD3_LightChain	584	22-41	47-56	85-104
Namilumab_HeavyChain1	585	22-41		94-113
Namilumab_LightChain1	586	22-41	48-57	86-105
Naptumomab_estafenatox_HeavyChain	587	22-41	254-263	94-113
Naptumomab_estafenatox_LightChain	588	22-41		
Narnatumab_HeavyChain1	589	22-41		94-113
Narnatumab_LightChain1	590	22-41	48-57	86-105
Natalizumab_HeavyChain1	591	22-41		94-113
Natalizumab_LightChain1	592	22-41		86-105
Navicixizumab_HeavyChain1	593	22-41		94-113
Navicixizumab_HeavyChain2	594	22-41		
Navicixizumab_LightChain1	595	22-41	52-61	90-109
Navivumab_HeavyChain1	596	22-41		
Navivumab_LightChain1	597	22-41	49-58	87-106
Ndimab-varB_HeavyChain	598	22-41	568-577	94-113
Ndimab-varB_LightChain	599	22-41	48-57	86-105
Necitumumab_HeavyChain1	600	22-41	53-62	95-114
Necitumumab_LightChain1	601	22-41	48-57	86-105
Neliximab_HeavyChain_VH-Region	602	22-41		94-113
Neliximab_HeavyChain_VH-Region_variant1	603	22-41		94-113
Neliximab_LightChain_VL-Region	604	22-41	47-56	85-104
Neliximab_LightChain_VL-Region_variant1	605	22-41	47-56	85-104
Nemolizumab_HeavyChain1	606	22-41		94-113
Nemolizumab_LightChain1	607	22-41	29-38	86-105
Nesvacumab_HeavyChain1	608	22-41		93-112
Nesvacumab_LightChain1	609	22-41	49-58	87-106
Neuradiab_HeavyChain1	610	22-41	413-422	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Neuradiab_LightChain1	611	22-41	53-62	91-110
Nimotuzumab_HeavyChain1	612	22-41	34-43	
Nimotuzumab_LightChain1	613	22-41	53-62	91-110
Nivolumab_HeavyChain1	614	22-41		94-113
Nivolumab_LightChain1	615	22-41	48-57	86-105
Obiltoxaximab_HeavyChain1	616	22-41	51-60	
Obiltoxaximab_LightChain1	617	22-41	48-57	
Obinutuzumab_HeavyChain1	618	22-41		94-113
Obinutuzumab_LightChain1	619	22-41	53-62	91-110
Ocaratuzumab_HeavyChain1	620	22-41	51-60	94-113
Ocaratuzumab_LightChain1	621	22-41	47-56	85-104
Ocrelizumab_HeavyChain1	622	22-41	51-60	94-113
Ocrelizumab_LightChain1	623	22-41	47-56	85-104
Ofatumumab_HeavyChain1	624	22-41		94-113
Ofatumumab_LightChain1	625	22-41	48-57	86-105
Olaratumab_HeavyChain1	626	22-41		95-114
Olaratumab_LightChain1	627	22-41	48-57	86-105
Olizuab_HeavyChain1	628	22-41		93-112
Olizuab_LightChain1	629	22-41	51-60	89-108
Olokizumab_HeavyChain1	630	22-41		96-115
Olokizumab_LightChain1	631	22-41	48-57	86-105
Omalizumab_HeavyChain	632	22-41		94-113
Omalizumab_LightChain	633	22-41	52-61	90-109
Onartuzumab_HeavyChain1	634	22-41		94-113
Onartuzumab_HeavyChain2	635	22-41		
Onartuzumab_LightChain1	636	22-41	54-63	92-111
Ontuxizumab_HeavyChain1	637	22-41		94-113
Ontuxizumab_LightChain1	638	22-41	48-57	86-105
Opicinumab_HeavyChain1	639	22-41		94-113
Opicinumab_LightChain1	640	22-41	48-57	86-105
Oportuzumab_monatox_HeavyChain1	641	22-41	59-68	97-116
Oportuzumab_monatox_SingleChain_variable_fragment	642	22-41	59-68	97-116
Oreptacog_alfa_HeavyChain1	643	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Oreptacog_alfa_LightChain1	644	22-41		
Orticumab_HeavyChain1	645	22-41		94-113
Orticumab_LightChain1	646	22-41	49-58	87-106
Otelixizumab_HeavyChain1	647	22-41		94-113
Otelixizumab_LightChain1	648	22-41	49-58	
Otlertuzumab_HeavyChain1	649	22-41	189-198	94-113
Oxelumab_HeavyChain1	650	22-41		94-113
Oxelumab_LightChain1	651	22-41	48-57	86-105
Ozanezumab_HeavyChain1	652	22-41		94-113
Ozanezumab_LightChain1	653	22-41	53-62	91-110
Ozoralizumab_HeavyChain1	654	22-41		94-113
Palivizumab_HeavyChain	655	22-41		95-114
Palivizumab_LightChain	656	22-41	47-56	85-104
Palivizumab_VH-Region	657	22-41		95-114
Pamrevlumab_HeavyChain1	658	22-41		93-112
Pamrevlumab_LightChain1	659	22-41	48-57	86-105
Panitumumab_HeavyChain1	660	22-41	53-62	95-114
Panitumumab_LightChain1	661	22-41	48-57	
Pankoab_HeavyChain1	662	22-41		93-112
Pankoab_LightChain1	663	22-41	52-61	89-108
Pankoab_LightChain2	664	22-41	52-61	89-108
PankoMab_HeavyChain_VDJ-Region	665	22-41	95-104	96-115
PankoMab_LightChain_VJ-Region	666	22-41	53-62	91-110
Panobacumab_HeavyChain1	667	22-41		93-112
Panobacumab_LightChain1	668	22-41	53-62	91-110
Panobacumab_LightChain2	669	22-41		
Parsatuzumab_HeavyChain1	670	22-41		94-113
Parsatuzumab_LightChain1	671	22-41	53-62	91-110
Pascolizumab_HeavyChain1	672	22-41	53-62	95-114
Pascolizumab_LightChain1	673	22-41	52-61	90-109
Pasotuxizumab_HeavyChain1	674	22-41	184-193	94-113
Pasotuxizumab_SingleChain	675	22-41	184-193	94-113
Pateclizumab_HeavyChain1	676	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Pateclizumab_LightChain1	677	22-41	48-57	86-105
Patritumab_HeavyChain1	678	22-41		93-112
Patritumab_hinge-CH2-CH3	679	22-41		
Patritumab_LightChain1	680	22-41	54-63	92-111
Pembrolizumab_HeavyChain1	681	22-41		94-113
Pembrolizumab_LightChain1	682	22-41	52-61	90-109
Perakizumab_HeavyChain1	683	22-41		94-113
Perakizumab_LightChain1	684	22-41		86-105
Pertuzuab_HeavyChain1	685	22-41	58-67	92-111
Pertuzuab_LightChain1	686	22-41	47-56	85-104
Pertuzumab_HeavyChain	687	22-41	48-57	86-105
Pertuzumab_LightChain	688	22-41	59-68	94-113
Pexelizumab_h5gl.1-scFv	689	22-41	31-40	88-107
Pexelizumab_h5gl.1VHC_+_F_Heavy_Chain_V-Region	690	22-41		94-113
Pexelizumab_h5gl.1VHC_+_F_Light_Chain_V-Region	691	22-41	28-37	85-104
PF-05082566_HeavyChain1	692	22-41	51-60	94-113
PF-05082568_LightChain1	693	22-41	47-56	85-104
Pidilizumab_HeavyChain1	694	22-41		
Pidilizumab_LightChain1	695	22-41	47-56	85-104
Pinatuzumab_vedotin_HeavyChain1	696	22-41	51-60	94-113
Pinatuzumab_vedotin_LightChain1	697	22-41	53-62	91-110
Placulumab_chain1	698	22-41	48-57	86-105
Placulumab_HeavyChain1	699	22-41	48-57	86-105
Plozalizumab_HeavyChain1	700	22-41		96-115
Plozalizumab_LightChain1	701	22-41	53-62	91-110
Pogalizumab_HeavyChain1	702	22-41		94-113
Pogalizumab_LightChain1	703	22-41	48-57	86-105
Polatuzumab_vedotin_HeavyChain1	704	22-41		94-113
Polatuzumab_vedotin_LightChain1	705	22-41	52-61	90-109
Ponezumab_HeavyChain1	706	22-41		94-113
Ponezumab_LightChain1	707	22-41	53-62	91-110
Pritoxaximab_HeavyChain1	708	22-41	51-60	
Pritoxaximab_LightChain1	709	22-41	48-57	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Pritumumab_HeavyChain1	710	22-41		
Pritumumab_LightChain1	711	22-41	48-57	86-105
Quilizumab_HeavyChain1	712	22-41	58-67	94-113
Quilizumab_LightChain1	713	22-41	53-62	91-110
Racotumomab_HeavyChain1	714	22-41		
Racotumomab_LightChain1	715	22-41	48-57	
Racotumomab_scVH-VH'-VH_chain	716	22-41		94-113
Radretumab_HeavyChain1	717	22-41	177-186	94-113
Radretumab_j_chain	718	22-41		
Rafivirumab_HeavyChain1	719	22-41		
Rafivirumab_HeavyChain	720	22-41		
Rafivirumab_LightChain1	721	22-41	50-59	88-107
Rafivirumab_LightChain	722	22-41	50-59	88-107
Ralpancizumab_HeavyChain1	723	22-41		94-113
Ralpancizumab_LightChain1	724	22-41	48-57	86-105
Ramucirumab_HeavyChain1	725	22-41	58-67	94-113
Ramucirumab_LightChain1	726	22-41	48-57	
Ranibiziuab_HeavyChain1	727	22-41		92-111
Ranibiziuab_LightChain1	728	22-41	48-57	86-105
Ranibizumab_fab_fragment	729	22-41	48-57	86-105
Ranibizumab_HeavyChain	730	22-41		94-113
Ranibizumab_LightChain	731	22-41		94-113
Ranibizumab_LightChain_variant	732	22-41	48-57	86-105
Refanezumab_HeavyChain1	733	22-41		94-113
Refanezumab_LightChain1	734	22-41	54-63	92-111
REGN2810_HeavyChain1	735	22-41	100-109	92-111
REGN2810_LightChain1	736	22-41	47-56	85-104
rhuMab_HER2(9C1)_LightChain	737	22-41	51-60	89-108
rhuMab_HER2_HeavyChain	738	22-41		49-68
rhuMab_HER2_LightChain	739	22-41	49-58	87-106
rhuMab_HER2_LightChain_variant1	740	22-41		
rhuMab_HER2_LightChain_variant2	741	22-41	48-57	86-105
rhuMab_HER2_LightChain_variant3	742	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
rhuMab_HER2_LightChain_variant4	743	22-41	49-58	87-106
rhuMab_HER2_LightChain_V-Region	744	22-41	48-57	86-105
rhuMab_HER2_gamma1-Chain	745	22-41	51-60	94-113
rhuMab_HER2_gamma1-Chain	746	22-41	51-60	94-113
rhuMab_HER2_gamma1-Chain_rhuMab_HER2_LightChain_sc405	747	22-41	51-60	94-113
rhuMab_HER2_gamma1-Chain_variant1	748	22-41	51-60	94-113
rhuMab_HER2_gamma1-Chain_variant2	749	22-41	51-60	94-113
rhuMab_HER2_gamma1-Chain_variant3	750	22-41	51-60	94-113
rhuMab_HER2_gamma1-Chain_V-Region	751	22-41	51-60	94-113
rhuMAb-VEGF_HeavyChain1	752	22-41		94-113
rhuMAb-VEGF_LightChain1	753	22-41	48-57	86-105
rhuMAb-VEGF_LightChain	754	22-41	48-57	86-105
rhuMAb-VEGF_LightChain_VG-Region	755	22-41	48-57	86-105
rhuMAb-VEGF_gamma1-Chain	756	22-41		94-113
rhuMAb-VEGF_gamma1-Chain_VDG-Region	757	22-41		94-113
Rilotumumab_HeavyChain1	758	22-41	31-40	93-112
Rilotumumab_LightChain1	759	22-41	48-57	86-105
Rilotumumab_scFv-CH_chain	760	22-41	177-186	94-113
Rinucumab_HeavyChain1	761	22-41	53-62	95-114
Rinucumab_HeavyChain	762	22-41	53-62	95-114
Rinucumab_LightChain1	763	22-41	32-41	87-106
Risankizumab_HeavyChain1	764	22-41	51-60	94-113
Risankizumab_LightChain1	765	22-41	48-57	
Rituximab_HeavyChain	766	22-41	51-60	94-113
Rituximab_HeavyChain_variant	767	22-41	51-60	94-113
Rituximab_LightChain	768	22-41	47-56	85-104
Rivabazumab_pegol_HeavyChain1	769	22-41	103-112	94-113
Rivabazumab_pegol_LightChain1	770	22-41	48-57	86-105
Robatumumab_HeavyChain1	771	22-41		93-112
Robatumumab_LightChain1	772	22-41		86-105
Roledumab_HeavyChain1	773	22-41		94-113
Roledumab_LightChain1	774	22-41	48-57	86-105
Romosozumab_fab_fragment	775	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Romosozumab_HeavyChain1	776	22-41	104-113	94-113
Romosozumab_LightChain1	777	22-41	48-57	86-105
Rontalizuab_HeavyChain1	778	22-41		93-112
Rontalizuab_LightChain1	779	22-41		88-107
Rontalizumab_HeavyChain1	780	22-41		94-113
Rontalizumab_LightChain1	781	22-41		90-109
Rovalpituzumab_tesirine_HeavyChain1	782	22-41		94-113
Rovalpituzumab_tesirine_LightChain1	783	22-41	48-57	86-105
Rovelizumab_HeavyChain1	784	22-41		94-113
Rovelizumab_LightChain1	785	22-41	52-61	90-109
Ruplizumab_HeavyChain1	786	22-41		94-113
Ruplizumab_LightChain1	787	22-41		90-109
Sacituzumab_govitecan_HeavyChain1	788	22-41		
Sacituzumab_govitecan_LightChain1	789	22-41	48-57	86-105
Samalizumab_HeavyChain1	790	22-41		94-113
Samalizumab_LightChain1	791	22-41	48-57	86-105
Sarilumab_HeavyChain1	792	22-41		94-113
Sarilumab_LightChain1	793	22-41	48-57	86-105
Satumomab_pendetide_HeavyChain	794	22-41	366-375	
Satumomab_pendetide_LightChain	795	22-41	29-38	86-105
Secukinumab_HeavyChain1	796	22-41		94-113
Secukinumab_LightChain1	797	22-41	49-58	87-106
Seribantumab_HeavyChain1	798	22-41		94-113
Seribantumab_LightChain1	799	22-41	50-59	88-107
Setoxaximab_HeavyChain1	800	22-41		94-113
Setoxaximab_LightChain1	801	22-41	54-63	92-111
Sifalimumab_HeavyChain1	802	22-41		94-113
Sifalimumab_LightChain1	803	22-41	49-58	87-106
Siltuximab_HeavyChain1	804	22-41		94-113
Siltuximab_LightChain1	805	22-41	47-56	85-104
Simtuzumab_HeavyChain1	806	22-41		
Simtuzumab_LightChain1	807	22-41	53-62	91-110
Sirukumab_HeavyChain1	808	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Sirukumab_LightChain1	809	22-41	47-56	85-104
Sofituzumab_vedotin_HeavyChain1	810	22-41		94-113
Sofituzumab_vedotin_LightChain1	811	22-41	48-57	86-105
Solanezumab_HeavyChain1	812	22-41		94-113
Solanezumab_HeavyChain	813	22-41		94-113
Solanezumab_LightChain1	814	22-41	30-39	91-110
Solitomab_HeavyChain1	815	22-41	54-63	92-111
Solitomab_SingleChain	816	22-41	54-63	92-111
Sonepcizumab_LightChain_Precursor	817	22-41		106-125
Sonepcizumab_gamma1-Chain_Precursor	818	22-41		
Stamulumab_HeavyChain1	819	22-41		93-112
Stamulumab_LightChain1	820	22-41	47-56	85-104
Suptavumab_HeavyChain1	821	22-41		94-113
Suptavumab_LightChain1	822	22-41	48-57	86-105
Suvizumab_HeavyChain1	823	22-41	51-60	94-113
Suvizumab_LightChain1	824	22-41	54-63	92-111
Tabalumab_HeavyChain1	825	22-41		93-112
Tabalumab_LightChain1	826	22-41	48-57	86-105
Tacatuzuab_HeavyChain1	827	22-41		
Tacatuzuab_LightChain1	828	22-41		85-104
Tadocizumab_fab_fragment_HeavyChain	829	22-41	51-60	
Tadocizumab_fab_fragment_LightChain	830	22-41	48-57	
Talizumab_HeavyChain1	831	22-41		94-113
Talizumab_LightChain1	832	22-41		86-105
Tamtuvetmab_HeavyChain1	833	22-41		96-115
Tamtuvetmab_LightChain1	834	22-41	48-57	
Tanezumab_HeavyChain	835	22-41		93-112
Tanezumab_LightChain	836	22-41	48-57	86-105
Tarextumab_HeavyChain1	837	22-41		94-113
Tarextumab_LightChain1	838	22-41	49-58	87-106
Tefibazumab_HeavyChain1	839	22-41		93-112
Tefibazumab_LightChain1	840	22-41	54-63	92-111
Tenatumomab_HeavyChain1	841	22-41	103-112	94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Tenatumomab_LightChain1	842	22-41	53-62	91-110
Teneliximab_HeavyChain1	843	22-41		
Teneliximab_LightChain1	844	22-41	85-94	86-105
Teplizumab_HeavyChain1	845	22-41		
Teplizumab_LightChain1	846	22-41	47-56	85-104
Teprotumumab_HeavyChain1	847	22-41		
Teprotumumab_LightChain1	848	22-41	48-57	86-105
Tesidolumab_HeavyChain1	849	22-41		94-113
Tesidolumab_LightChain1	850	22-41	47-56	85-104
Tezepelumab_HeavyChain1	851	22-41		94-113
Tezepelumab_LightChain1	852	22-41		85-104
ThioMAb-chMA79b-HC(A118C)_HeavyChain	853	22-41		94-113
ThioMab-hu10A8.v1-HC(A118C)_HeavyChain	854	22-41		94-113
ThioMab-hu10A8.v1-HC(V205C)_HeavyChain	855	22-41		94-113
ThioMab-hu10A8.v1-LC(A118C)_LightChain	856	22-41	48-57	86-105
ThioMab-hu10A8.v1-LC(V205C)_LightChain	857	22-41	48-57	86-105
ThioMAb-huMA79b.v17-HC(A118C)_HeavyChain	858	22-41		94-113
ThioMAb-huMA79b.v17-HC(A118C)_LightChain	859	22-41	52-61	90-109
ThioMAb-huMA79b.v18-HC(A118C)_HeavyChain	860	22-41		94-113
ThioMAb-huMA79b.v28-HC(A118C)_LightChain	861	22-41	52-61	90-109
ThioMAb-huMA79b.v28-LC(V205C)_LightChain	862	22-41	52-61	90-109
Ticiliuab_HeavyChain1	863	22-41		92-111
Ticiliuab_LightChain1	864	22-41	47-56	85-104
Tigatuzumab_HeavyChain1	865	22-41		94-113
Tigatuzumab_HeavyChain	866	22-41		94-113
Tigatuzumab_LightChain1	867	22-41	48-57	86-105
Tigatuzumab_LightChain	868	22-41	48-57	86-105
Tildrakizumab_HeavyChain1	869	22-41		94-113
Tildrakizumab_LightChain1	870	22-41	29-38	86-105
Tisotumab_vedotin_HeavyChain1	871	22-41		94-113
Tisotumab_vedotin_LightChain1	872	22-41	48-57	86-105
Tocilizumab_HeavyChain1	873	22-41		93-112
Tocilizumab_LightChain1	874	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Tosatoxumab_HeavyChain1	875	22-41		94-113
Tosatoxumab_LightChain1	876	22-41	49-58	87-106
Tositumomab_HeavyChain	877	22-41	51-60	
Tositumomab_LightChain	878	22-41	47-56	85-104
Tovetumab_HeavyChain1	879	22-41	58-67	94-113
Tovetumab_LightChain1	880	22-41		86-105
Tralokinumab_HeavyChain1	881	22-41		94-113
Tralokinumab_LightChain1	882	22-41	47-56	85-104
Trastuzuab_HeavyChain1	883	22-41	51-60	93-112
Trastuzuab_LightChain1	884	22-41	47-56	85-104
Trastuzumab_emtansine_HeavyChain1	885	22-41	51-60	94-113
Trastuzumab_emtansine_LightChain1	886	22-41	48-57	86-105
Trastuzumab_HeavyChain1	887	22-41	51-60	94-113
Trastuzumab_HeavyChain	888	22-41	51-60	94-113
Trastuzumab_HeavyChain_variant_1n8z_B	889	22-41	51-60	94-113
Trastuzumab_HeavyChain_variant_7637_H	890			
Trastuzumab_LightChain1	891	22-41	48-57	86-105
Trastuzumab_LightChain_variant_1n8z_A	892	22-41	48-57	86-105
Trastuzumab_LightChain_variant_7637_L	893	22-41	48-57	86-105
TRC-105_HeavyChain1	894	22-41	95-104	96-115
TRC-105_LightChain1	895	22-41	47-56	85-104
Tregalizumab_HeavyChain1	896	22-41		96-115
Tregalizumab_LightChain1	897	22-41	37-46	90-109
Tremelimumab_HeavyChain1	898	22-41		94-113
Tremelimumab_LightChain1	899	22-41	48-57	86-105
Trevogrumab_HeavyChain1	900	22-41		94-113
Trevogrumab_LightChain1	901	22-41	48-57	86-105
Tucotuzumab_celmoleukin_HeavyChain1	902	22-41		
Tucotuzumab_celmoleukin_LightChain1	903	22-41		85-104
Ublituximab_HeavyChain1	904	22-41	51-60	
Ublituximab_LightChain1	905	22-41	47-56	85-104
Ulocuplumab_HeavyChain1	906	22-41	58-67	94-113
Ulocuplumab_LightChain1	907	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Urelumab_HeavyChain1	908	22-41		93-112
Urelumab_LightChain1	909	22-41	48-57	86-105
Urtoxazumab_HeavyChain1	910	22-41		94-113
Urtoxazumab_LightChain1	911	22-41		86-105
Ustekinumab_HeavyChain1	912	22-41		94-113
Ustekinumab_LightChain1	913	22-41	48-57	86-105
Vadastuximab_talirine_HeavyChain1	914	22-41	51-60	94-113
Vadastuximab_talirine_LightChain1	915	22-41	48-57	86-105
Vandortuzumab_vedotin_HeavyChain1	916	22-41		94-113
Vandortuzumab_vedotin_LightChain1	917	22-41	54-63	92-111
Vantictumab_HeavyChain1	918	22-41		94-113
Vantictumab_LightChain1	919	22-41	47-56	85-104
Vanucizumab_HeavyChain1	920	22-41		94-113
Vanucizumab_HeavyChain2	921	22-41		94-113
Vanucizumab_LightChain1	922	22-41		85-104
Vanucizumab_LightChain2	923	22-41	48-57	86-105
Varlilumab_HeavyChain1	924	22-41		94-113
Varlilumab_LightChain1	925	22-41	48-57	86-105
Vatelizumab_HeavyChain1	926	22-41		93-112
Vatelizumab_LightChain1	927	22-41	47-56	85-104
Vedolizumab_HeavyChain1	928	22-41		94-113
Vedolizumab_LightChain1	929	22-41	53-62	91-110
Veltuzumab_HeavyChain1	930	22-41	51-60	94-113
Veltuzumab_LightChain1	931	22-41	47-56	85-104
Vesencumab_HeavyChain1	932	22-41		94-113
Vesencumab_LightChain1	933	22-41	48-57	86-105
Visilizumab_HeavyChain1	934	22-41		94-113
Visilizumab_LightChain1	935	22-41	47-56	85-104
Volociximab_HeavyChain	936	22-41		93-112
Volociximab_LightChain	937	22-41	49-58	87-106
Vorsetuzumab_HeavyChain1	938	22-41		94-113
Vorsetuzumab_LightChain1	939	22-41	52-61	90-109
Vorsetuzumab_mafodotin_HeavyChain1	940	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Vorsetuzumab_mafodotin_LightChain1	941	22-41	52-61	90-109
Yttrium_(90Y)_clivatuzumab_tetraxetan_HeavyChain1	942	22-41		94-113
Yttrium_(90Y)_clivatuzumab_tetraxetan_LightChain1	943	22-41	49-58	
Yttrium_Y_90_epratuzumab_tetraxetan_HeavyChain1	944	22-41		
Yttrium_Y_90_epratuzumab_tetraxetan_LightChain1	945	22-41	54-63	92-111
Yttrium_Y_90_epratuzumab_HeavyChain1	946	22-41		
Yttrium_Y_90_epratuzumab_LightChain1	947	22-41	53-62	91-110
Zalutumumab_HeavyChain1	948	22-41		94-113
Zalutumumab_LightChain1	949	22-41	48-57	86-105
Zanolimumab_HO_HeavyChain	950	22-41		93-112
Zanolimumab_LO_LightChain	951	22-41	49-58	87-106
Zatuximab_HeavyChain1	952	22-41		94-113
Zatuximab_LightChain1	953	22-41	53-62	91-110
Actoxumab_HeavyChain	954	22-41		94-113
Actoxumab_LightChain	955	22-41	48-57	86-105
Andecaliximab_HeavyChain	956	22-41	92-101	93-112
Andecaliximab_LightChain	957	22-41	48-57	86-105
Aprutumab_HeavyChain	958	22-41		94-113
Aprutumab_LightChain	959	22-41	49-58	87-106
Azintuxizumab_HeavyChain	960	22-41		94-113
Azintuxizumab_LightChain	961	22-41	53-62	
Blinatumomab_HeavyChain1	962	22-41		
Blinatumomab_HeavyChain2	963	22-41		94-113
Blinatumomab_LightChain_HeavyChain_HeavyChain_LightChain	964	22-41	52-61	349-368
Blinatumomab_LightChain1	965	22-41	52-61	
Blinatumomab_LightChain2	966	22-41	49-58	87-106
Brazikumab_HeavyChain	967	22-41		94-113
Brazikumab_LightChain	968	22-41	50-59	88-107
Brolucizumab_HeavyChain	969	22-41		95-114
Brolucizumab_LightChain	970	22-41	49-58	87-106
Cabiralizumab_HeavyChain	971	22-41		94-113
Cabiralizumab_LightChain	972	22-41	52-61	90-109
Camrelizumab_HeavyChain	973	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Camrelizumab_LightChain	974	22-41	48-57	86-105
Caplacizumab_HeavyChain	975	22-41		94-113
Citatuzumab_bogatox_HeavyChain	976	22-41		94-113
Cosfroviximab_HeavyChain	977	22-41		95-114
Cosfroviximab_LightChain	978	22-41	48-57	
Crizanlizumab_HeavyChain	979	22-41	51-60	94-113
Crizanlizumab_LightChain	980	22-41	52-61	90-109
Crotedumab_HeavyChain	981	22-41		94-113
Crotedumab_LightChain	982	22-41	48-57	86-105
Dezamizumab_HeavyChain	983	22-41	51-60	94-113
Dezamizumab_LightChain	984	22-41	29-38	86-105
Duvortuxizumab_Chain1_scFv	985	22-41	47-56	85-104
Duvortuxizumab_Chain2_scFv	986	22-41		88-107
Duvortuxizumab_Chain3_h-CH2-CH3	987	22-41		
Efungumab_HeavyChain	988	22-41		96-115
Efungumab_HeavyChain_LightChain	989	22-41	185-194	96-115
Efungumab_LightChain	990	22-41	48-57	86-105
Elezanumab_HeavyChain	991	22-41		94-113
Elezanumab_LightChain	992	22-41	33-42	88-107
Emapalumab_HeavyChain	993	22-41		94-113
Emapalumab_LightChain	994	22-41	49-58	89-108
Enoblituzumab_HeavyChain	995	22-41		94-113
Enoblituzumab_LightChain	996	22-41	49-58	87-106
Eptinezumab_HeavyChain	997	22-41		
Eptinezumab_LightChain	998	22-41	49-58	87-106
Erenumab_HeavyChain	999	22-41		94-113
Erenumab_LightChain	1000	22-41	49-58	87-106
Fremanezumab_HeavyChain	1001	22-41		96-115
Fremanezumab_LightChain	1002	22-41	48-57	86-105
Frunevetmab_HeavyChain	1003	22-41		93-112
Frunevetmab_LightChain	1004	22-41	29-38	
Gatipotuzumab_HeavyChain	1005	22-41		96-115
Gatipotuzumab_LightChain	1006	22-41	53-62	91-110

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Gedivumab_HeavyChain	1007	22-41		94-113
Gedivumab_LightChain	1008	22-41	48-57	86-105
Gemetuzumab_HeavyChain	1009	22-41	51-60	94-113
Gemetuzumab_LightChain	1010	22-41		90-109
Gilvetmab_HeavyChain	1011	22-41	99-108	94-113
Gilvetmab_LightChain	1012	22-41	48-57	86-105
Ifabotuzumab_HeavyChain	1013	22-41	51-60	94-113
Ifabotuzumab_LightChain	1014	22-41	48-57	86-105
Iratumumab_HeavyChain	1015	22-41		93-112
Iratumumab_LightChain	1016	22-41	48-57	86-105
Lacnotuzumab_HeavyChain	1017	22-41		94-113
Lacnotuzumab_LightChain	1018	22-41		86-105
Larcaviximab_HeavyChain	1019	22-41		94-113
Larcaviximab_LightChain	1020	22-41	29-38	
Lendalizumab_HeavyChain	1021	22-41		94-113
Lendalizumab_LightChain	1022	22-41	52-61	90-109
Lesofavumab_HeavyChain	1023	22-41	59-68	94-113
Lesofavumab_LightChain	1024	22-41	53-62	91-110
Letolizumab_HeavyChain	1025	22-41		94-113
Losatuxizumab_HeavyChain	1026	22-41		94-113
Losatuxizumab_LightChain	1027	22-41	48-57	86-105
Lupartumab_HeavyChain	1028	22-41	58-67	94-113
Lupartumab_LightChain	1029	22-41	50-59	88-107
Lutikizumab_HeavyChain	1030	22-41		219-238
Lutikizumab_LightChain	1031	22-41	48-57	86-105
Oleclumab_HeavyChain	1032	22-41		94-113
Oleclumab_LightChain	1033	22-41	49-58	87-106
Otlertuzumab_HeavyChain	1034	22-41	189-198	94-113
Ozoralizumab_HeavyChain	1035	22-41		94-113
Ozoralizumab_HeavyChain_HeavyChain_HeavyChain	1036	22-41		94-113
Pasotuxizumab_HeavyChain_LightChain_HeavyChain_LightChain	1037	22-41	184-193	94-113
Pasotuxizumab_HeavyChain1	1038	22-41		94-113
Pasotuxizumab_HeavyChain2	1039	22-41		96-115

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Pasotuxizumab_LightChain1	1040	22-41	48-57	86-105
Pasotuxizumab_LightChain2	1041	22-41		88-107
Placulumab_HeavyChain	1042	22-41	48-57	86-105
Porgaviximab_HeavyChain	1043	22-41	95-104	96-115
Porgaviximab_LightChain	1044	22-41	29-38	86-105
Prezalumab_HeavyChain	1045	22-41		94-113
Prezalumab_LightChain	1046	22-41	48-57	86-105
Radretumab_HeavyChain	1047	22-41		94-113
Radretumab_HeavyChain_LightChain	1048	22-41	177-186	94-113
Radretumab_LightChain	1049	22-41	51-60	89-108
Ranevetmab_HeavyChain1	1050	22-41		93-112
Ranevetmab_HeavyChain2	1051	22-41		93-112
Ranevetmab_LightChain	1052	22-41	29-38	86-105
Remtolumab_HeavyChain	1053	22-41		94-113
Remtolumab_LightChain	1054	22-41	48-57	86-105
Rosmantuzumab_HeavyChain	1055	22-41	51-60	94-113
Rosmantuzumab_LightChain	1056	22-41	52-61	90-109
Rozanolixizumab_HeavyChain	1057	22-41		94-113
Rozanolixizumab_LightChain	1058	22-41	53-62	91-110
Sapelizumab_HeavyChain	1059	22-41		94-113
Sapelizumab_LightChain	1060	22-41	48-57	86-105
Selicrelumab_HeavyChain	1061	22-41		94-113
Selicrelumab_LightChain	1062	22-41	29-38	86-105
Solitomab_HeavyChain1	1063	22-41		
Solitomab_HeavyChain2	1064	22-41		94-113
Solitomab_LightChain_HeavyChain_HeavyChain_LightChain	1065	22-41	54-63	92-111
Solitomab_LightChain1	1066	22-41	54-63	92-111
Solitomab_LightChain2	1067	22-41	49-58	87-106
Suptavumab_HeavyChain2	1068	22-41		94-113
Suvratoxumab_HeavyChain	1069	22-41		93-112
Suvratoxumab_LightChain	1070	22-41	48-57	86-105
Tadocizumab_LightChain	1071	22-41	48-57	
Tanezumab_HeavyChain	1072	22-41		93-112

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
Tanezumab_LightChain	1073	22-41	48-57	86-105
Tavolixizumab_HeavyChain	1074	22-41		93-112
Tavolixizumab_LightChain	1075	22-41	48-57	86-105
Telisotuzumab_HeavyChain	1076	22-41		94-113
Telisotuzumab_LightChain	1077	22-41	52-61	90-109
Telisotuzumab_vedotin_HeavyChain	1078	22-41		94-113
Telisotuzumab_vedotin_LightChain	1079	22-41	52-61	90-109
Timigutuzumab_HeavyChain	1080	22-41	51-60	94-113
Timigutuzumab_LightChain	1081	22-41	48-57	86-105
Timolumab_HeavyChain	1082	22-41		94-113
Timolumab_LightChain	1083	22-41	48-57	86-105
Tomuzotuximab_HeavyChain	1084	22-41	92-101	93-112
Tomuzotuximab_LightChain	1085	22-41		86-105
Trastuzumab_duocarmazine_HeavyChain	1086	22-41	51-60	94-113
Trastuzumab_duocarmazine_LightChain	1087	22-41	48-57	86-105
Varisacumab_HeavyChain	1088	22-41	59-68	94-113
Varisacumab_LightChain	1089	22-41	48-57	86-105
Vunakizumab_HeavyChain	1090	22-41		94-113
Vunakizumab_LightChain	1091	22-41	47-56	85-104
Xentuzumab_HeavyChain	1092	22-41		94-113
Xentuzumab_LightChain	1093	22-41	49-58	87-106
anti-rabies_S057_LightChain	1094	22-41	74-83	112-131
anti-rabies_S057_HeavyChain	1095	22-41		
anti-rabies_S0JB_LightChain	1096	22-41	66-75	104-123
anti-rabies_S0JB_HeavyChain	1097	22-41	72-81	114-133
anti-rabies_S0JA_LightChain	1098	22-41	68-77	106-125
anti-rabies_S0JA_HeavyChain	1099	22-41		113-132
anti-rabies_LightChain	1100	22-41	46-55	84-103
anti-rabies_HeavyChain	1101	22-41		84-103
anti-rabies_LightChain	1102	22-41	53-62	91-110
anti-rabies_HeavyChain	1103	22-41		84-103
anti-RSV_5ITB_LightChain	1104	22-41	49-58	87-106
anti-RSV_5ITB_HeavyChain	1105	22-41	47-56	89-108

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-alpha-toxin_4U6V_LightChain	1106	22-41	48-57	86-105
anti-alpha-toxin_4U6V_HeavyChain	1107	22-41		93-112
anti-alpha-toxin_4U6V_Chain-A	1108	22-41	248-257	
anti-alpha-toxin_4U6V_Chain-B	1109	22-41	248-257	
anti-IsdB_5D1Q_Chain-A	1110	22-41	48-57	86-105
anti-IsdB_5D1Q_Chain-B	1111	22-41		94-113
anti-IsdB_5D1Q_Chain-C	1112	22-41		103-122
anti-IsdB_5D1Q_Chain-D	1113	22-41	49-58	87-106
anti-IsdB_5D1Q_Chain-E	1114	22-41		
anti-IsdB_5D1X_Chain-A	1115	22-41	53-62	91-110
anti-IsdB_5D1X_Chain-B	1116	22-41		94-113
anti-IsdB_5D1X_Chain-C	1117	22-41		103-122
anti-IsdB_5D1X_Chain-D	1118	22-41	49-58	87-106
anti-IsdB_5D1X_Chain-E	1119	22-41		
anti-IsdB_5D1Z_Chain-B	1120	22-41		95-114
anti-IsdB_5D1Z_Chain-C	1121	22-41	48-57	86-105
anti-IsdB_5D1Z_Chain-D	1122	22-41	53-62	95-114
anti-IsdB_5D1Z_Chain-F	1123	22-41	53-62	95-114
anti-IsdB_5D1Z_Chain-G	1124	22-41		95-114
anti-IsdB_5D1Z_HeavyChain	1125	22-41	48-57	86-105
anti-IsdB_5D1Z_Chain-I	1126	22-41	148-157	
anti-HIV_b12_LightChain	1127	22-41		87-106
anti-HIV_b12_HeavyChain	1128	22-41		94-113
anti-HIV_2G12_LightChain	1129	22-41	47-56	
anti-HIV_2G12_HeavyChain	1130	22-41	93-102	94-113
anti-HIV_4E10_LightChain	1131	22-41	49-58	87-106
anti-HIV_4E10_HeavyChain	1132	22-41		94-113
anti-HIV_VRC01_LightChain	1133	22-41	46-55	84-103
anti-HIV_VRC01_HeavyChain	1134	22-41		
anti-HIV_PG9_LightChain	1135	22-41	50-59	88-107
anti-HIV_PG9_HeavyChain	1136	22-41		
anti-HIV_VRC07_LightChain	1137	22-41	46-55	84-103
anti-HIV_VRC07_HeavyChain	1138	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_3BNC117_LightChain	1139	22-41	44-53	
anti-HIV_3BNC117_HeavyChain	1140	22-41		
anti-HIV_10-1074_LightChain	1141	22-41	43-52	84-103
anti-HIV_10-1074_HeavyChain	1142	22-41	104-113	93-112
anti-HIV_PGT121_LightChain	1143	22-41	40-49	81-100
anti-HIV_PGT121_HeavyChain	1144	22-41	104-113	93-112
anti-HIV_PGDM1400_LightChain	1145	22-41	53-62	91-110
anti-HIV_PGDM1400_HeavyChain	1146	22-41		94-113
anti-HIV_N6_LightChain	1147	22-41		86-105
anti-HIV_N6_HeavyChain	1148	22-41		94-113
anti-HIV_N6_GChain	1149	22-41		
anti-HIV_10E8_LightChain	1150	22-41		85-104
anti-HIV_10E8_HeavyChain	1151	22-41		
anti-HIV_12A12_LightChain	1152	22-41		
anti-HIV_12A12_HeavyChain	1153	22-41	74-83	
anti-HIV_12A21_LightChain	1154	22-41		
anti-HIV_12A21_HeavyChain	1155	22-41	74-83	94-113
anti-HIV_35022_LightChain	1156	22-41	50-59	88-107
anti-HIV_35022_HeavyChain	1157	22-41		
anti-HIV_3BC176_LightChain	1158	22-41	50-59	88-107
anti-HIV_3BC176_HeavyChain	1159	22-41		
anti-HIV_3BNC55_LightChain	1160	22-41		83-102
anti-HIV_3BNC55_HeavyChain	1161	22-41	34-43	
anti-HIV_3BNC60_LightChain	1162	22-41	44-53	
anti-HIV_3BNC60_HeavyChain	1163	22-41	97-106	
anti-HIV_3BNC60_HeavyChain	1164	22-41	97-106	
anti-HIV_447-52D_LightChain	1165	22-41	49-58	
anti-HIV_447-52D_HeavyChain	1166	22-41		
anti-HIV_447-52D_LightChain	1167	22-41	49-58	
anti-HIV_447-52D_HeavyChain	1168	22-41		
anti-HIV_5H/11-BMV-D5_LightChain	1169	22-41	29-38	86-105
anti-HIV_5H/11-BMV-D5_HeavyChain	1170	22-41	93-102	94-113
anti-HIV_5H/11-BMV-D5_A-Chain	1171	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_8ANC195_LightChain	1172	22-41	49-58	
anti-HIV_8ANC195_HeavyChain	1173	22-41		
anti-HIV_CAP256-VRC26.01_LightChain	1174	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.01_HeavyChain	1175	22-41		94-113
anti-HIV_CAP256-VRC26.02_LightChain	1176	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.02_HeavyChain	1177	22-41		
anti-HIV_CAP256-VRC26.03_LightChain	1178	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.03_HeavyChain	1179	22-41		94-113
anti-HIV_CAP256-VRC26.04_LightChain	1180	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.04_HeavyChain	1181	22-41		94-113
anti-HIV_CAP256-VRC26.05_LightChain	1182	22-41	46-55	
anti-HIV_CAP256-VRC26.05_HeavyChain	1183	22-41		94-113
anti-HIV_CAP256-VRC26.06_LightChain	1184	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.06_HeavyChain	1185	22-41		94-113
anti-HIV_CAP256-VRC26.07_LightChain	1186	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.07_HeavyChain	1187	22-41		94-113
anti-HIV_CAP256-VRC26.08_LightChain	1188	22-41		87-106
anti-HIV_CAP256-VRC26.08_HeavyChain	1189	22-41		
anti-HIV_CAP256-VRC26.09_LightChain	1190	22-41	49-58	
anti-HIV_CAP256-VRC26.09_HeavyChain	1191	22-41		
anti-HIV_CAP256-VRC26.10_LightChain	1192	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.10_HeavyChain	1193	22-41		94-113
anti-HIV_CAP256-VRC26.11_LightChain	1194	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.11_HeavyChain	1195	22-41		
anti-HIV_CAP256-VRC26.12_LightChain	1196	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.12_HeavyChain	1197	22-41		
anti-HIV_CAP256-VRC26.11_LightChain	1198	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.11_HeavyChain	1199	22-41		94-113
anti-HIV_CAP256-VRC26.12_LightChain	1200	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.12_HeavyChain	1201	22-41		94-113
anti-HIV_CAP256-VRC26.UCA_LightChain	1202	22-41	49-58	87-106
anti-HIV_CAP256-VRC26.UCA_HeavyChain	1203	22-41		94-113
anti-HIV_CH01_LightChain	1204	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_CH01_HeavyChain	1205	22-41		94-113
anti-HIV_CH02_LightChain	1206	22-41		
anti-HIV_CH02_HeavyChain	1207	22-41		94-113
anti-HIV_CH03_LightChain	1208	22-41	49-58	
anti-HIV_CH03_HeavyChain	1209	22-41		94-113
anti-HIV_CH04_LightChain	1210	22-41	49-58	87-106
anti-HIV_CH04_HeavyChain	1211	22-41	93-102	94-113
anti-HIV_CH103_LightChain	1212	22-41		81-100
anti-HIV_CH103_HeavyChain	1213	22-41		
anti-HIV_M66.6_LightChain	1214	22-41	48-57	86-105
anti-HIV_M66.6_HeavyChain	1215	22-41	51-60	94-113
anti-HIV_NIH45-46_LightChain	1216	22-41	46-55	84-103
anti-HIV_NIH45-46_HeavyChain	1217	22-41		
anti-HIV_PG16_LightChain	1218	22-41		
anti-HIV_PG16_HeavyChain	1219	22-41		
anti-HIV_PGT122_LightChain	1220	22-41	40-49	81-100
anti-HIV_PGT122_HeavyChain	1221	22-41	92-101	93-112
anti-HIV_PGT123_LightChain	1222	22-41	40-49	81-100
anti-HIV_PGT123_HeavyChain	1223	22-41	104-113	
anti-HIV_PGT125_LightChain	1224	22-41		83-102
anti-HIV_PGT125_HeavyChain	1225	22-41		101-120
anti-HIV_PGT126_LightChain	1226	22-41	45-54	83-102
anti-HIV_PGT126_HeavyChain	1227	22-41	100-109	101-120
anti-HIV_PGT127_LightChain	1228	22-41	45-54	83-102
anti-HIV_PGT127_HeavyChain	1229	22-41		101-120
anti-HIV_PGT128_LightChain	1230	22-41	45-54	83-102
anti-HIV_PGT128_HeavyChain	1231	22-41		101-120
anti-HIV_PGT130_LightChain	1232	22-41		
anti-HIV_PGT130_HeavyChain	1233	22-41	73-82	
anti-HIV_PGT131_LightChain	1234	22-41		
anti-HIV_PGT131_HeavyChain	1235	22-41		
anti-HIV_PGT135_LightChain	1236	22-41		86-105
anti-HIV_PGT135_HeavyChain	1237	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_PGT136_LightChain	1238	22-41		
anti-HIV_PGT136_HeavyChain	1239	22-41		101-120
anti-HIV_PGT137_LightChain	1240	22-41		86-105
anti-HIV_PGT137_HeavyChain	1241	22-41		100-119
anti-HIV_PGT141_LightChain	1242	22-41	90-99	91-110
anti-HIV_PGT141_HeavyChain	1243	22-41	93-102	94-113
anti-HIV_PGT142_LightChain	1244	22-41	90-99	91-110
anti-HIV_PGT142_HeavyChain	1245	22-41	93-102	94-113
anti-HIV_PGT143_LightChain	1246	22-41	90-99	91-110
anti-HIV_PGT143_HeavyChain	1247	22-41	93-102	94-113
anti-HIV_PGT144_LightChain	1248	22-41	90-99	91-110
anti-HIV_PGT144_HeavyChain	1249	22-41	93-102	94-113
anti-HIV_PGT145_LightChain	1250	22-41		91-110
anti-HIV_PGT145_HeavyChain	1251	22-41	93-102	94-113
anti-HIV_PGT151_LightChain	1252	22-41		91-110
anti-HIV_PGT151_HeavyChain	1253	22-41		
anti-HIV_PGT152_LightChain	1254	22-41		91-110
anti-HIV_PGT152_HeavyChain	1255	22-41		
anti-HIV_VRC-CH30_LightChain	1256	22-41		
anti-HIV_VRC-CH30_HeavyChain	1257	22-41		103-122
anti-HIV_VRC-CH31_LightChain	1258	22-41		
anti-HIV_VRC-CH31_HeavyChain	1259	22-41		103-122
anti-HIV_VRC-CH32_LightChain	1260	22-41		
anti-HIV_VRC-CH32_HeavyChain	1261	22-41		103-122
anti-HIV_VRC-CH33_LightChain	1262	22-41		
anti-HIV_VRC-CH33_HeavyChain	1263	22-41		103-122
anti-HIV_VRC-CH34_LightChain	1264	22-41		
anti-HIV_VRC-CH34_HeavyChain	1265	22-41		103-122
anti-HIV_VRC-PG04_LightChain	1266	22-41		84-102
anti-HIV_VRC-PG04_HeavyChain	1267	22-41		
anti-HIV_VRC-PG04b_LightChain	1268	22-41		84-101
anti-HIV_VRC-PG04b_HeavyChain	1269	22-41		
anti-HIV_VRC-PG20_LightChain	1270	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_VRC-PG20_HeavyChain	1271	22-41		
anti-HIV_VRC-PG20_G-Chain	1272	22-41		
anti-HIV_VRC02_LightChain	1273	22-41	46-55	84-103
anti-HIV_VRC02_HeavyChain	1274	22-41		94-113
anti-HIV_VRC03_LightChain	1275	22-41	47-56	85-103
anti-HIV_VRC03_HeavyChain	1276	22-41		
anti-HIV_VRC23_LightChain	1277	22-41	48-57	86-105
anti-HIV_VRC23_HeavyChain	1278	22-41	93-102	94-113
anti-HIV_VRC23_G-Chain	1279	22-41		
anti-HIV_5CCK_LightChain	1280	22-41	50-59	88-107
anti-HIV_5CCK_HeavyChain	1281	22-41		
anti-HIV_5AWN_LightChain	1282	22-41	50-59	88-107
anti-HIV_5AWN_HeavyChain	1283	22-41		
anti-HIV_3QEG_LightChain	1284	22-41	49-58	87-106
anti-HIV_3QEG_HeavyChain	1285	22-41		94-113
anti-HIV_1NDX_K-Chain	1286	22-41		94-113
anti-HIV_1NDX_M-Chain	1287	22-41		87-106
anti-HIV_3QEH_HeavyChain	1288	22-41	53-62	91-110
anti-HIV_3QEH_G-Chain	1289	22-41	93-102	94-113
anti-HIV_2BIH_HeavyChain	1290	22-41		94-113
anti-HIV_2BIH_LightChain	1291	22-41	49-58	87-106
anti-HIV_3TNM_B-Chain	1292	22-41		88-107
anti-HIV_3TNM_A-Chain	1293	22-41		95-114
anti-HIV_3UJJ_HeavyChain	1294	22-41	51-60	94-113
anti-HIV_3UJJ_LightChain	1295	22-41	47-56	85-104
anti-HIV_3UJI_HeavyChain	1296	22-41		94-113
anti-HIV_3UJI_LightChain	1297	22-41	47-56	85-104
anti-HIV_2QSC_HeavyChain	1298	22-41		94-113
anti-HIV_2QSC_LightChain	1299	22-41	48-57	
anti-HIV_3MLZ_HeavyChain	1300	22-41	51-60	93-112
anti-HIV_3MLZ_LightChain	1301	22-41	49-58	87-106
anti-HIV_3MLX_I-Chain	1302	22-41	51-60	93-112
anti-HIV_3MLX_M-Chain	1303	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_3MLW_I-Chain	1304	22-41	51-60	94-113
anti-HIV_3MLW_M-Chain	1305	22-41		87-106
anti-HIV_3MLV_N-Chain	1306	22-41	51-60	
anti-HIV_3MLV_M-Chain	1307	22-41		85-104
anti-HIV_3MLU_LightChain	1308	22-41		84-103
anti-HIV_3MLT_G-Chain	1309	22-41		85-104
anti-HIV_3G01_HeavyChain	1310	22-41		93-112
anti-HIV_3G01_LightChain	1311	22-41	47-56	85-104
anti-HIV_4XCY_J-Chain	1312	22-41		94-113
anti-HIV_4XCY_K-Chain	1313	22-41	49-58	87-106
anti-HIV_4YBL_C-Chain	1314	22-41		86-105
anti-HIV_4YBL_B-Chain	1315	22-41		95-114
anti-HIV_4R4N_X-Chain	1316	22-41	48-57	86-105
anti-HIV_4R4B_F-Chain	1317	22-41		
anti-HIV_3JUY_D-Chain	1318	22-41		94-113
anti-HIV_4KG5_HeavyChain	1319	22-41		92-111
anti-HIV_4KG5_LightChain	1320	22-41	51-60	89-108
anti-HIV-1_LightChain	1321	22-41	48-57	86-103
anti-HIV-1_LightChain	1322	22-41	49-58	87-104
anti-HIV-1_LightChain	1323	22-41		
anti-HIV-1_LightChain	1324	22-41	49-58	87-104
anti-HIV-1_LightChain	1325	22-41		87-104
anti-HIV-1_LightChain	1326	22-41	49-58	87-104
anti-HIV-1_HeavyChain	1327	22-41	74-83	94-113
anti-HIV-1_HeavyChain	1328	22-41	74-83	94-113
anti-HIV-1_HeavyChain	1329	22-41		
anti-HIV-1_HeavyChain	1330	22-41		96-115
anti-HIV-1_HeavyChain	1331	22-41		94-113
anti-HIV-1_HeavyChain	1332	22-41		94-113
anti-HIV-1_HeavyChain	1333	22-41		
anti-HIV-1_HeavyChain	1334	22-41		94-113
anti-HIV-1_HeavyChain	1335	22-41		93-112
anti-HIV-1_HeavyChain	1336	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_LightChain	1337	22-41	49-58	87-106
anti-HIV-1_LightChain	1338	22-41	49-58	87-106
anti-HIV-1_LightChain	1339	22-41	49-58	87-106
anti-HIV-1_LightChain	1340	22-41	49-58	87-106
anti-HIV-1_LightChain	1341	22-41	53-62	91-110
anti-HIV-1_LightChain	1342	22-41	48-57	86-105
anti-HIV-1_LightChain	1343	22-41		89-108
anti-HIV-1_LightChain	1344	22-41		89-108
anti-HIV-1_HeavyChain	1345	22-41		99-118
anti-HIV-1_HeavyChain	1346	22-41		99-118
anti-HIV-1_HeavyChain	1347	22-41		99-118
anti-HIV-1_HeavyChain	1348	22-41		97-116
anti-HIV-1_HeavyChain	1349	22-41	24-33	93-112
anti-HIV-1_HeavyChain	1350	22-41		97-116
anti-HIV-1_HeavyChain	1351	22-41		
anti-HIV-1_HeavyChain	1352	22-41		94-113
anti-HIV_V3_HeavyChain	1353	22-41	51-60	94-113
anti-HIV_V3_HeavyChain	1354	22-41	51-60	94-113
anti-HIV_V3_HeavyChain	1355	22-41		94-113
anti-HIV_V3_HeavyChain	1356	22-41		93-112
anti-HIV_V3_HeavyChain	1357	22-41	51-60	94-113
anti-HIV_V3_HeavyChain	1358	22-41	51-60	
anti-HIV_V3_HeavyChain	1359	22-41		
anti-HIV_V3_HeavyChain	1360	22-41		94-113
anti-HIV_V3_HeavyChain	1361	22-41		94-113
anti-HIV_V3_HeavyChain	1362	22-41		94-113
anti-HIV_V3_HeavyChain	1363	22-41		94-113
anti-HIV_V3_HeavyChain	1364	22-41		
anti-HIV_CD4bs_HeavyChain	1365	22-41	58-67	94-113
anti-HIV_CD4bs_HeavyChain	1366	22-41		94-113
anti-HIV_CD4bs_HeavyChain	1367	22-41		93-112
anti-HIV_CD4bs_HeavyChain	1368	22-41	53-62	
anti-HIV_CD4bs_HeavyChain	1369	22-41		96-115

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_CD4bs_HeavyChain	1370	22-41		94-113
anti-HIV_CD4bs_HeavyChain	1371	22-41		94-113
anti-HIV_CD4bs_HeavyChain	1372	22-41		
anti-HIV_CD4bs_HeavyChain	1373	22-41		
anti-HIV_CD4bs_HeavyChain	1374	22-41		94-113
anti-HIV_V2_HeavyChain	1375	22-41		94-113
anti-HIV_V2_HeavyChain	1376	22-41		94-113
anti-HIV_V2_HeavyChain	1377	22-41		94-113
anti-HIV_V2_HeavyChain	1378	22-41		93-112
anti-HIV_V2_HeavyChain	1379	22-41		94-113
anti-HIV_V2_HeavyChain	1380	22-41		94-113
anti-HIV_V3_LightChain	1381	22-41	47-56	
anti-HIV_V3_LightChain	1382	22-41		85-104
anti-HIV_V3_LightChain	1383	22-41	49-58	87-106
anti-HIV_V3_LightChain	1384	22-41	91-100	92-111
anti-HIV_V3_LightChain	1385	22-41	47-56	85-104
anti-HIV_V3_LightChain	1386	22-41	49-58	87-106
anti-HIV_V3_LightChain	1387	22-41		85-104
anti-HIV_V3_LightChain	1388	22-41	47-56	85-104
anti-HIV_V3_LightChain	1389	22-41	50-59	88-107
anti-HIV_V3_LightChain	1390	22-41	49-58	87-106
anti-HIV_V3_LightChain	1391	22-41		86-105
anti-HIV_V3_LightChain	1392	22-41	85-94	86-105
anti-HIV_V3_LightChain	1393	22-41		85-104
anti-HIV_V3_LightChain	1394	22-41	48-57	
anti-HIV_V3_LightChain	1395	22-41	49-58	89-108
anti-HIV_V3_LightChain	1396	22-41	49-58	87-106
anti-HIV_V3_LightChain	1397	22-41		85-104
anti-HIV_V3_LightChain	1398	22-41	49-58	87-106
anti-HIV_V3_LightChain	1399	22-41	53-62	91-110
anti-HIV_V3_LightChain	1400	22-41		85-104
anti-HIV_V3_LightChain	1401	22-41	49-58	
anti-HIV_V3_LightChain	1402	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_V3_LightChain	1403	22-41	47-56	85-104
anti-HIV_V3_LightChain	1404	22-41	48-57	86-105
anti-HIV_V3_LightChain	1405	22-41		85-104
anti-HIV_V3_LightChain	1406	22-41	49-58	
anti-HIV_V3_LightChain	1407	22-41	48-57	86-105
anti-HIV_V3_LightChain	1408	22-41		85-104
anti-HIV_V3_LightChain	1409	22-41	47-56	85-104
anti-HIV_V3_LightChain	1410	22-41	47-56	85-104
anti-HIV_CD4bs_LightChain	1411	22-41		90-109
anti-HIV_CD4bs_LightChain	1412	22-41	49-58	87-106
anti-HIV_CD4bs_LightChain	1413	22-41	50-59	88-107
anti-HIV_CD4bs_LightChain	1414	22-41	36-45	91-110
anti-HIV_CD4bs_LightChain	1415	22-41	49-58	87-106
anti-HIV_CD4bs_LightChain	1416	22-41	49-58	89-108
anti-HIV_CD4bs_LightChain	1417	22-41	53-62	91-110
anti-HIV_CD4bs_LightChain	1418	22-41		88-107
anti-HIV_CD4bs_LightChain	1419	22-41	29-38	86-105
anti-HIV_CD4bs_LightChain	1420	22-41		88-107
anti-HIV_V2_LightChain	1421	22-41	48-57	86-105
anti-HIV_V2_LightChain	1422	22-41	48-57	86-105
anti-HIV_V2_LightChain	1423	22-41	50-59	88-107
anti-HIV_V2_LightChain	1424	22-41	48-57	86-105
anti-HIV_V2_LightChain	1425	22-41	49-58	87-106
anti-HIV_V2_LightChain	1426	22-41	48-57	
anti-HIV_10E8	1427	22-41	47-56	85-104
anti-HIV_10E8	1428	22-41	47-56	85-104
anti-HIV_10E8	1429	22-41	47-56	85-104
anti-HIV_10E8	1430	22-41	47-56	85-104
anti-HIV_10E8	1431	22-41	47-56	85-104
anti-HIV_10E8	1432	22-41	47-56	85-104
anti-HIV_10E8	1433	22-41	47-56	85-104
anti-HIV_10E8	1434	22-41	47-56	85-104
anti-HIV_10E8	1435	22-41		85-104

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_10E8	1436	22-41		85-104
anti-HIV_10E8	1437	22-41		85-104
anti-HIV_10E8	1438	22-41		85-104
anti-HIV_10E8	1439	22-41		85-104
anti-HIV_10E8	1440	22-41		85-104
anti-HIV_10E8	1441	22-41		85-104
anti-HIV_10E8	1442	22-41		85-104
anti-HIV_10E8	1443	22-41		85-104
anti-HIV_10E8	1444	22-41		85-104
anti-HIV_10E8	1445	22-41		85-104
anti-HIV_10E8	1446	22-41		
anti-HIV_10E8	1447	22-41		85-104
anti-HIV_10E8	1448	22-41		85-104
anti-HIV_10E8	1449	22-41		96-115
anti-HIV_10E8	1450	22-41		
anti-HIV_10E8	1451	22-41		
anti-HIV_10E8	1452	22-41		
anti-HIV_10E8	1453	22-41		
anti-HIV_10E8	1454	22-41		
anti-HIV_10E8	1455	22-41		
anti-HIV_10E8	1456	22-41		
anti-HIV_10E8	1457	22-41		
anti-HIV_10E8	1458	22-41		
anti-HIV-1_LightChain	1459	22-41	49-58	87-106
anti-HIV-1_LightChain	1460	22-41	50-59	88-107
anti-HIV-1_LightChain	1461	22-41	45-54	83-102
anti-HIV-1_LightChain	1462	22-41	49-58	87-106
anti-HIV-1_LightChain	1463	22-41	49-58	87-106
anti-HIV-1_LightChain	1464	22-41		87-106
anti-HIV-1_LightChain	1465	22-41	49-58	87-106
anti-HIV-1_LightChain	1466	22-41	49-58	87-106
anti-HIV-1_LightChain	1467	22-41	34-43	72-91
anti-HIV-1_LightChain	1468	22-41		87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_LightChain	1469	22-41	49-58	87-106
anti-HIV-1_LightChain	1470	22-41		87-106
anti-HIV-1_LightChain	1471	22-41	50-59	88-107
anti-HIV-1_LightChain	1472	22-41		87-106
anti-HIV-1_LightChain	1473	22-41	50-59	88-107
anti-HIV-1_LightChain	1474	22-41	49-58	87-106
anti-HIV-1_LightChain	1475	22-41	49-58	87-106
anti-HIV-1_LightChain	1476	22-41	49-58	87-106
anti-HIV-1_LightChain	1477	22-41	49-58	87-106
anti-HIV-1_LightChain	1478	22-41	49-58	87-106
anti-HIV-1_LightChain	1479	22-41	50-59	88-107
anti-HIV-1_LightChain	1480	22-41	49-58	87-106
anti-HIV-1_LightChain	1481	22-41		87-106
anti-HIV-1_LightChain	1482	22-41	49-58	87-106
anti-HIV-1_LightChain	1483	22-41	49-58	87-106
anti-HIV-1_LightChain	1484	22-41	49-58	87-106
anti-HIV-1_LightChain	1485	22-41	50-59	88-107
anti-HIV-1_LightChain	1486	22-41	49-58	87-106
anti-HIV-1_LightChain	1487	22-41		87-106
anti-HIV-1_LightChain	1488	22-41	49-58	87-106
anti-HIV-1_LightChain	1489	22-41	49-58	87-106
anti-HIV-1_LightChain	1490	22-41	49-58	87-106
anti-HIV-1_LightChain	1491	22-41		87-106
anti-HIV-1_LightChain	1492	22-41	49-58	87-106
anti-HIV-1_LightChain	1493	22-41	49-58	87-106
anti-HIV-1_LightChain	1494	22-41	50-59	88-107
anti-HIV-1_LightChain	1495	22-41	49-58	87-106
anti-HIV-1_LightChain	1496	22-41	49-58	87-106
anti-HIV-1_LightChain	1497	22-41	49-58	87-106
anti-HIV-1_LightChain	1498	22-41	49-58	87-106
anti-HIV-1_LightChain	1499	22-41	49-58	87-106
anti-HIV-1_LightChain	1500	22-41	50-59	88-107
anti-HIV-1_LightChain	1501	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_LightChain	1502	22-41	49-58	87-106
anti-HIV-1_LightChain	1503	22-41	50-59	88-107
anti-HIV-1_LightChain	1504	22-41	49-58	87-106
anti-HIV-1_LightChain	1505	22-41	49-58	87-106
anti-HIV-1_LightChain	1506	22-41	49-58	87-106
anti-HIV-1_LightChain	1507	22-41	49-58	87-106
anti-HIV-1_LightChain	1508	22-41	49-58	87-106
anti-HIV-1_LightChain	1509	22-41	49-58	87-106
anti-HIV-1_LightChain	1510	22-41	49-58	87-105
anti-HIV-1_LightChain	1511	22-41	50-59	88-107
anti-HIV-1_LightChain	1512	22-41	50-59	88-107
anti-HIV-1_LightChain	1513	22-41	49-58	87-106
anti-HIV-1_LightChain	1514	22-41	49-58	87-106
anti-HIV-1_LightChain	1515	22-41		87-106
anti-HIV-1_LightChain	1516	22-41	49-58	87-106
anti-HIV-1_LightChain	1517	22-41	49-58	87-106
anti-HIV-1_LightChain	1518	22-41	49-58	87-106
anti-HIV-1_LightChain	1519	22-41	32-41	87-106
anti-HIV-1_LightChain	1520	22-41	49-58	87-106
anti-HIV-1_LightChain	1521	22-41	50-59	88-107
anti-HIV-1_LightChain	1522	22-41		87-106
anti-HIV-1_LightChain	1523	22-41	49-58	87-106
anti-HIV-1_LightChain	1524	22-41	49-58	87-106
anti-HIV-1_LightChain	1525	22-41	50-59	88-107
anti-HIV-1_LightChain	1526	22-41		87-106
anti-HIV-1_LightChain	1527	22-41	49-58	87-106
anti-HIV-1_LightChain	1528	22-41	49-58	87-106
anti-HIV-1_LightChain	1529	22-41		87-106
anti-HIV-1_LightChain	1530	22-41		87-106
anti-HIV-1_LightChain	1531	22-41	49-58	87-106
anti-HIV-1_LightChain	1532	22-41		87-106
anti-HIV-1_LightChain	1533	22-41	49-58	87-106
anti-HIV-1_LightChain	1534	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_LightChain	1535	22-41	49-58	87-106
anti-HIV-1_LightChain	1536	22-41	49-58	87-106
anti-HIV-1_LightChain	1537	22-41	49-58	87-106
anti-HIV-1_LightChain	1538	22-41	50-59	88-107
anti-HIV-1_LightChain	1539	22-41	50-59	88-107
anti-HIV-1_LightChain	1540	22-41		87-106
anti-HIV-1_LightChain	1541	22-41	49-58	87-106
anti-HIV-1_LightChain	1542	22-41		88-107
anti-HIV-1_LightChain	1543	22-41	49-58	87-106
anti-HIV-1_LightChain	1544	22-41	49-58	87-106
anti-HIV-1_LightChain	1545	22-41	49-58	87-106
anti-HIV-1_LightChain	1546	22-41	49-58	87-106
anti-HIV-1_LightChain	1547	22-41		87-106
anti-HIV-1_LightChain	1548	22-41		87-106
anti-HIV-1_LightChain	1549	22-41	50-59	88-107
anti-HIV-1_LightChain	1550	22-41	49-58	87-106
anti-HIV-1_LightChain	1551	22-41	50-59	88-107
anti-HIV-1_LightChain	1552	22-41	49-58	87-106
anti-HIV-1_LightChain	1553	22-41		87-106
anti-HIV-1_LightChain	1554	22-41	49-58	87-106
anti-HIV-1_LightChain	1555	22-41	50-59	88-107
anti-HIV-1_LightChain	1556	22-41	49-58	87-106
anti-HIV-1_LightChain	1557	22-41	49-58	87-106
anti-HIV-1_LightChain	1558	22-41	49-58	87-106
anti-HIV-1_LightChain	1559	22-41	49-58	87-106
anti-HIV-1_LightChain	1560	22-41	49-58	87-106
anti-HIV-1_LightChain	1561	22-41	49-58	87-106
anti-HIV-1_LightChain	1562	22-41	49-58	87-106
anti-HIV-1_LightChain	1563	22-41	49-58	87-106
anti-HIV-1_LightChain	1564	22-41	49-58	87-106
anti-HIV-1_LightChain	1565	22-41	49-58	87-106
anti-HIV-1_LightChain	1566	22-41	49-58	87-106
anti-HIV-1_LightChain	1567	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_LightChain	1568	22-41	49-58	87-106
anti-HIV-1_LightChain	1569	22-41	45-54	83-102
anti-HIV-1_LightChain	1570	22-41	49-58	87-106
anti-HIV-1_LightChain	1571	22-41	49-58	87-106
anti-HIV-1_LightChain	1572	22-41	49-58	87-106
anti-HIV-1_LightChain	1573	22-41	50-59	88-107
anti-HIV-1_LightChain	1574	22-41	49-58	87-106
anti-HIV-1_LightChain	1575	22-41	49-58	87-106
anti-HIV-1_LightChain	1576	22-41	49-58	87-106
anti-HIV-1_LightChain	1577	22-41	49-58	87-106
anti-HIV-1_LightChain	1578	22-41	49-58	87-106
anti-HIV-1_LightChain	1579	22-41	32-41	87-106
anti-HIV-1_LightChain	1580	22-41	49-58	87-106
anti-HIV-1_LightChain	1581	22-41	49-58	87-106
anti-HIV-1_LightChain	1582	22-41	50-59	88-107
anti-HIV-1_LightChain	1583	22-41	49-58	87-106
anti-HIV-1_LightChain	1584	22-41		88-107
anti-HIV-1_LightChain	1585	22-41	49-58	87-106
anti-HIV-1_LightChain	1586	22-41	49-58	87-106
anti-HIV-1_LightChain	1587	22-41	45-54	83-102
anti-HIV-1_LightChain	1588	22-41	49-58	87-106
anti-HIV-1_LightChain	1589	22-41	49-58	87-106
anti-HIV-1_LightChain	1590	22-41	49-58	87-106
anti-HIV-1_LightChain	1591	22-41		88-107
anti-HIV-1_LightChain	1592	22-41	49-58	87-106
anti-HIV-1_LightChain	1593	22-41	49-58	87-106
anti-HIV-1_LightChain	1594	22-41	49-58	87-106
anti-HIV-1_LightChain	1595	22-41	49-58	87-106
anti-HIV-1_LightChain	1596	22-41	49-58	87-106
anti-HIV-1_LightChain	1597	22-41	49-58	87-106
anti-HIV-1_LightChain	1598	22-41		88-107
anti-HIV-1_LightChain	1599	22-41	49-58	87-106
anti-HIV-1_LightChain	1600	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_LightChain	1601	22-41		87-106
anti-HIV-1_LightChain	1602	22-41	49-58	87-106
anti-HIV-1_LightChain	1603	22-41	49-58	87-106
anti-HIV-1_LightChain	1604	22-41	49-58	87-106
anti-HIV-1_LightChain	1605	22-41	49-58	87-106
anti-HIV-1_LightChain	1606	22-41	49-58	87-106
anti-HIV-1_LightChain	1607	22-41	49-58	87-106
anti-HIV-1_LightChain	1608	22-41	49-58	87-106
anti-HIV-1_HeavyChain	1609	22-41		94-113
anti-HIV-1_HeavyChain	1610	22-41		94-113
anti-HIV-1_HeavyChain	1611	22-41		94-113
anti-HIV-1_HeavyChain	1612	22-41		94-113
anti-HIV-1_HeavyChain	1613	22-41		
anti-HIV-1_HeavyChain	1614	22-41		94-113
anti-HIV-1_HeavyChain	1615	22-41	20-29	94-113
anti-HIV-1_HeavyChain	1616	22-41		94-113
anti-HIV-1_HeavyChain	1617	22-41		
anti-HIV-1_HeavyChain	1618	22-41		94-113
anti-HIV-1_HeavyChain	1619	22-41		94-113
anti-HIV-1_HeavyChain	1620	22-41	31-40	94-113
anti-HIV-1_HeavyChain	1621	22-41		94-113
anti-HIV-1_HeavyChain	1622	22-41		94-113
anti-HIV-1_HeavyChain	1623	22-41		94-113
anti-HIV-1_HeavyChain	1624	22-41		94-113
anti-HIV-1_HeavyChain	1625	22-41		94-113
anti-HIV-1_HeavyChain	1626	22-41		94-113
anti-HIV-1_HeavyChain	1627	22-41		
anti-HIV-1_HeavyChain	1628	22-41		
anti-HIV-1_HeavyChain	1629	22-41		94-113
anti-HIV-1_HeavyChain	1630	22-41		94-113
anti-HIV-1_HeavyChain	1631	22-41		94-113
anti-HIV-1_HeavyChain	1632	22-41		94-113
anti-HIV-1_HeavyChain	1633	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	1634	22-41		94-113
anti-HIV-1_HeavyChain	1635	22-41		94-113
anti-HIV-1_HeavyChain	1636	22-41		94-113
anti-HIV-1_HeavyChain	1637	22-41		94-113
anti-HIV-1_HeavyChain	1638	22-41		94-113
anti-HIV-1_HeavyChain	1639	22-41		94-113
anti-HIV-1_HeavyChain	1640	22-41		94-113
anti-HIV-1_HeavyChain	1641	22-41		93-112
anti-HIV-1_HeavyChain	1642	22-41		94-113
anti-HIV-1_HeavyChain	1643	22-41		94-113
anti-HIV-1_HeavyChain	1644	22-41		94-113
anti-HIV-1_HeavyChain	1645	22-41		94-113
anti-HIV-1_HeavyChain	1646	22-41		94-113
anti-HIV-1_HeavyChain	1647	22-41	20-29	94-113
anti-HIV-1_HeavyChain	1648	22-41		94-113
anti-HIV-1_HeavyChain	1649	22-41		
anti-HIV-1_HeavyChain	1650	22-41		94-113
anti-HIV-1_HeavyChain	1651	22-41		94-113
anti-HIV-1_HeavyChain	1652	22-41		94-113
anti-HIV-1_HeavyChain	1653	22-41		94-113
anti-HIV-1_HeavyChain	1654	22-41		94-113
anti-HIV-1_HeavyChain	1655	22-41		94-113
anti-HIV_C38-VRC18.02_HeavyChain	1656	22-41		
anti-HIV_44-VRC13.02_HeavyChain	1657	22-41		
anti-HIV-1_LightChain	1658	22-41		86-105
anti-HIV-1_LightChain	1659	22-41		86-105
anti-HIV-1_LightChain	1660	22-41	48-57	86-105
anti-HIV-1_LightChain	1661	22-41	48-57	
anti-HIV-1_LightChain	1662	22-41	48-57	
anti-HIV-1_LightChain	1663	22-41	48-57	
anti-HIV-1_LightChain	1664	22-41	48-57	
anti-HIV-1_HeavyChain	1665	22-41		
anti-HIV-1_HeavyChain	1666	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	1667	22-41		94-113
anti-HIV-1_HeavyChain	1668	22-41	93-102	
anti-HIV-1_HeavyChain	1669	22-41		
anti-HIV-1_HeavyChain	1670	22-41	93-102	94-113
anti-HIV-1_HeavyChain	1671	22-41	93-102	94-113
anti-HIV_45_LightChain	1672	22-41	44-53	82-101
anti-HIV_45_LightChain	1673	22-41	44-53	82-101
anti-HIV_45_LightChain	1674	22-41	44-53	82-101
anti-HIV_45_HeavyChain	1675	22-41		
anti-HIV_45_HeavyChain	1676	22-41		
anti-HIV_45_HeavyChain	1677	22-41		
anti-HIV_cap256-206-252885_VR-Chain	1678	22-41		94-113
anti-HIV_cap256-206-249183_VR-Chain	1679	22-41		
anti-HIV_cap256-206-220956_VR-Chain	1680	22-41		
anti-HIV_cap256-206-220629_VR-Chain	1681	22-41		94-113
anti-HIV_cap256-206-200599_VR-Chain	1682	22-41		82-101
anti-HIV_cap256-206-186347_VR-Chain	1683	22-41		
anti-HIV_cap256-206-186226_VR-Chain	1684	22-41		
anti-HIV_cap256-206-179686_VR-Chain	1685	22-41		
anti-HIV_cap256-206-173707_VR-Chain	1686	22-41		94-113
anti-HIV_cap256-206-173339_VR-Chain	1687	22-41		94-113
anti-HIV_cap256-206-172689_VR-Chain	1688	22-41		
anti-HIV_cap256-206-162744_VR-Chain	1689	22-41		94-113
anti-HIV_cap256-206-146057_VR-Chain	1690	22-41		
anti-HIV_cap256-206-139519_VR-Chain	1691	22-41		94-113
anti-HIV_cap256-206-136316_VR-Chain	1692	22-41		
anti-HIV_cap256-206-116098_VR-Chain	1693	22-41		
anti-HIV_cap256-206-115862_VR-Chain	1694	22-41		94-113
anti-HIV_cap256-206-107018_VR-Chain	1695	22-41		94-113
anti-HIV_cap256-206-098644_VR-Chain	1696	22-41		
anti-HIV_cap256-206-098135_VR-Chain	1697	22-41	70-79	94-113
anti-HIV_cap256-206-096276_VR-Chain	1698	22-41		94-113
anti-HIV_cap256-206-092794_VR-Chain	1699	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-206-086817_VR-Chain	1700	22-41		94-113
anti-HIV_cap256-206-086446_VR-Chain	1701	22-41		94-113
anti-HIV_cap256-206-086180_VR-Chain	1702	22-41		
anti-HIV_cap256-206-083708_VR-Chain	1703	22-41		94-113
anti-HIV_cap256-206-079556_VR-Chain	1704	22-41		94-113
anti-HIV_cap256-206-078657_VR-Chain	1705	22-41		
anti-HIV_cap256-206-075802_VR-Chain	1706	22-41		
anti-HIV_cap256-206-069097_VR-Chain	1707	22-41		
anti-HIV_cap256-206-067758_VR-Chain	1708	22-41		
anti-HIV_cap256-206-057019_VR-Chain	1709	22-41	70-79	94-113
anti-HIV_cap256-206-055385_VR-Chain	1710	22-41		
anti-HIV_cap256-206-053187_VR-Chain	1711	22-41		94-113
anti-HIV_cap256-206-053139_VR-Chain	1712	22-41		
anti-HIV_cap256-206-050350_VR-Chain	1713	22-41		
anti-HIV_cap256-206-046207_VR-Chain	1714	22-41		94-113
anti-HIV_cap256-206-043389_VR-Chain	1715	22-41		
anti-HIV_cap256-206-042555_VR-Chain	1716	22-41		94-113
anti-HIV_cap256-206-029720_VR-Chain	1717	22-41		
anti-HIV_cap256-206-028848_VR-Chain	1718	22-41		94-113
anti-HIV_cap256-206-027652_VR-Chain	1719	22-41		94-113
anti-HIV_cap256-206-024075_VR-Chain	1720	22-41	93-102	94-113
anti-HIV_cap256-206-008748_VR-Chain	1721	22-41		94-113
anti-HIV_cap256-206-008530_VR-Chain	1722	22-41		94-113
anti-HIV_cap256-176-723043_VR-Chain	1723	22-41		94-113
anti-HIV_cap256-176-600049_VR-Chain	1724	22-41		
anti-HIV_cap256-176-531926_VR-Chain	1725	22-41		94-113
anti-HIV_cap256-176-504134_VR-Chain	1726	22-41		94-113
anti-HIV_cap256-119-186229_VR-Chain	1727	22-41		94-113
anti-HIV_cap256-119-183891_VR-Chain	1728	22-41		
anti-HIV_cap256-119-183631_VR-Chain	1729	22-41		94-113
anti-HIV_cap256-119-182676_VR-Chain	1730	22-41		94-113
anti-HIV_cap256-119-180772_VR-Chain	1731	22-41		94-113
anti-HIV_cap256-119-180508_VR-Chain	1732	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-119-180260_VR-Chain	1733	22-41		94-113
anti-HIV_cap256-119-180173_VR-Chain	1734	22-41		94-113
anti-HIV_cap256-119-179839_VR-Chain	1735	22-41		94-113
anti-HIV_cap256-119-179262_VR-Chain	1736	22-41		
anti-HIV_cap256-119-178995_VR-Chain	1737	22-41		94-113
anti-HIV_cap256-119-178455_VR-Chain	1738	22-41		94-113
anti-HIV_cap256-119-177993_VR-Chain	1739	22-41	20-29	
anti-HIV_cap256-119-177727_VR-Chain	1740	22-41		
anti-HIV_cap256-119-176746_VR-Chain	1741	22-41		94-113
anti-HIV_cap256-119-176241_VR-Chain	1742	22-41		94-113
anti-HIV_cap256-119-175215_VR-Chain	1743	22-41		94-113
anti-HIV_cap256-119-173928_VR-Chain	1744	22-41		94-113
anti-HIV_cap256-119-173495_VR-Chain	1745	22-41		94-113
anti-HIV_cap256-119-172882_VR-Chain	1746	22-41		94-113
anti-HIV_cap256-119-172429_VR-Chain	1747	22-41		94-113
anti-HIV_cap256-119-172223_VR-Chain	1748	22-41		
anti-HIV_cap256-119-171838_VR-Chain	1749	22-41		94-113
anti-HIV_cap256-119-171587_VR-Chain	1750	22-41		94-113
anti-HIV_cap256-119-169596_VR-Chain	1751	22-41		94-113
anti-HIV_cap256-119-169523_VR-Chain	1752	22-41		94-113
anti-HIV_cap256-119-169462_VR-Chain	1753	22-41		94-113
anti-HIV_cap256-119-169092_VR-Chain	1754	22-41		
anti-HIV_cap256-119-168680_VR-Chain	1755	22-41		
anti-HIV_cap256-119-166385_VR-Chain	1756	22-41		
anti-HIV_cap256-119-165943_VR-Chain	1757	22-41		94-113
anti-HIV_cap256-119-165738_VR-Chain	1758	22-41		94-113
anti-HIV_cap256-119-164913_VR-Chain	1759	22-41		94-113
anti-HIV_cap256-119-164167_VR-Chain	1760	22-41		
anti-HIV_cap256-119-163558_VR-Chain	1761	22-41		94-113
anti-HIV_cap256-119-162043_VR-Chain	1762	22-41		94-113
anti-HIV_cap256-119-161718_VR-Chain	1763	22-41		94-113
anti-HIV_cap256-119-161675_VR-Chain	1764	22-41	31-40	94-113
anti-HIV_cap256-119-161053_VR-Chain	1765	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-119-159499_VR-Chain	1766	22-41		94-113
anti-HIV_cap256-119-159114_VR-Chain	1767	22-41		94-113
anti-HIV_cap256-119-156751_VR-Chain	1768	22-41		
anti-HIV_cap256-119-155656_VR-Chain	1769	22-41		94-113
anti-HIV_cap256-119-154420_VR-Chain	1770	22-41		94-113
anti-HIV_cap256-119-153954_VR-Chain	1771	22-41		94-113
anti-HIV_cap256-119-153864_VR-Chain	1772	22-41		
anti-HIV_cap256-119-153793_VR-Chain	1773	22-41		94-113
anti-HIV_cap256-119-153462_VR-Chain	1774	22-41		94-113
anti-HIV_cap256-119-153124_VR-Chain	1775	22-41		
anti-HIV_cap256-119-153025_VR-Chain	1776	22-41		
anti-HIV_cap256-119-152713_VR-Chain	1777	22-41		94-113
anti-HIV_cap256-119-151794_VR-Chain	1778	22-41		
anti-HIV_cap256-119-150980_VR-Chain	1779	22-41		
anti-HIV_cap256-119-148895_VR-Chain	1780	22-41		94-113
anti-HIV_cap256-119-148848_VR-Chain	1781	22-41		
anti-HIV_cap256-119-148743_VR-Chain	1782	22-41		
anti-HIV_cap256-119-148595_VR-Chain	1783	22-41		
anti-HIV_cap256-119-148490_VR-Chain	1784	22-41		94-113
anti-HIV_cap256-119-148470_VR-Chain	1785	22-41		
anti-HIV_cap256-119-148107_VR-Chain	1786	22-41		94-113
anti-HIV_cap256-119-147933_VR-Chain	1787	22-41		94-113
anti-HIV_cap256-119-147434_VR-Chain	1788	22-41		94-113
anti-HIV_cap256-119-146106_VR-Chain	1789	22-41		94-113
anti-HIV_cap256-119-145604_VR-Chain	1790	22-41		
anti-HIV_cap256-119-143998_VR-Chain	1791	22-41		
anti-HIV_cap256-119-143441_VR-Chain	1792	22-41		
anti-HIV_cap256-119-141307_VR-Chain	1793	22-41		94-113
anti-HIV_cap256-119-140896_VR-Chain	1794	22-41		
anti-HIV_cap256-119-140090_VR-Chain	1795	22-41		94-113
anti-HIV_cap256-119-140037_VR-Chain	1796	22-41		
anti-HIV_cap256-119-139135_VR-Chain	1797	22-41		
anti-HIV_cap256-119-137881_VR-Chain	1798	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-119-137643_VR-Chain	1799	22-41		94-113
anti-HIV_cap256-119-137170_VR-Chain	1800	22-41		
anti-HIV_cap256-119-136616_VR-Chain	1801	22-41		94-113
anti-HIV_cap256-119-136206_VR-Chain	1802	22-41		94-113
anti-HIV_cap256-119-135565_VR-Chain	1803	22-41		
anti-HIV_cap256-119-135025_VR-Chain	1804	22-41		94-113
anti-HIV_cap256-119-133983_VR-Chain	1805	22-41		94-113
anti-HIV_cap256-119-133917_VR-Chain	1806	22-41		
anti-HIV_cap256-119-132663_VR-Chain	1807	22-41		94-113
anti-HIV_cap256-119-132113_VR-Chain	1808	22-41		
anti-HIV_cap256-119-131839_VR-Chain	1809	22-41		94-113
anti-HIV_cap256-119-130626_VR-Chain	1810	22-41		94-113
anti-HIV_cap256-119-130191_VR-Chain	1811	22-41		
anti-HIV_cap256-119-129798_VR-Chain	1812	22-41		
anti-HIV_cap256-119-128745_VR-Chain	1813	22-41		94-113
anti-HIV_cap256-119-128593_VR-Chain	1814	22-41		
anti-HIV_cap256-119-128152_VR-Chain	1815	22-41		
anti-HIV_cap256-119-127693_VR-Chain	1816	22-41		
anti-HIV_cap256-119-126684_VR-Chain	1817	22-41		94-113
anti-HIV_cap256-119-126056_VR-Chain	1818	22-41		
anti-HIV_cap256-119-125765_VR-Chain	1819	22-41		94-113
anti-HIV_cap256-119-125106_VR-Chain	1820	22-41		
anti-HIV_cap256-119-124026_VR-Chain	1821	22-41		94-113
anti-HIV_cap256-119-121783_VR-Chain	1822	22-41		
anti-HIV_cap256-119-121208_VR-Chain	1823	22-41		94-113
anti-HIV_cap256-119-120945_VR-Chain	1824	22-41		
anti-HIV_cap256-119-118229_VR-Chain	1825	22-41		94-113
anti-HIV_cap256-119-118025_VR-Chain	1826	22-41		
anti-HIV_cap256-119-117418_VR-Chain	1827	22-41		
anti-HIV_cap256-119-117250_VR-Chain	1828	22-41		94-113
anti-HIV_cap256-119-117230_VR-Chain	1829	22-41		94-113
anti-HIV_cap256-119-116999_VR-Chain	1830	22-41		
anti-HIV_cap256-119-116558_VR-Chain	1831	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-119-116484_VR-Chain	1832	22-41		94-113
anti-HIV_cap256-119-114844_VR-Chain	1833	22-41		
anti-HIV_cap256-119-114141_VR-Chain	1834	22-41		
anti-HIV_cap256-119-111917_VR-Chain	1835	22-41		94-113
anti-HIV_cap256-119-111862_VR-Chain	1836	22-41		94-113
anti-HIV_cap256-119-110064_VR-Chain	1837	22-41		94-113
anti-HIV_cap256-119-109192_VR-Chain	1838	22-41		94-113
anti-HIV_cap256-119-108793_VR-Chain	1839	22-41		
anti-HIV_cap256-119-108127_VR-Chain	1840	22-41		94-113
anti-HIV_cap256-119-107758_VR-Chain	1841	22-41		
anti-HIV_cap256-119-107209_VR-Chain	1842	22-41		
anti-HIV_cap256-119-107184_VR-Chain	1843	22-41		
anti-HIV_cap256-119-106827_VR-Chain	1844	22-41		
anti-HIV_cap256-119-106511_VR-Chain	1845	22-41		94-113
anti-HIV_cap256-119-106327_VR-Chain	1846	22-41		94-113
anti-HIV_cap256-119-105486_VR-Chain	1847	22-41		
anti-HIV_cap256-119-105197_VR-Chain	1848	22-41		94-113
anti-HIV_cap256-119-104946_VR-Chain	1849	22-41		94-113
anti-HIV_cap256-119-103667_VR-Chain	1850	22-41		94-113
anti-HIV_cap256-119-103385_VR-Chain	1851	22-41		
anti-HIV_cap256-119-103267_VR-Chain	1852	22-41		
anti-HIV_cap256-119-103011_VR-Chain	1853	22-41		94-113
anti-HIV_cap256-119-102072_VR-Chain	1854	22-41		
anti-HIV_cap256-119-101945_VR-Chain	1855	22-41		
anti-HIV_cap256-119-101319_VR-Chain	1856	22-41		
anti-HIV_cap256-119-100871_VR-Chain	1857	22-41		94-113
anti-HIV_cap256-119-100838_VR-Chain	1858	22-41		94-113
anti-HIV_cap256-119-100025_VR-Chain	1859	22-41		
anti-HIV_cap256-119-100000_VR-Chain	1860	22-41		
anti-HIV_cap256-119-098890_VR-Chain	1861	22-41		94-113
anti-HIV_cap256-119-098715_VR-Chain	1862	22-41		94-113
anti-HIV_cap256-119-098632_VR-Chain	1863	22-41		
anti-HIV_cap256-119-097199_VR-Chain	1864	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-119-096189_VR-Chain	1865	22-41		
anti-HIV_cap256-119-094581_VR-Chain	1866	22-41		94-113
anti-HIV_cap256-119-094200_VR-Chain	1867	22-41		94-113
anti-HIV_cap256-119-094158_VR-Chain	1868	22-41		
anti-HIV_cap256-119-092814_VR-Chain	1869	22-41		
anti-HIV_cap256-119-092808_VR-Chain	1870	22-41		
anti-HIV_cap256-119-092573_VR-Chain	1871	22-41		94-113
anti-HIV_cap256-119-090815_VR-Chain	1872	22-41		
anti-HIV_cap256-119-090368_VR-Chain	1873	22-41		
anti-HIV_cap256-119-089710_VR-Chain	1874	22-41		
anti-HIV_cap256-119-088555_VR-Chain	1875	22-41		94-113
anti-HIV_cap256-119-087962_VR-Chain	1876	22-41		94-113
anti-HIV_cap256-119-086903_VR-Chain	1877	22-41		94-113
anti-HIV_cap256-119-086804_VR-Chain	1878	22-41		94-113
anti-HIV_cap256-119-085910_VR-Chain	1879	22-41		
anti-HIV_cap256-119-085772_VR-Chain	1880	22-41		94-113
anti-HIV_cap256-119-084603_VR-Chain	1881	22-41		94-113
anti-HIV_cap256-119-084276_VR-Chain	1882	22-41		
anti-HIV_cap256-119-082288_VR-Chain	1883	22-41		94-113
anti-HIV_cap256-119-080383_VR-Chain	1884	22-41		94-113
anti-HIV_cap256-119-079333_VR-Chain	1885	22-41		
anti-HIV_cap256-119-078618_VR-Chain	1886	22-41		
anti-HIV_cap256-119-077466_VR-Chain	1887	22-41		94-113
anti-HIV_cap256-119-076284_VR-Chain	1888	22-41		
anti-HIV_cap256-119-074680_VR-Chain	1889	22-41		94-113
anti-HIV_cap256-119-074081_VR-Chain	1890	22-41		94-113
anti-HIV_cap256-119-071704_VR-Chain	1891	22-41		
anti-HIV_cap256-119-071266_VR-Chain	1892	22-41		94-113
anti-HIV_cap256-119-069667_VR-Chain	1893	22-41		94-113
anti-HIV_cap256-119-069591_VR-Chain	1894	22-41		94-113
anti-HIV_cap256-119-068691_VR-Chain	1895	22-41		94-113
anti-HIV_cap256-119-068488_VR-Chain	1896	22-41		94-113
anti-HIV_cap256-119-067536_VR-Chain	1897	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-119-065852_VR-Chain	1898	22-41		94-113
anti-HIV_cap256-119-065457_VR-Chain	1899	22-41		94-113
anti-HIV_cap256-119-064501_VR-Chain	1900	22-41		
anti-HIV_cap256-119-063568_VR-Chain	1901	22-41		94-113
anti-HIV_cap256-119-063103_VR-Chain	1902	22-41		94-113
anti-HIV_cap256-119-061027_VR-Chain	1903	22-41		94-113
anti-HIV_cap256-119-058232_VR-Chain	1904	22-41		94-113
anti-HIV_cap256-119-057341_VR-Chain	1905	22-41		94-113
anti-HIV_cap256-119-056895_VR-Chain	1906	22-41		
anti-HIV_cap256-119-056402_VR-Chain	1907	22-41		
anti-HIV_cap256-119-056034_VR-Chain	1908	22-41		94-113
anti-HIV_cap256-119-055042_VR-Chain	1909	22-41		94-113
anti-HIV_cap256-119-054776_VR-Chain	1910	22-41		
anti-HIV_cap256-119-054539_VR-Chain	1911	22-41		
anti-HIV_cap256-119-054112_VR-Chain	1912	22-41		94-113
anti-HIV_cap256-119-053339_VR-Chain	1913	22-41	93-102	94-113
anti-HIV_cap256-119-052404_VR-Chain	1914	22-41		
anti-HIV_cap256-119-051123_VR-Chain	1915	22-41		94-113
anti-HIV_cap256-119-051077_VR-Chain	1916	22-41		
anti-HIV_cap256-119-050442_VR-Chain	1917	22-41		94-113
anti-HIV_cap256-119-049433_VR-Chain	1918	22-41		94-113
anti-HIV_cap256-119-047532_VR-Chain	1919	22-41		94-113
anti-HIV_cap256-119-047489_VR-Chain	1920	22-41		94-113
anti-HIV_cap256-119-046020_VR-Chain	1921	22-41		
anti-HIV_cap256-119-044746_VR-Chain	1922	22-41		94-113
anti-HIV_cap256-119-044740_VR-Chain	1923	22-41		
anti-HIV_cap256-119-043790_VR-Chain	1924	22-41		94-113
anti-HIV_cap256-119-042880_VR-Chain	1925	22-41		94-113
anti-HIV_cap256-119-042606_VR-Chain	1926	22-41		94-113
anti-HIV_cap256-119-042444_VR-Chain	1927	22-41		
anti-HIV_cap256-119-040328_VR-Chain	1928	22-41		94-113
anti-HIV_cap256-119-040164_VR-Chain	1929	22-41		
anti-HIV_cap256-119-039130_VR-Chain	1930	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-119-038138_VR-Chain	1931	22-41		
anti-HIV_cap256-119-037868_VR-Chain	1932	22-41		
anti-HIV_cap256-119-037102_VR-Chain	1933	22-41		94-113
anti-HIV_cap256-119-036683_VR-Chain	1934	22-41		
anti-HIV_cap256-119-036495_VR-Chain	1935	22-41		
anti-HIV_cap256-119-035375_VR-Chain	1936	22-41		
anti-HIV_cap256-119-035165_VR-Chain	1937	22-41		
anti-HIV_cap256-119-035109_VR-Chain	1938	22-41		94-113
anti-HIV_cap256-119-033789_VR-Chain	1939	22-41		63-82
anti-HIV_cap256-119-033641_VR-Chain	1940	22-41		
anti-HIV_cap256-119-032113_VR-Chain	1941	22-41		94-113
anti-HIV_cap256-119-031739_VR-Chain	1942	22-41		94-113
anti-HIV_cap256-119-030932_VR-Chain	1943	22-41		94-113
anti-HIV_cap256-119-030740_VR-Chain	1944	22-41		
anti-HIV_cap256-119-030197_VR-Chain	1945	22-41		94-113
anti-HIV_cap256-119-027047_VR-Chain	1946	22-41		
anti-HIV_cap256-119-026950_VR-Chain	1947	22-41		94-113
anti-HIV_cap256-119-026279_VR-Chain	1948	22-41		
anti-HIV_cap256-119-025355_VR-Chain	1949	22-41		
anti-HIV_cap256-119-025301_VR-Chain	1950	22-41		94-113
anti-HIV_cap256-119-025010_VR-Chain	1951	22-41		
anti-HIV_cap256-119-024631_VR-Chain	1952	22-41		
anti-HIV_cap256-119-024467_VR-Chain	1953	22-41		94-113
anti-HIV_cap256-119-023805_VR-Chain	1954	22-41		94-113
anti-HIV_cap256-119-021736_VR-Chain	1955	22-41		94-113
anti-HIV_cap256-119-021203_VR-Chain	1956	22-41		
anti-HIV_cap256-119-020569_VR-Chain	1957	22-41		94-113
anti-HIV_cap256-119-019432_VR-Chain	1958	22-41		94-113
anti-HIV_cap256-119-018827_VR-Chain	1959	22-41		94-113
anti-HIV_cap256-119-018483_VR-Chain	1960	22-41		
anti-HIV_cap256-119-018118_VR-Chain	1961	22-41		94-113
anti-HIV_cap256-119-017782_VR-Chain	1962	22-41		
anti-HIV_cap256-119-017669_VR-Chain	1963	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-119-016976_VR-Chain	1964	22-41		94-113
anti-HIV_cap256-119-015432_VR-Chain	1965	22-41		94-113
anti-HIV_cap256-119-015281_VR-Chain	1966	22-41		94-113
anti-HIV_cap256-119-014957_VR-Chain	1967	22-41		94-113
anti-HIV_cap256-119-014777_VR-Chain	1968	22-41		94-113
anti-HIV_cap256-119-014313_VR-Chain	1969	22-41		
anti-HIV_cap256-119-014219_VR-Chain	1970	22-41		
anti-HIV_cap256-119-013631_VR-Chain	1971	22-41		
anti-HIV_cap256-119-012924_VR-Chain	1972	22-41		
anti-HIV_cap256-119-011793_VR-Chain	1973	22-41		94-113
anti-HIV_cap256-119-011413_VR-Chain	1974	22-41		94-113
anti-HIV_cap256-119-011323_VR-Chain	1975	22-41		94-113
anti-HIV_cap256-119-011233_VR-Chain	1976	22-41		94-113
anti-HIV_cap256-119-009038_VR-Chain	1977	22-41		94-113
anti-HIV_cap256-119-008756_VR-Chain	1978	22-41		94-113
anti-HIV_cap256-119-008055_VR-Chain	1979	22-41		
anti-HIV_cap256-119-006949_VR-Chain	1980	22-41		94-113
anti-HIV_cap256-119-006685_VR-Chain	1981	22-41		
anti-HIV_cap256-119-006015_VR-Chain	1982	22-41		94-113
anti-HIV_cap256-119-005841_VR-Chain	1983	22-41		94-113
anti-HIV_cap256-119-005824_VR-Chain	1984	22-41		94-113
anti-HIV_cap256-119-005494_VR-Chain	1985	22-41		94-113
anti-HIV_cap256-119-004949_VR-Chain	1986	22-41		
anti-HIV_cap256-119-004422_VR-Chain	1987	22-41		94-113
anti-HIV_cap256-119-003932_VR-Chain	1988	22-41		
anti-HIV_cap256-119-003577_VR-Chain	1989	22-41		
anti-HIV_cap256-119-002155_VR-Chain	1990	22-41		94-113
anti-HIV_cap256-119-002017_VR-Chain	1991	22-41		
anti-HIV_cap256-119-001312_VR-Chain	1992	22-41		94-113
anti-HIV_cap256-119-001017_VR-Chain	1993	22-41		
anti-HIV_cap256-119-000594_VR-Chain	1994	22-41		94-113
anti-HIV_cap256-059-241099_VR-Chain	1995	22-41		94-113
anti-HIV_cap256-059-207529_VR-Chain	1996	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-059-205541_VR-Chain	1997	22-41		94-113
anti-HIV_cap256-059-188439_VR-Chain	1998	22-41		94-113
anti-HIV_cap256-059-187234_VR-Chain	1999	22-41		94-113
anti-HIV_cap256-059-187047_VR-Chain	2000	22-41		94-113
anti-HIV_cap256-059-186068_VR-Chain	2001	22-41		94-113
anti-HIV_cap256-059-182835_VR-Chain	2002	22-41		94-113
anti-HIV_cap256-059-176659_VR-Chain	2003	22-41		94-113
anti-HIV_cap256-059-172956_VR-Chain	2004	22-41		94-113
anti-HIV_cap256-059-171272_VR-Chain	2005	22-41		94-113
anti-HIV_cap256-059-168734_VR-Chain	2006	22-41		94-113
anti-HIV_cap256-059-155838_VR-Chain	2007	22-41		94-113
anti-HIV_cap256-059-149799_VR-Chain	2008	22-41		94-113
anti-HIV_cap256-059-148168_VR-Chain	2009	22-41		
anti-HIV_cap256-059-144685_VR-Chain	2010	22-41		94-113
anti-HIV_cap256-059-140017_VR-Chain	2011	22-41		94-113
anti-HIV_cap256-059-137547_VR-Chain	2012	22-41		94-113
anti-HIV_cap256-059-131908_VR-Chain	2013	22-41		94-113
anti-HIV_cap256-059-116006_VR-Chain	2014	22-41		94-113
anti-HIV_cap256-059-115783_VR-Chain	2015	22-41		87-106
anti-HIV_cap256-059-114609_VR-Chain	2016	22-41		
anti-HIV_cap256-059-113952_VR-Chain	2017	22-41		94-113
anti-HIV_cap256-059-113878_VR-Chain	2018	22-41		94-113
anti-HIV_cap256-059-113622_VR-Chain	2019	22-41		94-113
anti-HIV_cap256-059-109427_VR-Chain	2020	22-41		94-113
anti-HIV_cap256-059-109081_VR-Chain	2021	22-41		94-113
anti-HIV_cap256-059-107590_VR-Chain	2022	22-41		94-113
anti-HIV_cap256-059-107504_VR-Chain	2023	22-41		94-113
anti-HIV_cap256-059-099614_VR-Chain	2024	22-41		94-113
anti-HIV_cap256-059-098972_VR-Chain	2025	22-41		94-113
anti-HIV_cap256-059-097236_VR-Chain	2026	22-41		94-113
anti-HIV_cap256-059-091487_VR-Chain	2027	22-41		94-113
anti-HIV_cap256-059-089812_VR-Chain	2028	22-41		94-113
anti-HIV_cap256-059-088468_VR-Chain	2029	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-059-088341_VR-Chain	2030	22-41		94-113
anti-HIV_cap256-059-086533_VR-Chain	2031	22-41		94-113
anti-HIV_cap256-059-086043_VR-Chain	2032	22-41	93-102	94-113
anti-HIV_cap256-059-084191_VR-Chain	2033	22-41		94-113
anti-HIV_cap256-059-082135_VR-Chain	2034	22-41		94-113
anti-HIV_cap256-059-079417_VR-Chain	2035	22-41		94-113
anti-HIV_cap256-059-076027_VR-Chain	2036	22-41	93-102	94-113
anti-HIV_cap256-059-075082_VR-Chain	2037	22-41		94-113
anti-HIV_cap256-059-072575_VR-Chain	2038	22-41		94-113
anti-HIV_cap256-059-071926_VR-Chain	2039	22-41		94-113
anti-HIV_cap256-059-069638_VR-Chain	2040	22-41		94-113
anti-HIV_cap256-059-069165_VR-Chain	2041	22-41		94-113
anti-HIV_cap256-059-068956_VR-Chain	2042	22-41		94-113
anti-HIV_cap256-059-068876_VR-Chain	2043	22-41		94-113
anti-HIV_cap256-059-067733_VR-Chain	2044	22-41		94-113
anti-HIV_cap256-059-067450_VR-Chain	2045	22-41		94-113
anti-HIV_cap256-059-065694_VR-Chain	2046	22-41		94-113
anti-HIV_cap256-059-065109_VR-Chain	2047	22-41		94-113
anti-HIV_cap256-059-065060_VR-Chain	2048	22-41		
anti-HIV_cap256-059-064001_VR-Chain	2049	22-41		94-113
anti-HIV_cap256-059-063270_VR-Chain	2050	22-41		94-113
anti-HIV_cap256-059-061357_VR-Chain	2051	22-41	58-67	
anti-HIV_cap256-059-059834_VR-Chain	2052	22-41		94-113
anti-HIV_cap256-059-059313_VR-Chain	2053	22-41		94-113
anti-HIV_cap256-059-057130_VR-Chain	2054	22-41		94-113
anti-HIV_cap256-059-050520_VR-Chain	2055	22-41		87-106
anti-HIV_cap256-059-049839_VR-Chain	2056	22-41		94-113
anti-HIV_cap256-059-048503_VR-Chain	2057	22-41		94-113
anti-HIV_cap256-059-045516_VR-Chain	2058	22-41		94-113
anti-HIV_cap256-059-044188_VR-Chain	2059	22-41		94-113
anti-HIV_cap256-059-044105_VR-Chain	2060	22-41	93-102	94-113
anti-HIV_cap256-059-042100_VR-Chain	2061	22-41		
anti-HIV_cap256-059-040742_VR-Chain	2062	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-059-040554_VR-Chain	2063	22-41		94-113
anti-HIV_cap256-059-039660_VR-Chain	2064	22-41		94-113
anti-HIV_cap256-059-039298_VR-Chain	2065	22-41		94-113
anti-HIV_cap256-059-037873_VR-Chain	2066	22-41		94-113
anti-HIV_cap256-059-037633_VR-Chain	2067	22-41		94-113
anti-HIV_cap256-059-036817_VR-Chain	2068	22-41		94-113
anti-HIV_cap256-059-032787_VR-Chain	2069	22-41		94-113
anti-HIV_cap256-059-032427_VR-Chain	2070	22-41		94-113
anti-HIV_cap256-059-029390_VR-Chain	2071	22-41		94-113
anti-HIV_cap256-059-027877_VR-Chain	2072	22-41		94-113
anti-HIV_cap256-059-026640_VR-Chain	2073	22-41	93-102	94-113
anti-HIV_cap256-059-026017_VR-Chain	2074	22-41		
anti-HIV_cap256-059-024100_VR-Chain	2075	22-41		94-113
anti-HIV_cap256-059-023966_VR-Chain	2076	22-41		94-113
anti-HIV_cap256-059-020534_VR-Chain	2077	22-41		94-113
anti-HIV_cap256-059-019513_VR-Chain	2078	22-41		94-113
anti-HIV_cap256-059-012963_VR-Chain	2079	22-41		94-113
anti-HIV_cap256-059-010396_VR-Chain	2080	22-41		94-113
anti-HIV_cap256-059-008136_VR-Chain	2081	22-41		
anti-HIV_cap256-059-006147_VR-Chain	2082	22-41		94-113
anti-HIV_cap256-059-005081_VR-Chain	2083	22-41		94-113
anti-HIV_cap256-059-005006_VR-Chain	2084	22-41		94-113
anti-HIV_cap256-059-004451_VR-Chain	2085	22-41		94-113
anti-HIV_cap256-059-003571_VR-Chain	2086	22-41		94-113
anti-HIV_cap256-059-003449_VR-Chain	2087	22-41		94-113
anti-HIV_cap256-059-002712_VR-Chain	2088	22-41		94-113
anti-HIV_cap256-059-001573_VR-Chain	2089	22-41		94-113
anti-HIV_cap256-059-001379_VR-Chain	2090	22-41		94-113
anti-HIV_cap256-059-001029_VR-Chain	2091	22-41		94-113
anti-HIV_cap256-048-165087_VR-Chain	2092	22-41		94-113
anti-HIV_cap256-048-158861_VR-Chain	2093	22-41		94-113
anti-HIV_cap256-048-158280_VR-Chain	2094	22-41	20-29	94-113
anti-HIV_cap256-048-157928_VR-Chain	2095	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-048-157056_VR-Chain	2096	22-41		94-113
anti-HIV_cap256-048-156422_VR-Chain	2097	22-41		94-113
anti-HIV_cap256-048-152863_VR-Chain	2098	22-41		94-113
anti-HIV_cap256-048-152770_VR-Chain	2099	22-41		94-113
anti-HIV_cap256-048-150027_VR-Chain	2100	22-41		94-113
anti-HIV_cap256-048-148246_VR-Chain	2101	22-41		94-113
anti-HIV_cap256-048-147428_VR-Chain	2102	22-41		94-113
anti-HIV_cap256-048-146603_VR-Chain	2103	22-41		
anti-HIV_cap256-048-145735_VR-Chain	2104	22-41		94-113
anti-HIV_cap256-048-145116_VR-Chain	2105	22-41		94-113
anti-HIV_cap256-048-144077_VR-Chain	2106	22-41		94-113
anti-HIV_cap256-048-142876_VR-Chain	2107	22-41		
anti-HIV_cap256-048-140582_VR-Chain	2108	22-41		94-113
anti-HIV_cap256-048-139355_VR-Chain	2109	22-41		94-113
anti-HIV_cap256-048-139151_VR-Chain	2110	22-41		94-113
anti-HIV_cap256-048-137672_VR-Chain	2111	22-41		94-113
anti-HIV_cap256-048-137506_VR-Chain	2112	22-41		94-113
anti-HIV_cap256-048-137270_VR-Chain	2113	22-41		94-113
anti-HIV_cap256-048-135447_VR-Chain	2114	22-41		94-113
anti-HIV_cap256-048-131966_VR-Chain	2115	22-41		94-113
anti-HIV_cap256-048-131008_VR-Chain	2116	22-41		94-113
anti-HIV_cap256-048-129369_VR-Chain	2117	22-41		94-113
anti-HIV_cap256-048-128476_VR-Chain	2118	22-41		94-113
anti-HIV_cap256-048-128270_VR-Chain	2119	22-41		94-113
anti-HIV_cap256-048-126220_VR-Chain	2120	22-41		94-113
anti-HIV_cap256-048-125713_VR-Chain	2121	22-41		94-113
anti-HIV_cap256-048-123934_VR-Chain	2122	22-41		94-113
anti-HIV_cap256-048-122673_VR-Chain	2123	22-41		94-113
anti-HIV_cap256-048-122208_VR-Chain	2124	22-41		94-113
anti-HIV_cap256-048-121552_VR-Chain	2125	22-41		94-113
anti-HIV_cap256-048-120643_VR-Chain	2126	22-41		94-113
anti-HIV_cap256-048-118458_VR-Chain	2127	22-41		
anti-HIV_cap256-048-118112_VR-Chain	2128	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-048-116469_VR-Chain	2129	22-41		94-113
anti-HIV_cap256-048-113917_VR-Chain	2130	22-41		94-113
anti-HIV_cap256-048-112368_VR-Chain	2131	22-41		94-113
anti-HIV_cap256-048-112047_VR-Chain	2132	22-41		94-113
anti-HIV_cap256-048-112029_VR-Chain	2133	22-41		94-113
anti-HIV_cap256-048-110957_VR-Chain	2134	22-41		94-113
anti-HIV_cap256-048-110526_VR-Chain	2135	22-41		94-113
anti-HIV_cap256-048-109336_VR-Chain	2136	22-41		94-113
anti-HIV_cap256-048-108152_VR-Chain	2137	22-41		94-113
anti-HIV_cap256-048-107799_VR-Chain	2138	22-41		94-113
anti-HIV_cap256-048-107384_VR-Chain	2139	22-41		94-113
anti-HIV_cap256-048-106530_VR-Chain	2140	22-41		94-113
anti-HIV_cap256-048-106464_VR-Chain	2141	22-41		94-113
anti-HIV_cap256-048-106411_VR-Chain	2142	22-41		
anti-HIV_cap256-048-106306_VR-Chain	2143	22-41		94-113
anti-HIV_cap256-048-104496_VR-Chain	2144	22-41		94-113
anti-HIV_cap256-048-103074_VR-Chain	2145	22-41		94-113
anti-HIV_cap256-048-100832_VR-Chain	2146	22-41		94-113
anti-HIV_cap256-048-100188_VR-Chain	2147	22-41	20-29	94-113
anti-HIV_cap256-048-099645_VR-Chain	2148	22-41		
anti-HIV_cap256-048-098137_VR-Chain	2149	22-41		94-113
anti-HIV_cap256-048-097878_VR-Chain	2150	22-41		94-113
anti-HIV_cap256-048-097510_VR-Chain	2151	22-41		94-113
anti-HIV_cap256-048-097313_VR-Chain	2152	22-41		94-113
anti-HIV_cap256-048-096626_VR-Chain	2153	22-41		94-113
anti-HIV_cap256-048-096483_VR-Chain	2154	22-41		94-113
anti-HIV_cap256-048-095691_VR-Chain	2155	22-41		94-113
anti-HIV_cap256-048-095525_VR-Chain	2156	22-41		94-113
anti-HIV_cap256-048-094783_VR-Chain	2157	22-41		94-113
anti-HIV_cap256-048-094356_VR-Chain	2158	22-41		94-113
anti-HIV_cap256-048-090756_VR-Chain	2159	22-41		94-113
anti-HIV_cap256-048-089065_VR-Chain	2160	22-41		94-113
anti-HIV_cap256-048-084986_VR-Chain	2161	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-048-083355_VR-Chain	2162	22-41		94-113
anti-HIV_cap256-048-082462_VR-Chain	2163	22-41		94-113
anti-HIV_cap256-048-082246_VR-Chain	2164	22-41		94-113
anti-HIV_cap256-048-080752_VR-Chain	2165	22-41		94-113
anti-HIV_cap256-048-078409_VR-Chain	2166	22-41		94-113
anti-HIV_cap256-048-078273_VR-Chain	2167	22-41		
anti-HIV_cap256-048-078062_VR-Chain	2168	22-41		94-113
anti-HIV_cap256-048-077798_VR-Chain	2169	22-41		
anti-HIV_cap256-048-073853_VR-Chain	2170	22-41		94-113
anti-HIV_cap256-048-071661_VR-Chain	2171	22-41		
anti-HIV_cap256-048-071360_VR-Chain	2172	22-41		94-113
anti-HIV_cap256-048-070955_VR-Chain	2173	22-41		
anti-HIV_cap256-048-070061_VR-Chain	2174	22-41		94-113
anti-HIV_cap256-048-069669_VR-Chain	2175	22-41		94-113
anti-HIV_cap256-048-069205_VR-Chain	2176	22-41		94-113
anti-HIV_cap256-048-068882_VR-Chain	2177	22-41		94-113
anti-HIV_cap256-048-067764_VR-Chain	2178	22-41		94-113
anti-HIV_cap256-048-066845_VR-Chain	2179	22-41		94-113
anti-HIV_cap256-048-065226_VR-Chain	2180	22-41		94-113
anti-HIV_cap256-048-063717_VR-Chain	2181	22-41	59-68	
anti-HIV_cap256-048-063150_VR-Chain	2182	22-41		94-113
anti-HIV_cap256-048-062431_VR-Chain	2183	22-41		94-113
anti-HIV_cap256-048-060745_VR-Chain	2184	22-41		94-113
anti-HIV_cap256-048-060420_VR-Chain	2185	22-41		94-113
anti-HIV_cap256-048-060014_VR-Chain	2186	22-41	93-102	94-113
anti-HIV_cap256-048-059747_VR-Chain	2187	22-41		94-113
anti-HIV_cap256-048-058393_VR-Chain	2188	22-41		94-113
anti-HIV_cap256-048-058159_VR-Chain	2189	22-41		94-113
anti-HIV_cap256-048-057127_VR-Chain	2190	22-41		94-113
anti-HIV_cap256-048-056251_VR-Chain	2191	22-41		94-113
anti-HIV_cap256-048-055421_VR-Chain	2192	22-41		94-113
anti-HIV_cap256-048-054989_VR-Chain	2193	22-41		94-113
anti-HIV_cap256-048-054759_VR-Chain	2194	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-048-052573_VR-Chain	2195	22-41		94-113
anti-HIV_cap256-048-051477_VR-Chain	2196	22-41		94-113
anti-HIV_cap256-048-051299_VR-Chain	2197	22-41		94-113
anti-HIV_cap256-048-050815_VR-Chain	2198	22-41		94-113
anti-HIV_cap256-048-049884_VR-Chain	2199	22-41		94-113
anti-HIV_cap256-048-049170_VR-Chain	2200	22-41		94-113
anti-HIV_cap256-048-048531_VR-Chain	2201	22-41		94-113
anti-HIV_cap256-048-048259_VR-Chain	2202	22-41		94-113
anti-HIV_cap256-048-047313_VR-Chain	2203	22-41		94-113
anti-HIV_cap256-048-046596_VR-Chain	2204	22-41		94-113
anti-HIV_cap256-048-044781_VR-Chain	2205	22-41		94-113
anti-HIV_cap256-048-042599_VR-Chain	2206	22-41		94-113
anti-HIV_cap256-048-041276_VR-Chain	2207	22-41		94-113
anti-HIV_cap256-048-040200_VR-Chain	2208	22-41		94-113
anti-HIV_cap256-048-039061_VR-Chain	2209	22-41	93-102	
anti-HIV_cap256-048-038515_VR-Chain	2210	22-41		94-113
anti-HIV_cap256-048-038255_VR-Chain	2211	22-41		94-113
anti-HIV_cap256-048-038177_VR-Chain	2212	22-41	93-102	
anti-HIV_cap256-048-035513_VR-Chain	2213	22-41		94-113
anti-HIV_cap256-048-034112_VR-Chain	2214	22-41		94-113
anti-HIV_cap256-048-033983_VR-Chain	2215	22-41		94-113
anti-HIV_cap256-048-032688_VR-Chain	2216	22-41		94-113
anti-HIV_cap256-048-031092_VR-Chain	2217	22-41		94-113
anti-HIV_cap256-048-030464_VR-Chain	2218	22-41		94-113
anti-HIV_cap256-048-030289_VR-Chain	2219	22-41		94-113
anti-HIV_cap256-048-030261_VR-Chain	2220	22-41		
anti-HIV_cap256-048-029362_VR-Chain	2221	22-41		94-113
anti-HIV_cap256-048-027638_VR-Chain	2222	22-41		
anti-HIV_cap256-048-027613_VR-Chain	2223	22-41		94-113
anti-HIV_cap256-048-026627_VR-Chain	2224	22-41		94-113
anti-HIV_cap256-048-026239_VR-Chain	2225	22-41		94-113
anti-HIV_cap256-048-025518_VR-Chain	2226	22-41		94-113
anti-HIV_cap256-048-024854_VR-Chain	2227	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-048-024537_VR-Chain	2228	22-41		94-113
anti-HIV_cap256-048-021781_VR-Chain	2229	22-41		94-113
anti-HIV_cap256-048-021758_VR-Chain	2230	22-41		94-113
anti-HIV_cap256-048-020988_VR-Chain	2231	22-41		94-113
anti-HIV_cap256-048-020663_VR-Chain	2232	22-41		
anti-HIV_cap256-048-020590_VR-Chain	2233	22-41		94-113
anti-HIV_cap256-048-019765_VR-Chain	2234	22-41		94-113
anti-HIV_cap256-048-019254_VR-Chain	2235	22-41		
anti-HIV_cap256-048-018073_VR-Chain	2236	22-41		94-113
anti-HIV_cap256-048-016775_VR-Chain	2237	22-41		94-113
anti-HIV_cap256-048-016069_VR-Chain	2238	22-41		94-113
anti-HIV_cap256-048-015867_VR-Chain	2239	22-41		
anti-HIV_cap256-048-015673_VR-Chain	2240	22-41		94-113
anti-HIV_cap256-048-015156_VR-Chain	2241	22-41		94-113
anti-HIV_cap256-048-014521_VR-Chain	2242	22-41		94-113
anti-HIV_cap256-048-014475_VR-Chain	2243	22-41		94-113
anti-HIV_cap256-048-013798_VR-Chain	2244	22-41		
anti-HIV_cap256-048-013271_VR-Chain	2245	22-41		94-113
anti-HIV_cap256-048-013180_VR-Chain	2246	22-41		94-113
anti-HIV_cap256-048-012148_VR-Chain	2247	22-41		94-113
anti-HIV_cap256-048-011870_VR-Chain	2248	22-41		94-113
anti-HIV_cap256-048-011530_VR-Chain	2249	22-41		94-113
anti-HIV_cap256-048-010968_VR-Chain	2250	22-41		
anti-HIV_cap256-048-010224_VR-Chain	2251	22-41		92-111
anti-HIV_cap256-048-009749_VR-Chain	2252	22-41		94-113
anti-HIV_cap256-048-009623_VR-Chain	2253	22-41		94-113
anti-HIV_cap256-048-008234_VR-Chain	2254	22-41		94-113
anti-HIV_cap256-048-008149_VR-Chain	2255	22-41		94-113
anti-HIV_cap256-048-007301_VR-Chain	2256	22-41		94-113
anti-HIV_cap256-048-007174_VR-Chain	2257	22-41		94-113
anti-HIV_cap256-048-007079_VR-Chain	2258	22-41	31-40	94-113
anti-HIV_cap256-048-007033_VR-Chain	2259	22-41		94-113
anti-HIV_cap256-048-006128_VR-Chain	2260	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-048-005999_VR-Chain	2261	22-41		94-113
anti-HIV_cap256-048-005394_VR-Chain	2262	22-41		94-113
anti-HIV_cap256-048-004226_VR-Chain	2263	22-41		94-113
anti-HIV_cap256-048-004097_VR-Chain	2264	22-41		94-113
anti-HIV_cap256-048-003289_VR-Chain	2265	22-41		94-113
anti-HIV_cap256-048-002601_VR-Chain	2266	22-41		94-113
anti-HIV_cap256-048-002129_VR-Chain	2267	22-41		
anti-HIV_cap256-048-001875_VR-Chain	2268	22-41		94-113
anti-HIV_cap256-048-001302_VR-Chain	2269	22-41		94-113
anti-HIV_cap256-048-001203_VR-Chain	2270	22-41		94-113
anti-HIV_cap256-048-000383_VR-Chain	2271	22-41		94-113
anti-HIV_cap256-038-261791_VR-Chain	2272	22-41		94-113
anti-HIV_cap256-038-241540_VR-Chain	2273	22-41	58-67	94-113
anti-HIV_cap256-038-235677_VR-Chain	2274	22-41		94-113
anti-HIV_cap256-038-234314_VR-Chain	2275	22-41		94-113
anti-HIV_cap256-038-234273_VR-Chain	2276	22-41		94-113
anti-HIV_cap256-038-223164_VR-Chain	2277	22-41		94-113
anti-HIV_cap256-038-220289_VR-Chain	2278	22-41		94-113
anti-HIV_cap256-038-220020_VR-Chain	2279	22-41		94-113
anti-HIV_cap256-038-216853_VR-Chain	2280	22-41		94-113
anti-HIV_cap256-038-213466_VR-Chain	2281	22-41		94-113
anti-HIV_cap256-038-213212_VR-Chain	2282	22-41		
anti-HIV_cap256-038-213120_VR-Chain	2283	22-41		94-113
anti-HIV_cap256-038-212592_VR-Chain	2284	22-41		94-113
anti-HIV_cap256-038-211790_VR-Chain	2285	22-41		94-113
anti-HIV_cap256-038-209916_VR-Chain	2286	22-41		94-113
anti-HIV_cap256-038-207938_VR-Chain	2287	22-41		94-113
anti-HIV_cap256-038-202245_VR-Chain	2288	22-41		
anti-HIV_cap256-038-197721_VR-Chain	2289	22-41		94-113
anti-HIV_cap256-038-196679_VR-Chain	2290	22-41		94-113
anti-HIV_cap256-038-196118_VR-Chain	2291	22-41		94-113
anti-HIV_cap256-038-195382_VR-Chain	2292	22-41		93-112
anti-HIV_cap256-038-180001_VR-Chain	2293	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-038-178021_VR-Chain	2294	22-41		94-113
anti-HIV_cap256-038-177104_VR-Chain	2295	22-41		94-113
anti-HIV_cap256-038-171261_VR-Chain	2296	22-41		94-113
anti-HIV_cap256-038-169090_VR-Chain	2297	22-41		94-113
anti-HIV_cap256-038-168705_VR-Chain	2298	22-41		94-113
anti-HIV_cap256-038-167685_VR-Chain	2299	22-41		94-113
anti-HIV_cap256-038-158775_VR-Chain	2300	22-41		94-113
anti-HIV_cap256-038-157318_VR-Chain	2301	22-41		94-113
anti-HIV_cap256-038-153058_VR-Chain	2302	22-41		94-113
anti-HIV_cap256-038-150027_VR-Chain	2303	22-41		94-113
anti-HIV_cap256-038-146372_VR-Chain	2304	22-41		94-113
anti-HIV_cap256-038-141868_VR-Chain	2305	22-41		94-113
anti-HIV_cap256-038-141616_VR-Chain	2306	22-41		94-113
anti-HIV_cap256-038-127989_VR-Chain	2307	22-41		94-113
anti-HIV_cap256-038-118109_VR-Chain	2308	22-41		94-113
anti-HIV_cap256-038-112226_VR-Chain	2309	22-41		94-113
anti-HIV_cap256-038-105918_VR-Chain	2310	22-41		94-113
anti-HIV_cap256-038-104487_VR-Chain	2311	22-41		94-113
anti-HIV_cap256-038-102308_VR-Chain	2312	22-41		94-113
anti-HIV_cap256-038-091115_VR-Chain	2313	22-41		94-113
anti-HIV_cap256-038-090262_VR-Chain	2314	22-41		94-113
anti-HIV_cap256-038-083260_VR-Chain	2315	22-41		94-113
anti-HIV_cap256-038-080981_VR-Chain	2316	22-41		94-113
anti-HIV_cap256-038-080873_VR-Chain	2317	22-41		94-113
anti-HIV_cap256-038-074413_VR-Chain	2318	22-41		94-113
anti-HIV_cap256-038-073153_VR-Chain	2319	22-41		94-113
anti-HIV_cap256-038-064227_VR-Chain	2320	22-41		94-113
anti-HIV_cap256-038-061640_VR-Chain	2321	22-41		94-113
anti-HIV_cap256-038-059482_VR-Chain	2322	22-41		88-107
anti-HIV_cap256-038-054000_VR-Chain	2323	22-41		94-113
anti-HIV_cap256-038-050554_VR-Chain	2324	22-41		94-113
anti-HIV_cap256-038-044256_VR-Chain	2325	22-41		94-113
anti-HIV_cap256-038-040944_VR-Chain	2326	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_cap256-038-040090_VR-Chain	2327	22-41		94-113
anti-HIV_cap256-038-032874_VR-Chain	2328	22-41		
anti-HIV_cap256-038-025899_VR-Chain	2329	22-41		94-113
anti-HIV_cap256-038-024581_VR-Chain	2330	22-41		94-113
anti-HIV_cap256-038-013345_VR-Chain	2331	22-41		94-113
anti-HIV_cap256-038-011559_VR-Chain	2332	22-41		94-113
anti-HIV_cap256-038-009634_VR-Chain	2333	22-41		
anti-HIV_cap256-038-006730_VR-Chain	2334	22-41		94-113
anti-HIV_cap256-038-004887_VR-Chain	2335	22-41		94-113
anti-HIV_cap256-038-004840_VR-Chain	2336	22-41		94-113
anti-HIV_cap256-038-002181_VR-Chain	2337	22-41		94-113
anti-HIV_cap256-038-001902_VR-Chain	2338	22-41		94-113
anti-HIV_cap256-038-000976_VR-Chain	2339	22-41		94-113
anti-HIV_cap256-038-000384_VR-Chain	2340	22-41		94-113
anti-HIV_206-314431_VR-Chain	2341	22-41	49-58	87-106
anti-HIV_206-247594_VR-Chain	2342	22-41	49-58	87-106
anti-HIV_206-116890_VR-Chain	2343	22-41	49-58	87-106
anti-HIV_206-072383_VR-Chain	2344	22-41	49-58	
anti-HIV_206-037527_VR-Chain	2345	22-41	49-58	
anti-HIV_206-009095_VR-Chain	2346	22-41	49-58	
anti-HIV_176-503620_VR-Chain	2347	22-41	49-58	87-106
anti-HIV_176-478726_VR-Chain	2348	22-41	49-58	87-106
anti-HIV_176-245056_VR-Chain	2349	22-41	49-58	87-106
anti-HIV_176-164413_VR-Chain	2350	22-41	49-58	87-106
anti-HIV_176-094308_VR-Chain	2351	22-41		
anti-HIV_176-065321_VR-Chain	2352	22-41		87-106
anti-HIV_119-099719_VR-Chain	2353	22-41	49-58	87-106
anti-HIV_119-099536_VR-Chain	2354	22-41	47-56	85-104
anti-HIV_119-098907_VR-Chain	2355	22-41		87-106
anti-HIV_119-098555_VR-Chain	2356	22-41	49-58	87-106
anti-HIV_119-097828_VR-Chain	2357	22-41	49-58	87-106
anti-HIV_119-096480_VR-Chain	2358	22-41		87-106
anti-HIV_119-095664_VR-Chain	2359	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_119-095212_VR-Chain	2360	22-41		
anti-HIV_119-094773_VR-Chain	2361	22-41	49-58	
anti-HIV_119-094508_VR-Chain	2362	22-41		87-106
anti-HIV_119-093795_VR-Chain	2363	22-41		87-106
anti-HIV_119-093732_VR-Chain	2364	22-41	49-58	
anti-HIV_119-092903_VR-Chain	2365	22-41	49-58	87-106
anti-HIV_119-092284_VR-Chain	2366	22-41		
anti-HIV_119-091586_VR-Chain	2367	22-41	49-58	
anti-HIV_119-091023_VR-Chain	2368	22-41	49-58	
anti-HIV_119-090334_VR-Chain	2369	22-41		87-106
anti-HIV_119-088694_VR-Chain	2370	22-41		87-106
anti-HIV_119-088499_VR-Chain	2371	22-41	49-58	87-106
anti-HIV_119-088298_VR-Chain	2372	22-41	49-58	
anti-HIV_119-087488_VR-Chain	2373	22-41		87-106
anti-HIV_119-087423_VR-Chain	2374	22-41	49-58	87-106
anti-HIV_119-087371_VR-Chain	2375	22-41	49-58	87-106
anti-HIV_119-087279_VR-Chain	2376	22-41		87-106
anti-HIV_119-087146_VR-Chain	2377	22-41	49-58	87-106
anti-HIV_119-087048_VR-Chain	2378	22-41	49-58	87-106
anti-HIV_119-085802_VR-Chain	2379	22-41		
anti-HIV_119-085784_VR-Chain	2380	22-41	49-58	87-106
anti-HIV_119-085370_VR-Chain	2381	22-41	49-58	87-106
anti-HIV_119-085276_VR-Chain	2382	22-41	49-58	
anti-HIV_119-084885_VR-Chain	2383	22-41		87-106
anti-HIV_119-084874_VR-Chain	2384	22-41	49-58	
anti-HIV_119-084691_VR-Chain	2385	22-41	49-58	
anti-HIV_119-083793_VR-Chain	2386	22-41	49-58	87-106
anti-HIV_119-083163_VR-Chain	2387	22-41		87-106
anti-HIV_119-082331_VR-Chain	2388	22-41	49-58	
anti-HIV_119-082070_VR-Chain	2389	22-41	49-58	87-106
anti-HIV_119-081512_VR-Chain	2390	22-41	49-58	
anti-HIV_119-080816_VR-Chain	2391	22-41	49-58	87-106
anti-HIV_119-079302_VR-Chain	2392	22-41	49-58	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_119-079292_VR-Chain	2393	22-41	49-58	87-106
anti-HIV_119-079289_VR-Chain	2394	22-41	49-58	
anti-HIV_119-078935_VR-Chain	2395	22-41	49-58	87-106
anti-HIV_119-078702_VR-Chain	2396	22-41	49-58	87-106
anti-HIV_119-078593_VR-Chain	2397	22-41	49-58	87-106
anti-HIV_119-077708_VR-Chain	2398	22-41	49-58	87-106
anti-HIV_119-076904_VR-Chain	2399	22-41	49-58	
anti-HIV_119-075862_VR-Chain	2400	22-41	49-58	87-106
anti-HIV_119-075465_VR-Chain	2401	22-41	49-58	
anti-HIV_119-074822_VR-Chain	2402	22-41	48-57	86-105
anti-HIV_119-074629_VR-Chain	2403	22-41	49-58	
anti-HIV_119-074500_VR-Chain	2404	22-41	49-58	87-106
anti-HIV_119-073911_VR-Chain	2405	22-41		87-106
anti-HIV_119-072765_VR-Chain	2406	22-41		87-106
anti-HIV_119-072313_VR-Chain	2407	22-41	49-58	87-106
anti-HIV_119-072280_VR-Chain	2408	22-41		87-106
anti-HIV_119-071693_VR-Chain	2409	22-41	49-58	87-106
anti-HIV_119-071353_VR-Chain	2410	22-41		
anti-HIV_119-069711_VR-Chain	2411	22-41	49-58	87-106
anti-HIV_119-069061_VR-Chain	2412	22-41		87-106
anti-HIV_119-068202_VR-Chain	2413	22-41	49-58	87-106
anti-HIV_119-068063_VR-Chain	2414	22-41		87-106
anti-HIV_119-067980_VR-Chain	2415	22-41		
anti-HIV_119-067866_VR-Chain	2416	22-41	49-58	87-106
anti-HIV_119-067756_VR-Chain	2417	22-41	49-58	
anti-HIV_119-066859_VR-Chain	2418	22-41	49-58	
anti-HIV_119-065821_VR-Chain	2419	22-41	49-58	87-106
anti-HIV_119-065191_VR-Chain	2420	22-41		87-106
anti-HIV_119-064667_VR-Chain	2421	22-41	49-58	
anti-HIV_119-063791_VR-Chain	2422	22-41	49-58	87-106
anti-HIV_119-062989_VR-Chain	2423	22-41	49-58	87-106
anti-HIV_119-062286_VR-Chain	2424	22-41		87-106
anti-HIV_119-061416_VR-Chain	2425	22-41	49-58	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_119-061344_VR-Chain	2426	22-41	49-58	87-106
anti-HIV_119-060240_VR-Chain	2427	22-41		87-106
anti-HIV_119-060184_VR-Chain	2428	22-41	49-58	
anti-HIV_119-058035_VR-Chain	2429	22-41	49-58	
anti-HIV_119-057858_VR-Chain	2430	22-41	49-58	
anti-HIV_119-057473_VR-Chain	2431	22-41	49-58	87-106
anti-HIV_119-057090_VR-Chain	2432	22-41		
anti-HIV_119-055754_VR-Chain	2433	22-41		
anti-HIV_119-054899_VR-Chain	2434	22-41		87-106
anti-HIV_119-054501_VR-Chain	2435	22-41		87-106
anti-HIV_119-051867_VR-Chain	2436	22-41	49-58	87-106
anti-HIV_119-051814_VR-Chain	2437	22-41	49-58	87-106
anti-HIV_119-051567_VR-Chain	2438	22-41	20-29	
anti-HIV_119-051483_VR-Chain	2439	22-41	49-58	87-106
anti-HIV_119-050913_VR-Chain	2440	22-41	49-58	87-106
anti-HIV_119-050187_VR-Chain	2441	22-41	49-58	
anti-HIV_119-049069_VR-Chain	2442	22-41		87-106
anti-HIV_119-048517_VR-Chain	2443	22-41	49-58	
anti-HIV_119-048470_VR-Chain	2444	22-41	49-58	
anti-HIV_119-048303_VR-Chain	2445	22-41	48-57	86-94
anti-HIV_119-048021_VR-Chain	2446	22-41	49-58	
anti-HIV_119-047928_VR-Chain	2447	22-41	49-58	87-106
anti-HIV_119-047384_VR-Chain	2448	22-41	49-58	87-106
anti-HIV_119-047145_VR-Chain	2449	22-41	49-58	87-106
anti-HIV_119-046752_VR-Chain	2450	22-41		87-106
anti-HIV_119-046660_VR-Chain	2451	22-41	49-58	87-106
anti-HIV_119-046202_VR-Chain	2452	22-41		
anti-HIV_119-045790_VR-Chain	2453	22-41		87-106
anti-HIV_119-044670_VR-Chain	2454	22-41	49-58	87-106
anti-HIV_119-044140_VR-Chain	2455	22-41	49-58	87-106
anti-HIV_119-042776_VR-Chain	2456	22-41	49-58	87-106
anti-HIV_119-042581_VR-Chain	2457	22-41		87-106
anti-HIV_119-040905_VR-Chain	2458	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_119-040322_VR-Chain	2459	22-41	49-58	
anti-HIV_119-039892_VR-Chain	2460	22-41	49-58	87-106
anti-HIV_119-039764_VR-Chain	2461	22-41	49-58	87-106
anti-HIV_119-039188_VR-Chain	2462	22-41	49-58	
anti-HIV_119-039058_VR-Chain	2463	22-41	49-58	
anti-HIV_119-038837_VR-Chain	2464	22-41		87-106
anti-HIV_119-038396_VR-Chain	2465	22-41		87-106
anti-HIV_119-036918_VR-Chain	2466	22-41	49-58	87-106
anti-HIV_119-036592_VR-Chain	2467	22-41	49-58	87-106
anti-HIV_119-036310_VR-Chain	2468	22-41	49-58	87-106
anti-HIV_119-035618_VR-Chain	2469	22-41		87-106
anti-HIV_119-035569_VR-Chain	2470	22-41	49-58	87-106
anti-HIV_119-035466_VR-Chain	2471	22-41	49-58	87-106
anti-HIV_119-035157_VR-Chain	2472	22-41	49-58	87-106
anti-HIV_119-035121_VR-Chain	2473	22-41	49-58	
anti-HIV_119-035046_VR-Chain	2474	22-41	49-58	87-106
anti-HIV_119-034754_VR-Chain	2475	22-41	49-58	87-106
anti-HIV_119-034318_VR-Chain	2476	22-41	49-58	87-106
anti-HIV_119-033780_VR-Chain	2477	22-41	49-58	
anti-HIV_119-033632_VR-Chain	2478	22-41	49-58	87-106
anti-HIV_119-033183_VR-Chain	2479	22-41	49-58	87-106
anti-HIV_119-030696_VR-Chain	2480	22-41	49-58	
anti-HIV_119-030059_VR-Chain	2481	22-41	49-58	87-106
anti-HIV_119-029589_VR-Chain	2482	22-41	49-58	
anti-HIV_119-029448_VR-Chain	2483	22-41	49-58	87-106
anti-HIV_119-029220_VR-Chain	2484	22-41	49-58	
anti-HIV_119-028317_VR-Chain	2485	22-41	49-58	87-106
anti-HIV_119-028165_VR-Chain	2486	22-41		87-106
anti-HIV_119-027147_VR-Chain	2487	22-41		87-106
anti-HIV_119-026743_VR-Chain	2488	22-41	49-58	87-106
anti-HIV_119-026508_VR-Chain	2489	22-41		87-106
anti-HIV_119-025683_VR-Chain	2490	22-41	49-58	87-106
anti-HIV_119-025614_VR-Chain	2491	22-41		87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_119-025548_VR-Chain	2492	22-41	49-58	87-106
anti-HIV_119-025526_VR-Chain	2493	22-41	49-58	87-106
anti-HIV_119-023552_VR-Chain	2494	22-41		87-106
anti-HIV_119-023092_VR-Chain	2495	22-41		
anti-HIV_119-022793_VR-Chain	2496	22-41	49-58	87-106
anti-HIV_119-022395_VR-Chain	2497	22-41		87-106
anti-HIV_119-022334_VR-Chain	2498	22-41	49-58	87-106
anti-HIV_119-021866_VR-Chain	2499	22-41	49-58	
anti-HIV_119-021278_VR-Chain	2500	22-41	49-58	87-106
anti-HIV_119-021183_VR-Chain	2501	22-41		87-106
anti-HIV_119-019376_VR-Chain	2502	22-41		87-106
anti-HIV_119-019238_VR-Chain	2503	22-41	49-58	
anti-HIV_119-018500_VR-Chain	2504	22-41	49-58	87-106
anti-HIV_119-018318_VR-Chain	2505	22-41		87-106
anti-HIV_119-018218_VR-Chain	2506	22-41	49-58	
anti-HIV_119-017876_VR-Chain	2507	22-41	49-58	87-106
anti-HIV_119-017740_VR-Chain	2508	22-41	49-58	87-106
anti-HIV_119-017128_VR-Chain	2509	22-41	49-58	
anti-HIV_119-017044_VR-Chain	2510	22-41	49-58	87-106
anti-HIV_119-016644_VR-Chain	2511	22-41	49-58	87-106
anti-HIV_119-015878_VR-Chain	2512	22-41	49-58	87-106
anti-HIV_119-015538_VR-Chain	2513	22-41	49-58	87-106
anti-HIV_119-015455_VR-Chain	2514	22-41	49-58	87-106
anti-HIV_119-014425_VR-Chain	2515	22-41	49-58	87-106
anti-HIV_119-013582_VR-Chain	2516	22-41		87-106
anti-HIV_119-013364_VR-Chain	2517	22-41	49-58	87-106
anti-HIV_119-012886_VR-Chain	2518	22-41		87-106
anti-HIV_119-012249_VR-Chain	2519	22-41	49-58	
anti-HIV_119-012161_VR-Chain	2520	22-41	49-58	87-106
anti-HIV_119-012110_VR-Chain	2521	22-41		87-106
anti-HIV_119-012100_VR-Chain	2522	22-41	49-58	87-106
anti-HIV_119-011651_VR-Chain	2523	22-41	49-58	87-106
anti-HIV_119-011479_VR-Chain	2524	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_119-011232_VR-Chain	2525	22-41	49-58	
anti-HIV_119-011175_VR-Chain	2526	22-41	49-58	
anti-HIV_119-008396_VR-Chain	2527	22-41		87-106
anti-HIV_119-007148_VR-Chain	2528	22-41		87-106
anti-HIV_119-007029_VR-Chain	2529	22-41		87-106
anti-HIV_119-004707_VR-Chain	2530	22-41		87-106
anti-HIV_119-003910_VR-Chain	2531	22-41		87-106
anti-HIV_119-002450_VR-Chain	2532	22-41	49-58	87-106
anti-HIV_119-001552_VR-Chain	2533	22-41	49-58	87-106
anti-HIV_059-188169_VR-Chain	2534	22-41	49-58	87-106
anti-HIV_059-183739_VR-Chain	2535	22-41	49-58	87-106
anti-HIV_059-182376_VR-Chain	2536	22-41	49-58	87-106
anti-HIV_059-182199_VR-Chain	2537	22-41	49-58	87-106
anti-HIV_059-169202_VR-Chain	2538	22-41	49-58	87-106
anti-HIV_059-155645_VR-Chain	2539	22-41	49-58	87-106
anti-HIV_059-151619_VR-Chain	2540	22-41		87-106
anti-HIV_059-146503_VR-Chain	2541	22-41	49-58	87-106
anti-HIV_059-136098_VR-Chain	2542	22-41	49-58	87-106
anti-HIV_059-105516_VR-Chain	2543	22-41	49-58	87-106
anti-HIV_059-095709_VR-Chain	2544	22-41	49-58	87-106
anti-HIV_059-069468_VR-Chain	2545	22-41	49-58	87-106
anti-HIV_059-060026_VR-Chain	2546	22-41	49-58	87-106
anti-HIV_059-053668_VR-Chain	2547	22-41	49-58	87-106
anti-HIV_059-052864_VR-Chain	2548	22-41	49-58	87-106
anti-HIV_059-050968_VR-Chain	2549	22-41	49-58	87-106
anti-HIV_059-046422_VR-Chain	2550	22-41		87-106
anti-HIV_059-045120_VR-Chain	2551	22-41		87-106
anti-HIV_059-039932_VR-Chain	2552	22-41	49-58	87-106
anti-HIV_059-038595_VR-Chain	2553	22-41	49-58	87-106
anti-HIV_059-035082_VR-Chain	2554	22-41	49-58	87-106
anti-HIV_059-029204_VR-Chain	2555	22-41	49-58	87-106
anti-HIV_059-025235_VR-Chain	2556	22-41	49-58	87-106
anti-HIV_059-015192_VR-Chain	2557	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_059-007060_VR-Chain	2558	22-41	49-58	
anti-HIV_059-006953_VR-Chain	2559	22-41	46-55	84-103
anti-HIV_059-005953_VR-Chain	2560	22-41	49-58	87-106
anti-HIV_059-003725_VR-Chain	2561	22-41		87-106
anti-HIV_059-002618_VR-Chain	2562	22-41	49-58	87-106
anti-HIV_059-001522_VR-Chain	2563	22-41	49-58	87-106
anti-HIV_059-000731_VR-Chain	2564	22-41	49-58	87-106
anti-HIV_059-000634_VR-Chain	2565	22-41	49-58	87-106
anti-HIV_048-250757_VR-Chain	2566	22-41	49-58	87-106
anti-HIV_048-250716_VR-Chain	2567	22-41	49-58	87-106
anti-HIV_048-250463_VR-Chain	2568	22-41	49-58	87-106
anti-HIV_048-248153_VR-Chain	2569	22-41	49-58	87-106
anti-HIV_048-247532_VR-Chain	2570	22-41	49-58	87-106
anti-HIV_048-245846_VR-Chain	2571	22-41	49-58	87-106
anti-HIV_048-244016_VR-Chain	2572	22-41	49-58	87-106
anti-HIV_048-243682_VR-Chain	2573	22-41	49-58	87-106
anti-HIV_048-243588_VR-Chain	2574	22-41	49-58	87-106
anti-HIV_048-241775_VR-Chain	2575	22-41	49-58	87-106
anti-HIV_048-237996_VR-Chain	2576	22-41	49-58	87-106
anti-HIV_048-237730_VR-Chain	2577	22-41	48-57	86-105
anti-HIV_048-237253_VR-Chain	2578	22-41	49-58	87-106
anti-HIV_048-234100_VR-Chain	2579	22-41	49-58	87-106
anti-HIV_048-230882_VR-Chain	2580	22-41	49-58	87-106
anti-HIV_048-229473_VR-Chain	2581	22-41	49-58	87-106
anti-HIV_048-228238_VR-Chain	2582	22-41	49-58	87-106
anti-HIV_048-228027_VR-Chain	2583	22-41	49-58	87-106
anti-HIV_048-227795_VR-Chain	2584	22-41	49-58	87-106
anti-HIV_048-227770_VR-Chain	2585	22-41	49-58	87-106
anti-HIV_048-225298_VR-Chain	2586	22-41	49-58	87-106
anti-HIV_048-225090_VR-Chain	2587	22-41	47-56	85-104
anti-HIV_048-224187_VR-Chain	2588	22-41		87-106
anti-HIV_048-223055_VR-Chain	2589	22-41	49-58	87-106
anti-HIV_048-222711_VR-Chain	2590	22-41		87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_048-221209_VR-Chain	2591	22-41		87-106
anti-HIV_048-220629_VR-Chain	2592	22-41	49-58	87-106
anti-HIV_048-219430_VR-Chain	2593	22-41	49-58	87-106
anti-HIV_048-216250_VR-Chain	2594	22-41		87-106
anti-HIV_048-216133_VR-Chain	2595	22-41	45-54	83-102
anti-HIV_048-214886_VR-Chain	2596	22-41	49-58	87-106
anti-HIV_048-214709_VR-Chain	2597	22-41	49-58	87-106
anti-HIV_048-214001_VR-Chain	2598	22-41	49-58	87-106
anti-HIV_048-213230_VR-Chain	2599	22-41	49-58	87-106
anti-HIV_048-212574_VR-Chain	2600	22-41	49-58	87-106
anti-HIV_048-212207_VR-Chain	2601	22-41	49-58	87-106
anti-HIV_048-209146_VR-Chain	2602	22-41		87-106
anti-HIV_048-208206_VR-Chain	2603	22-41	49-58	87-106
anti-HIV_048-208194_VR-Chain	2604	22-41		87-106
anti-HIV_048-207744_VR-Chain	2605	22-41	49-58	87-106
anti-HIV_048-206501_VR-Chain	2606	22-41	49-58	87-106
anti-HIV_048-204221_VR-Chain	2607	22-41	49-58	87-106
anti-HIV_048-204015_VR-Chain	2608	22-41	49-58	87-106
anti-HIV_048-201240_VR-Chain	2609	22-41		87-106
anti-HIV_048-200455_VR-Chain	2610	22-41	49-58	87-106
anti-HIV_048-200319_VR-Chain	2611	22-41	49-58	87-106
anti-HIV_048-197896_VR-Chain	2612	22-41		87-106
anti-HIV_048-193813_VR-Chain	2613	22-41	49-58	87-106
anti-HIV_048-192098_VR-Chain	2614	22-41	49-58	87-106
anti-HIV_048-191786_VR-Chain	2615	22-41	49-58	87-106
anti-HIV_048-188746_VR-Chain	2616	22-41	49-58	87-106
anti-HIV_048-185937_VR-Chain	2617	22-41	49-58	87-106
anti-HIV_048-184849_VR-Chain	2618	22-41	49-58	87-106
anti-HIV_048-183089_VR-Chain	2619	22-41		87-106
anti-HIV_048-181509_VR-Chain	2620	22-41	49-58	87-106
anti-HIV_048-180990_VR-Chain	2621	22-41		87-106
anti-HIV_048-177532_VR-Chain	2622	22-41		87-106
anti-HIV_048-177426_VR-Chain	2623	22-41	46-55	84-103

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_048-177389_VR-Chain	2624	22-41	49-58	87-106
anti-HIV_048-174266_VR-Chain	2625	22-41	49-58	87-106
anti-HIV_048-172847_VR-Chain	2626	22-41	49-58	87-106
anti-HIV_048-172845_VR-Chain	2627	22-41	49-58	87-106
anti-HIV_048-172363_VR-Chain	2628	22-41		87-106
anti-HIV_048-171609_VR-Chain	2629	22-41	49-58	87-106
anti-HIV_048-170705_VR-Chain	2630	22-41	49-58	87-106
anti-HIV_048-168381_VR-Chain	2631	22-41	49-58	87-106
anti-HIV_048-166619_VR-Chain	2632	22-41	49-58	87-106
anti-HIV_048-162036_VR-Chain	2633	22-41	49-58	87-106
anti-HIV_048-160042_VR-Chain	2634	22-41	49-58	87-106
anti-HIV_048-159676_VR-Chain	2635	22-41	49-58	87-106
anti-HIV_048-159500_VR-Chain	2636	22-41	49-58	87-106
anti-HIV_048-159421_VR-Chain	2637	22-41	49-58	87-106
anti-HIV_048-159333_VR-Chain	2638	22-41	49-58	87-106
anti-HIV_048-158932_VR-Chain	2639	22-41	49-58	87-106
anti-HIV_048-155811_VR-Chain	2640	22-41		87-106
anti-HIV_048-155464_VR-Chain	2641	22-41	49-58	87-106
anti-HIV_048-155392_VR-Chain	2642	22-41		87-106
anti-HIV_048-155389_VR-Chain	2643	22-41	49-58	87-106
anti-HIV_048-154449_VR-Chain	2644	22-41	49-58	87-106
anti-HIV_048-153379_VR-Chain	2645	22-41	49-58	87-106
anti-HIV_048-153171_VR-Chain	2646	22-41	32-41	87-106
anti-HIV_048-152324_VR-Chain	2647	22-41	49-58	87-106
anti-HIV_048-146102_VR-Chain	2648	22-41	49-58	87-106
anti-HIV_048-145984_VR-Chain	2649	22-41		87-106
anti-HIV_048-145371_VR-Chain	2650	22-41	49-58	87-106
anti-HIV_048-144907_VR-Chain	2651	22-41	49-58	87-106
anti-HIV_048-142298_VR-Chain	2652	22-41		87-106
anti-HIV_048-142277_VR-Chain	2653	22-41	49-58	87-106
anti-HIV_048-141934_VR-Chain	2654	22-41	49-58	87-106
anti-HIV_048-141207_VR-Chain	2655	22-41	49-58	87-106
anti-HIV_048-140796_VR-Chain	2656	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_048-139893_VR-Chain	2657	22-41	49-58	87-106
anti-HIV_048-138820_VR-Chain	2658	22-41	49-58	87-106
anti-HIV_048-135858_VR-Chain	2659	22-41	49-58	87-106
anti-HIV_048-134968_VR-Chain	2660	22-41	49-58	87-106
anti-HIV_048-134312_VR-Chain	2661	22-41	49-58	87-106
anti-HIV_048-132253_VR-Chain	2662	22-41	48-57	86-105
anti-HIV_048-130710_VR-Chain	2663	22-41		87-106
anti-HIV_048-128564_VR-Chain	2664	22-41	49-58	87-106
anti-HIV_048-126702_VR-Chain	2665	22-41	49-58	87-106
anti-HIV_048-124521_VR-Chain	2666	22-41	49-58	87-106
anti-HIV_048-122740_VR-Chain	2667	22-41		87-106
anti-HIV_048-119536_VR-Chain	2668	22-41	47-56	85-104
anti-HIV_048-116929_VR-Chain	2669	22-41	49-58	87-106
anti-HIV_048-116577_VR-Chain	2670	22-41	49-58	87-106
anti-HIV_048-116046_VR-Chain	2671	22-41	49-58	87-106
anti-HIV_048-115875_VR-Chain	2672	22-41	49-58	87-106
anti-HIV_048-115599_VR-Chain	2673	22-41		87-106
anti-HIV_048-113988_VR-Chain	2674	22-41		87-106
anti-HIV_048-112989_VR-Chain	2675	22-41	49-58	87-106
anti-HIV_048-112435_VR-Chain	2676	22-41		87-106
anti-HIV_048-111339_VR-Chain	2677	22-41	49-58	87-106
anti-HIV_048-111055_VR-Chain	2678	22-41	49-58	87-106
anti-HIV_048-111027_VR-Chain	2679	22-41	49-58	87-106
anti-HIV_048-109721_VR-Chain	2680	22-41	49-58	87-106
anti-HIV_048-109666_VR-Chain	2681	22-41	49-58	87-106
anti-HIV_048-109196_VR-Chain	2682	22-41	49-58	87-106
anti-HIV_048-109051_VR-Chain	2683	22-41		87-106
anti-HIV_048-108570_VR-Chain	2684	22-41	49-58	87-106
anti-HIV_048-108033_VR-Chain	2685	22-41	47-56	85-104
anti-HIV_048-107279_VR-Chain	2686	22-41	49-58	87-106
anti-HIV_048-106271_VR-Chain	2687	22-41	49-58	87-106
anti-HIV_048-106054_VR-Chain	2688	22-41	49-58	87-106
anti-HIV_048-104848_VR-Chain	2689	22-41		87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_048-104638_VR-Chain	2690	22-41	49-58	87-106
anti-HIV_048-104567_VR-Chain	2691	22-41	49-58	87-106
anti-HIV_048-102804_VR-Chain	2692	22-41	49-58	87-106
anti-HIV_048-101676_VR-Chain	2693	22-41		87-106
anti-HIV_048-097603_VR-Chain	2694	22-41	49-58	87-106
anti-HIV_048-097107_VR-Chain	2695	22-41	49-58	87-106
anti-HIV_048-096871_VR-Chain	2696	22-41	49-58	87-106
anti-HIV_048-096668_VR-Chain	2697	22-41	49-58	87-106
anti-HIV_048-095236_VR-Chain	2698	22-41	49-58	87-106
anti-HIV_048-094155_VR-Chain	2699	22-41	49-58	87-106
anti-HIV_048-093219_VR-Chain	2700	22-41	49-58	87-106
anti-HIV_048-092976_VR-Chain	2701	22-41	49-58	87-106
anti-HIV_048-090866_VR-Chain	2702	22-41	49-58	87-106
anti-HIV_048-090650_VR-Chain	2703	22-41		87-106
anti-HIV_048-089009_VR-Chain	2704	22-41	49-58	87-106
anti-HIV_048-088654_VR-Chain	2705	22-41	49-58	87-106
anti-HIV_048-086513_VR-Chain	2706	22-41	49-58	87-106
anti-HIV_048-086024_VR-Chain	2707	22-41	46-55	84-103
anti-HIV_048-085857_VR-Chain	2708	22-41	49-58	87-106
anti-HIV_048-084277_VR-Chain	2709	22-41	49-58	87-106
anti-HIV_048-084245_VR-Chain	2710	22-41	49-58	87-106
anti-HIV_048-082487_VR-Chain	2711	22-41		87-106
anti-HIV_048-081787_VR-Chain	2712	22-41	49-58	87-106
anti-HIV_048-081062_VR-Chain	2713	22-41	49-58	87-106
anti-HIV_048-079639_VR-Chain	2714	22-41	49-58	87-106
anti-HIV_048-079126_VR-Chain	2715	22-41		87-106
anti-HIV_048-073118_VR-Chain	2716	22-41	49-58	87-106
anti-HIV_048-070264_VR-Chain	2717	22-41	49-58	87-106
anti-HIV_048-069426_VR-Chain	2718	22-41	49-58	87-106
anti-HIV_048-068564_VR-Chain	2719	22-41	49-58	87-106
anti-HIV_048-068345_VR-Chain	2720	22-41	49-58	87-106
anti-HIV_048-067337_VR-Chain	2721	22-41	49-58	87-106
anti-HIV_048-067180_VR-Chain	2722	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_048-063017_VR-Chain	2723	22-41	49-58	87-106
anti-HIV_048-061885_VR-Chain	2724	22-41	49-58	87-106
anti-HIV_048-061671_VR-Chain	2725	22-41	49-58	87-106
anti-HIV_048-060700_VR-Chain	2726	22-41	49-58	87-106
anti-HIV_048-060592_VR-Chain	2727	22-41	49-58	87-106
anti-HIV_048-060300_VR-Chain	2728	22-41	49-58	87-106
anti-HIV_048-059141_VR-Chain	2729	22-41	49-58	87-106
anti-HIV_048-057777_VR-Chain	2730	22-41	49-58	87-106
anti-HIV_048-056928_VR-Chain	2731	22-41	49-58	87-106
anti-HIV_048-056131_VR-Chain	2732	22-41	49-58	87-106
anti-HIV_048-055864_VR-Chain	2733	22-41	20-29	87-106
anti-HIV_048-055094_VR-Chain	2734	22-41		87-106
anti-HIV_048-054343_VR-Chain	2735	22-41		87-106
anti-HIV_048-054193_VR-Chain	2736	22-41		87-106
anti-HIV_048-052521_VR-Chain	2737	22-41	49-58	87-106
anti-HIV_048-049037_VR-Chain	2738	22-41	49-58	87-106
anti-HIV_048-048720_VR-Chain	2739	22-41	49-58	87-106
anti-HIV_048-048542_VR-Chain	2740	22-41	49-58	87-106
anti-HIV_048-047777_VR-Chain	2741	22-41	49-58	87-106
anti-HIV_048-046841_VR-Chain	2742	22-41	49-58	87-106
anti-HIV_048-046202_VR-Chain	2743	22-41	49-58	87-106
anti-HIV_048-046059_VR-Chain	2744	22-41	49-58	87-106
anti-HIV_048-043568_VR-Chain	2745	22-41	49-58	87-106
anti-HIV_048-042713_VR-Chain	2746	22-41	49-58	87-106
anti-HIV_048-042440_VR-Chain	2747	22-41	49-58	87-106
anti-HIV_048-040511_VR-Chain	2748	22-41	49-58	87-106
anti-HIV_048-039195_VR-Chain	2749	22-41	49-58	87-106
anti-HIV_048-036935_VR-Chain	2750	22-41	49-58	87-106
anti-HIV_048-034478_VR-Chain	2751	22-41	49-58	87-106
anti-HIV_048-031641_VR-Chain	2752	22-41	49-58	87-106
anti-HIV_048-029760_VR-Chain	2753	22-41	49-58	87-106
anti-HIV_048-027970_VR-Chain	2754	22-41	49-58	87-106
anti-HIV_048-027337_VR-Chain	2755	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_048-027217_VR-Chain	2756	22-41	49-58	87-106
anti-HIV_048-026760_VR-Chain	2757	22-41	49-58	87-106
anti-HIV_048-024800_VR-Chain	2758	22-41	49-58	87-106
anti-HIV_048-024313_VR-Chain	2759	22-41	49-58	87-106
anti-HIV_048-021748_VR-Chain	2760	22-41	49-58	87-106
anti-HIV_048-020991_VR-Chain	2761	22-41	49-58	87-106
anti-HIV_048-020340_VR-Chain	2762	22-41	49-58	87-106
anti-HIV_048-019993_VR-Chain	2763	22-41	49-58	87-106
anti-HIV_048-019947_VR-Chain	2764	22-41	49-58	87-106
anti-HIV_048-017871_VR-Chain	2765	22-41	49-58	87-106
anti-HIV_048-015931_VR-Chain	2766	22-41	49-58	87-106
anti-HIV_048-015920_VR-Chain	2767	22-41	49-58	87-106
anti-HIV_048-013898_VR-Chain	2768	22-41	49-58	87-106
anti-HIV_048-013429_VR-Chain	2769	22-41	49-58	87-106
anti-HIV_048-012358_VR-Chain	2770	22-41	49-58	87-106
anti-HIV_048-011158_VR-Chain	2771	22-41	49-58	87-106
anti-HIV_048-010720_VR-Chain	2772	22-41	49-58	87-106
anti-HIV_048-009445_VR-Chain	2773	22-41	49-58	87-106
anti-HIV_048-006126_VR-Chain	2774	22-41	46-55	84-103
anti-HIV_048-005652_VR-Chain	2775	22-41	49-58	87-106
anti-HIV_048-005532_VR-Chain	2776	22-41	49-58	87-106
anti-HIV_048-005189_VR-Chain	2777	22-41	49-58	87-106
anti-HIV_048-005088_VR-Chain	2778	22-41	49-58	87-106
anti-HIV_048-004023_VR-Chain	2779	22-41	49-58	87-106
anti-HIV_048-001580_VR-Chain	2780	22-41		87-106
anti-HIV_038-221120_VR-Chain	2781	22-41	49-58	87-106
anti-HIV_038-197677_VR-Chain	2782	22-41	49-58	87-106
anti-HIV_038-196765_VR-Chain	2783	22-41	49-58	87-106
anti-HIV_038-186200_VR-Chain	2784	22-41		87-106
anti-HIV_038-126170_VR-Chain	2785	22-41	49-58	87-106
anti-HIV_038-108545_VR-Chain	2786	22-41	49-58	87-106
anti-HIV_038-107263_VR-Chain	2787	22-41	49-58	87-106
anti-HIV_038-104530_VR-Chain	2788	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_038-099169_VR-Chain	2789	22-41	49-58	87-106
anti-HIV_038-075067_VR-Chain	2790	22-41	49-58	87-106
anti-HIV_038-072368_VR-Chain	2791	22-41	49-58	87-106
anti-HIV_038-068503_VR-Chain	2792	22-41	49-58	87-106
anti-HIV_038-068016_VR-Chain	2793	22-41	49-58	87-106
anti-HIV_038-063958_VR-Chain	2794	22-41	49-58	87-106
anti-HIV_038-033733_VR-Chain	2795	22-41	49-58	87-106
anti-HIV_038-030557_VR-Chain	2796	22-41	49-58	87-106
anti-HIV_038-024298_VR-Chain	2797	22-41	49-58	87-106
anti-HIV_038-011154_VR-Chain	2798	22-41	49-58	87-106
anti-HIV-1_LightChain	2799	22-41	49-58	87-106
anti-HIV-1_LightChain	2800	22-41		
anti-HIV-1_LightChain	2801	22-41	46-55	
anti-HIV-1_LightChain	2802	22-41	45-54	
anti-HIV-1_LightChain	2803	22-41	45-54	
anti-HIV-1_LightChain	2804	22-41		84-103
anti-HIV-1_LightChain	2805	22-41	45-54	83-102
anti-HIV-1_LightChain	2806	22-41	46-55	
anti-HIV-1_LightChain	2807	22-41	45-54	83-102
anti-HIV-1_LightChain	2808	22-41		84-103
anti-HIV-1_LightChain	2809	22-41	48-57	
anti-HIV-1_LightChain	2810	22-41		
anti-HIV-1_LightChain	2811	22-41		
anti-HIV-1_LightChain	2812	22-41		
anti-HIV-1_LightChain	2813	22-41		
anti-HIV-1_LightChain	2814	22-41		
anti-HIV-1_LightChain	2815	22-41		
anti-HIV-1_LightChain	2816	22-41		
anti-HIV-1_LightChain	2817	22-41		
anti-HIV-1_LightChain	2818	22-41		
anti-HIV-1_LightChain	2819	22-41		
anti-HIV-1_LightChain	2820	22-41		
anti-HIV-1_HeavyChain	2821	22-41	74-83	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	2822	22-41	74-83	
anti-HIV-1_HeavyChain	2823	22-41		
anti-HIV-1_HeavyChain	2824	22-41	74-83	94-113
anti-HIV-1_HeavyChain	2825	22-41	74-83	
anti-HIV-1_HeavyChain	2826	22-41	74-83	94-113
anti-HIV-1_HeavyChain	2827	22-41		
anti-HIV-1_HeavyChain	2828	22-41	74-83	94-113
anti-HIV-1_HeavyChain	2829	22-41	74-83	
anti-HIV-1_HeavyChain	2830	22-41		
anti-HIV-1_HeavyChain	2831	22-41		86-105
anti-HIV-1_HeavyChain	2832	22-41		86-105
anti-HIV-1_HeavyChain	2833	22-41		86-105
anti-HIV-1_HeavyChain	2834	22-41		86-105
anti-HIV-1_HeavyChain	2835	22-41		
anti-HIV-1_HeavyChain	2836	22-41		86-105
anti-HIV-1_HeavyChain	2837	22-41		100-119
anti-HIV-1_HeavyChain	2838	22-41		100-119
anti-HIV-1_HeavyChain	2839	22-41		100-119
anti-HIV-1_HeavyChain	2840	22-41		100-119
anti-HIV-1_HeavyChain	2841	22-41		100-119
anti-HIV-1_HeavyChain	2842	22-41		100-119
anti-HIV-1_HeavyChain	2843	22-41		100-119
anti-HIV-1_HeavyChain	2844	22-41		100-119
anti-HIV-1_HeavyChain	2845	22-41		100-119
anti-HIV-1_HeavyChain	2846	22-41		
anti-HIV-1_HeavyChain	2847	22-41		
anti-HIV-1_LightChain	2848	22-41	46-55	84-101
anti-HIV-1_HeavyChain	2849	22-41		
anti-HIV-1_HeavyChain	2850	22-41		
anti-HIV-1_HeavyChain	2851	22-41	35-44	
anti-HIV-1_HeavyChain	2852	22-41	35-44	
anti-HIV-1_HeavyChain	2853	22-41	35-44	
anti-HIV-1_HeavyChain	2854	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	2855	22-41	35-44	
anti-HIV-1_HeavyChain	2856	22-41		
anti-HIV-1_HeavyChain	2857	22-41		
anti-HIV-1_HeavyChain	2858	22-41		
anti-HIV-1_HeavyChain	2859	22-41		
anti-HIV-1_HeavyChain	2860	22-41		
anti-HIV-1_HeavyChain	2861	22-41	95-104	
anti-HIV-1_HeavyChain	2862	22-41		
anti-HIV-1_HeavyChain	2863	22-41		
anti-HIV-1_HeavyChain	2864	22-41		
anti-HIV-1_HeavyChain	2865	22-41		
anti-HIV-1_HeavyChain	2866	22-41	34-43	
anti-HIV-1_HeavyChain	2867	22-41		
anti-HIV-1_HeavyChain	2868	22-41		
anti-HIV-1_HeavyChain	2869	22-41		
anti-HIV-1_HeavyChain	2870	22-41		
anti-HIV-1_HeavyChain	2871	22-41		95-114
anti-HIV-1_HeavyChain	2872	22-41	35-44	
anti-HIV-1_HeavyChain	2873	22-41		
anti-HIV-1_HeavyChain	2874	22-41		
anti-HIV-1_HeavyChain	2875	22-41		
anti-HIV-1_HeavyChain	2876	22-41		
anti-HIV-1_HeavyChain	2877	22-41		96-115
anti-HIV-1_HeavyChain	2878	22-41		
anti-HIV-1_HeavyChain	2879	22-41		
anti-HIV-1_HeavyChain	2880	22-41		
anti-HIV-1_HeavyChain	2881	22-41		
anti-HIV-1_HeavyChain	2882	22-41		
anti-HIV-1_HeavyChain	2883	22-41		
anti-HIV-1_HeavyChain	2884	22-41	35-44	
anti-HIV-1_HeavyChain	2885	22-41		
anti-HIV-1_HeavyChain	2886	22-41		96-115
anti-HIV-1_HeavyChain	2887	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	2888	22-41		
anti-HIV-1_HeavyChain	2889	22-41	34-43	
anti-HIV-1_HeavyChain	2890	22-41		
anti-HIV-1_HeavyChain	2891	22-41		
anti-HIV-1_HeavyChain	2892	22-41	34-43	
anti-HIV-1_HeavyChain	2893	22-41	34-43	
anti-HIV-1_HeavyChain	2894	22-41		
anti-HIV-1_HeavyChain	2895	22-41		
anti-HIV-1_HeavyChain	2896	22-41		
anti-HIV-1_HeavyChain	2897	22-41		
anti-HIV-1_HeavyChain	2898	22-41		
anti-HIV-1_HeavyChain	2899	22-41		
anti-HIV-1_HeavyChain	2900	22-41	137-138	96-115
anti-HIV-1_HeavyChain	2901	22-41		96-115
anti-HIV-1_HeavyChain	2902	22-41		96-115
anti-HIV-1_HeavyChain	2903	22-41	34-43	
anti-HIV-1_HeavyChain	2904	22-41		
anti-HIV-1_HeavyChain	2905	22-41		
anti-HIV-1_HeavyChain	2906	22-41		
anti-HIV-1_HeavyChain	2907	22-41	35-44	
anti-HIV-1_HeavyChain	2908	22-41		
anti-HIV-1_HeavyChain	2909	22-41		
anti-HIV-1_HeavyChain	2910	22-41		96-115
anti-HIV-1_HeavyChain	2911	22-41		96-115
anti-HIV-1_HeavyChain	2912	22-41		
anti-HIV-1_HeavyChain	2913	22-41		
anti-HIV-1_HeavyChain	2914	22-41		
anti-HIV-1_HeavyChain	2915	22-41		
anti-HIV-1_HeavyChain	2916	22-41		
anti-HIV-1_HeavyChain	2917	22-41		
anti-HIV-1_HeavyChain	2918	22-41	140-141	
anti-HIV-1_HeavyChain	2919	22-41		
anti-HIV-1_HeavyChain	2920	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	2921	22-41		96-115
anti-HIV-1_HeavyChain	2922	22-41		94-113
anti-HIV-1_HeavyChain	2923	22-41		
anti-HIV-1_HeavyChain	2924	22-41		
anti-HIV-1_HeavyChain	2925	22-41	28-37	
anti-HIV-1_HeavyChain	2926	22-41		
anti-HIV-1_HeavyChain	2927	22-41		
anti-HIV-1_HeavyChain	2928	22-41		96-115
anti-HIV-1_HeavyChain	2929	22-41		96-115
anti-HIV-1_HeavyChain	2930	22-41		
anti-HIV-1_HeavyChain	2931	22-41		
anti-HIV-1_HeavyChain	2932	22-41	93-102	
anti-HIV-1_HeavyChain	2933	22-41		
anti-HIV-1_HeavyChain	2934	22-41		
anti-HIV-1_HeavyChain	2935	22-41		
anti-HIV-1_HeavyChain	2936	22-41		
anti-HIV-1_HeavyChain	2937	22-41		
anti-HIV-1_HeavyChain	2938	22-41		
anti-HIV-1_HeavyChain	2939	22-41		
anti-HIV-1_HeavyChain	2940	22-41		
anti-HIV-1_HeavyChain	2941	22-41		96-115
anti-HIV-1_HeavyChain	2942	22-41		96-115
anti-HIV-1_HeavyChain	2943	22-41		
anti-HIV-1_HeavyChain	2944	22-41		
anti-HIV-1_HeavyChain	2945	22-41		
anti-HIV-1_HeavyChain	2946	22-41	35-44	
anti-HIV-1_HeavyChain	2947	22-41		
anti-HIV-1_HeavyChain	2948	22-41		
anti-HIV-1_HeavyChain	2949	22-41	35-44	
anti-HIV-1_HeavyChain	2950	22-41		
anti-HIV-1_HeavyChain	2951	22-41		
anti-HIV-1_HeavyChain	2952	22-41		
anti-HIV-1_HeavyChain	2953	22-41		96-115

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	2954	22-41		
anti-HIV-1_HeavyChain	2955	22-41		
anti-HIV-1_HeavyChain	2956	22-41		
anti-HIV-1_HeavyChain	2957	22-41		
anti-HIV-1_HeavyChain	2958	22-41		
anti-HIV-1_HeavyChain	2959	22-41		
anti-HIV-1_HeavyChain	2960	22-41		
anti-HIV-1_HeavyChain	2961	22-41		
anti-HIV-1_HeavyChain	2962	22-41		
anti-HIV-1_HeavyChain	2963	22-41		
anti-HIV-1_HeavyChain	2964	22-41		
anti-HIV-1_HeavyChain	2965	22-41		
anti-HIV-1_HeavyChain	2966	22-41		
anti-HIV-1_HeavyChain	2967	22-41		
anti-HIV-1_HeavyChain	2968	22-41		
anti-HIV-1_HeavyChain	2969	22-41		
anti-HIV-1_HeavyChain	2970	22-41		
anti-HIV-1_HeavyChain	2971	22-41		
anti-HIV-1_HeavyChain	2972	22-41		
anti-HIV-1_HeavyChain	2973	22-41		
anti-HIV-1_HeavyChain	2974	22-41		
anti-HIV-1_HeavyChain	2975	22-41		
anti-HIV-1_HeavyChain	2976	22-41		
anti-HIV-1_HeavyChain	2977	22-41	35-44	
anti-HIV-1_HeavyChain	2978	22-41	35-44	
anti-HIV-1_HeavyChain	2979	22-41		
anti-HIV-1_HeavyChain	2980	22-41		
anti-HIV-1_HeavyChain	2981	22-41		
anti-HIV-1_HeavyChain	2982	22-41		
anti-HIV-1_HeavyChain	2983	22-41		
anti-HIV-1_HeavyChain	2984	22-41		
anti-HIV-1_HeavyChain	2985	22-41	35-44	
anti-HIV-1_HeavyChain	2986	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	2987	22-41		
anti-HIV-1_HeavyChain	2988	22-41		
anti-HIV-1_HeavyChain	2989	22-41		94-113
anti-HIV-1_HeavyChain	2990	22-41		
anti-HIV-1_HeavyChain	2991	22-41		
anti-HIV-1_HeavyChain	2992	22-41		
anti-HIV-1_HeavyChain	2993	22-41		
anti-HIV-1_HeavyChain	2994	22-41		
anti-HIV-1_HeavyChain	2995	22-41		
anti-HIV-1_HeavyChain	2996	22-41		
anti-HIV-1_HeavyChain	2997	22-41		
anti-HIV-1_HeavyChain	2998	22-41		
anti-HIV-1_HeavyChain	2999	22-41		
anti-HIV-1_HeavyChain	3000	22-41		
anti-HIV-1_HeavyChain	3001	22-41		
anti-HIV-1_HeavyChain	3002	22-41		
anti-HIV-1_HeavyChain	3003	22-41		
anti-HIV-1_HeavyChain	3004	22-41		
anti-HIV-1_HeavyChain	3005	22-41		
anti-HIV-1_HeavyChain	3006	22-41	95-104	
anti-HIV-1_HeavyChain	3007	22-41		
anti-HIV-1_HeavyChain	3008	22-41		
anti-HIV-1_HeavyChain	3009	22-41		
anti-HIV-1_HeavyChain	3010	22-41		
anti-HIV-1_HeavyChain	3011	22-41		
anti-HIV-1_HeavyChain	3012	22-41		
anti-HIV-1_HeavyChain	3013	22-41		
anti-HIV-1_HeavyChain	3014	22-41		
anti-HIV-1_HeavyChain	3015	22-41		
anti-HIV-1_HeavyChain	3016	22-41	35-44	
anti-HIV-1_HeavyChain	3017	22-41		
anti-HIV-1_HeavyChain	3018	22-41		
anti-HIV-1_HeavyChain	3019	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3020	22-41		
anti-HIV-1_HeavyChain	3021	22-41		
anti-HIV-1_HeavyChain	3022	22-41		
anti-HIV-1_HeavyChain	3023	22-41		
anti-HIV-1_HeavyChain	3024	22-41		
anti-HIV-1_HeavyChain	3025	22-41		
anti-HIV-1_HeavyChain	3026	22-41		
anti-HIV-1_HeavyChain	3027	22-41		
anti-HIV-1_HeavyChain	3028	22-41		
anti-HIV-1_HeavyChain	3029	22-41	35-44	
anti-HIV-1_HeavyChain	3030	22-41		
anti-HIV-1_HeavyChain	3031	22-41		
anti-HIV-1_HeavyChain	3032	22-41		
anti-HIV-1_HeavyChain	3033	22-41		
anti-HIV-1_HeavyChain	3034	22-41		
anti-HIV-1_HeavyChain	3035	22-41		
anti-HIV-1_HeavyChain	3036	22-41		
anti-HIV-1_HeavyChain	3037	22-41		
anti-HIV-1_HeavyChain	3038	22-41		
anti-HIV-1_HeavyChain	3039	22-41	35-44	
anti-HIV-1_HeavyChain	3040	22-41		
anti-HIV-1_HeavyChain	3041	22-41		
anti-HIV-1_HeavyChain	3042	22-41		
anti-HIV-1_HeavyChain	3043	22-41		
anti-HIV-1_HeavyChain	3044	22-41		
anti-HIV-1_HeavyChain	3045	22-41		
anti-HIV-1_HeavyChain	3046	22-41		
anti-HIV-1_HeavyChain	3047	22-41		
anti-HIV-1_HeavyChain	3048	22-41		
anti-HIV-1_HeavyChain	3049	22-41		
anti-HIV-1_HeavyChain	3050	22-41		
anti-HIV-1_HeavyChain	3051	22-41		
anti-HIV-1_HeavyChain	3052	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3053	22-41		
anti-HIV-1_HeavyChain	3054	22-41	35-44	
anti-HIV-1_HeavyChain	3055	22-41		
anti-HIV-1_HeavyChain	3056	22-41		
anti-HIV-1_HeavyChain	3057	22-41		
anti-HIV-1_HeavyChain	3058	22-41		
anti-HIV-1_HeavyChain	3059	22-41		
anti-HIV-1_HeavyChain	3060	22-41	35-44	
anti-HIV-1_HeavyChain	3061	22-41	35-44	
anti-HIV-1_HeavyChain	3062	22-41		
anti-HIV-1_HeavyChain	3063	22-41		
anti-HIV-1_HeavyChain	3064	22-41		
anti-HIV-1_HeavyChain	3065	22-41		
anti-HIV-1_HeavyChain	3066	22-41		
anti-HIV-1_HeavyChain	3067	22-41		
anti-HIV-1_HeavyChain	3068	22-41		
anti-HIV-1_HeavyChain	3069	22-41		
anti-HIV-1_HeavyChain	3070	22-41		
anti-HIV-1_HeavyChain	3071	22-41		
anti-HIV-1_HeavyChain	3072	22-41		
anti-HIV-1_HeavyChain	3073	22-41		
anti-HIV-1_HeavyChain	3074	22-41	35-44	
anti-HIV-1_HeavyChain	3075	22-41		
anti-HIV-1_HeavyChain	3076	22-41	95-104	
anti-HIV-1_HeavyChain	3077	22-41	35-44	
anti-HIV-1_HeavyChain	3078	22-41		
anti-HIV-1_HeavyChain	3079	22-41		
anti-HIV-1_HeavyChain	3080	22-41		
anti-HIV-1_HeavyChain	3081	22-41		
anti-HIV-1_HeavyChain	3082	22-41		
anti-HIV-1_HeavyChain	3083	22-41		
anti-HIV-1_HeavyChain	3084	22-41		
anti-HIV-1_HeavyChain	3085	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3086	22-41		
anti-HIV-1_HeavyChain	3087	22-41		
anti-HIV-1_HeavyChain	3088	22-41		
anti-HIV-1_HeavyChain	3089	22-41		
anti-HIV-1_HeavyChain	3090	22-41		
anti-HIV-1_HeavyChain	3091	22-41		
anti-HIV-1_HeavyChain	3092	22-41		
anti-HIV-1_HeavyChain	3093	22-41		
anti-HIV-1_HeavyChain	3094	22-41	35-44	
anti-HIV-1_HeavyChain	3095	22-41		
anti-HIV-1_HeavyChain	3096	22-41		
anti-HIV-1_HeavyChain	3097	22-41		
anti-HIV-1_HeavyChain	3098	22-41		
anti-HIV-1_HeavyChain	3099	22-41	35-44	
anti-HIV-1_HeavyChain	3100	22-41		
anti-HIV-1_HeavyChain	3101	22-41		
anti-HIV-1_HeavyChain	3102	22-41		
anti-HIV-1_HeavyChain	3103	22-41		
anti-HIV-1_HeavyChain	3104	22-41		
anti-HIV-1_HeavyChain	3105	22-41		
anti-HIV-1_HeavyChain	3106	22-41		
anti-HIV-1_HeavyChain	3107	22-41		
anti-HIV-1_HeavyChain	3108	22-41		
anti-HIV-1_HeavyChain	3109	22-41		
anti-HIV-1_HeavyChain	3110	22-41		
anti-HIV-1_HeavyChain	3111	22-41		
anti-HIV-1_HeavyChain	3112	22-41	95-104	
anti-HIV-1_HeavyChain	3113	22-41		
anti-HIV-1_HeavyChain	3114	22-41		
anti-HIV-1_HeavyChain	3115	22-41		
anti-HIV-1_HeavyChain	3116	22-41		
anti-HIV-1_HeavyChain	3117	22-41		
anti-HIV-1_HeavyChain	3118	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3119	22-41		
anti-HIV-1_HeavyChain	3120	22-41		
anti-HIV-1_HeavyChain	3121	22-41		
anti-HIV-1_HeavyChain	3122	22-41	35-44	
anti-HIV-1_HeavyChain	3123	22-41		
anti-HIV-1_HeavyChain	3124	22-41		
anti-HIV-1_HeavyChain	3125	22-41		
anti-HIV-1_HeavyChain	3126	22-41		
anti-HIV-1_HeavyChain	3127	22-41		
anti-HIV-1_HeavyChain	3128	22-41		
anti-HIV-1_HeavyChain	3129	22-41		
anti-HIV-1_HeavyChain	3130	22-41	95-104	
anti-HIV-1_HeavyChain	3131	22-41	95-104	
anti-HIV-1_HeavyChain	3132	22-41		
anti-HIV-1_HeavyChain	3133	22-41		
anti-HIV-1_HeavyChain	3134	22-41		
anti-HIV-1_HeavyChain	3135	22-41		
anti-HIV-1_HeavyChain	3136	22-41		
anti-HIV-1_HeavyChain	3137	22-41		
anti-HIV-1_HeavyChain	3138	22-41		
anti-HIV-1_HeavyChain	3139	22-41		
anti-HIV-1_HeavyChain	3140	22-41		
anti-HIV-1_HeavyChain	3141	22-41	35-44	
anti-HIV-1_HeavyChain	3142	22-41		
anti-HIV-1_HeavyChain	3143	22-41		
anti-HIV-1_HeavyChain	3144	22-41		
anti-HIV-1_HeavyChain	3145	22-41	95-104	
anti-HIV-1_HeavyChain	3146	22-41		
anti-HIV-1_HeavyChain	3147	22-41		
anti-HIV-1_HeavyChain	3148	22-41		
anti-HIV-1_HeavyChain	3149	22-41	35-44	
anti-HIV-1_HeavyChain	3150	22-41		
anti-HIV-1_HeavyChain	3151	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3152	22-41		
anti-HIV-1_HeavyChain	3153	22-41		
anti-HIV-1_HeavyChain	3154	22-41		
anti-HIV-1_HeavyChain	3155	22-41	35-44	
anti-HIV-1_HeavyChain	3156	22-41		
anti-HIV-1_HeavyChain	3157	22-41		
anti-HIV-1_HeavyChain	3158	22-41		
anti-HIV-1_HeavyChain	3159	22-41		
anti-HIV-1_HeavyChain	3160	22-41		
anti-HIV-1_HeavyChain	3161	22-41	95-104	
anti-HIV-1_HeavyChain	3162	22-41		
anti-HIV-1_HeavyChain	3163	22-41		
anti-HIV-1_HeavyChain	3164	22-41		
anti-HIV-1_HeavyChain	3165	22-41		
anti-HIV-1_HeavyChain	3166	22-41	35-44	
anti-HIV-1_HeavyChain	3167	22-41		
anti-HIV-1_HeavyChain	3168	22-41	35-44	
anti-HIV-1_HeavyChain	3169	22-41		
anti-HIV-1_HeavyChain	3170	22-41	35-44	
anti-HIV-1_HeavyChain	3171	22-41		
anti-HIV-1_HeavyChain	3172	22-41	95-104	
anti-HIV-1_HeavyChain	3173	22-41		
anti-HIV-1_HeavyChain	3174	22-41		
anti-HIV-1_HeavyChain	3175	22-41		
anti-HIV-1_HeavyChain	3176	22-41		
anti-HIV-1_HeavyChain	3177	22-41		
anti-HIV-1_HeavyChain	3178	22-41	95-104	
anti-HIV-1_HeavyChain	3179	22-41		
anti-HIV-1_HeavyChain	3180	22-41	35-44	
anti-HIV-1_HeavyChain	3181	22-41		
anti-HIV-1_HeavyChain	3182	22-41		
anti-HIV-1_HeavyChain	3183	22-41		
anti-HIV-1_HeavyChain	3184	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3185	22-41		
anti-HIV-1_HeavyChain	3186	22-41	35-44	
anti-HIV-1_HeavyChain	3187	22-41		
anti-HIV-1_HeavyChain	3188	22-41		
anti-HIV-1_HeavyChain	3189	22-41		
anti-HIV-1_HeavyChain	3190	22-41		
anti-HIV-1_HeavyChain	3191	22-41		
anti-HIV-1_HeavyChain	3192	22-41		
anti-HIV-1_HeavyChain	3193	22-41		
anti-HIV-1_HeavyChain	3194	22-41		
anti-HIV-1_HeavyChain	3195	22-41		
anti-HIV-1_HeavyChain	3196	22-41		
anti-HIV-1_HeavyChain	3197	22-41		
anti-HIV-1_HeavyChain	3198	22-41		
anti-HIV-1_HeavyChain	3199	22-41	35-44	
anti-HIV-1_HeavyChain	3200	22-41		
anti-HIV-1_HeavyChain	3201	22-41		
anti-HIV-1_HeavyChain	3202	22-41	35-44	
anti-HIV-1_HeavyChain	3203	22-41		
anti-HIV-1_HeavyChain	3204	22-41		
anti-HIV-1_HeavyChain	3205	22-41		
anti-HIV-1_HeavyChain	3206	22-41		
anti-HIV-1_HeavyChain	3207	22-41		
anti-HIV-1_HeavyChain	3208	22-41	28-37	
anti-HIV-1_HeavyChain	3209	22-41		
anti-HIV-1_HeavyChain	3210	22-41		
anti-HIV-1_HeavyChain	3211	22-41		
anti-HIV-1_HeavyChain	3212	22-41		
anti-HIV-1_HeavyChain	3213	22-41		
anti-HIV-1_HeavyChain	3214	22-41		
anti-HIV-1_HeavyChain	3215	22-41		
anti-HIV-1_HeavyChain	3216	22-41		
anti-HIV-1_HeavyChain	3217	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3218	22-41	35-44	
anti-HIV-1_HeavyChain	3219	22-41		
anti-HIV-1_HeavyChain	3220	22-41	35-44	
anti-HIV-1_HeavyChain	3221	22-41		
anti-HIV-1_HeavyChain	3222	22-41		
anti-HIV-1_HeavyChain	3223	22-41		
anti-HIV-1_HeavyChain	3224	22-41		
anti-HIV-1_HeavyChain	3225	22-41	35-44	
anti-HIV-1_HeavyChain	3226	22-41	35-44	
anti-HIV-1_HeavyChain	3227	22-41		
anti-HIV-1_HeavyChain	3228	22-41		
anti-HIV-1_HeavyChain	3229	22-41		
anti-HIV-1_HeavyChain	3230	22-41		
anti-HIV-1_HeavyChain	3231	22-41		
anti-HIV-1_HeavyChain	3232	22-41	35-44	
anti-HIV-1_HeavyChain	3233	22-41		
anti-HIV-1_HeavyChain	3234	22-41		
anti-HIV-1_HeavyChain	3235	22-41		
anti-HIV-1_HeavyChain	3236	22-41		
anti-HIV-1_HeavyChain	3237	22-41		
anti-HIV-1_HeavyChain	3238	22-41	95-104	
anti-HIV-1_HeavyChain	3239	22-41		
anti-HIV-1_HeavyChain	3240	22-41		
anti-HIV-1_HeavyChain	3241	22-41		
anti-HIV-1_HeavyChain	3242	22-41		
anti-HIV-1_HeavyChain	3243	22-41		
anti-HIV-1_HeavyChain	3244	22-41		
anti-HIV-1_HeavyChain	3245	22-41		
anti-HIV-1_HeavyChain	3246	22-41		
anti-HIV-1_HeavyChain	3247	22-41		
anti-HIV-1_HeavyChain	3248	22-41		
anti-HIV-1_HeavyChain	3249	22-41		
anti-HIV-1_HeavyChain	3250	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3251	22-41		
anti-HIV-1_HeavyChain	3252	22-41		
anti-HIV-1_HeavyChain	3253	22-41		
anti-HIV-1_HeavyChain	3254	22-41		
anti-HIV-1_HeavyChain	3255	22-41		
anti-HIV-1_HeavyChain	3256	22-41		
anti-HIV-1_HeavyChain	3257	22-41		
anti-HIV-1_HeavyChain	3258	22-41		
anti-HIV-1_HeavyChain	3259	22-41		
anti-HIV-1_HeavyChain	3260	22-41		
anti-HIV-1_HeavyChain	3261	22-41		
anti-HIV-1_HeavyChain	3262	22-41		
anti-HIV-1_HeavyChain	3263	22-41		
anti-HIV-1_HeavyChain	3264	22-41		
anti-HIV-1_HeavyChain	3265	22-41		
anti-HIV-1_HeavyChain	3266	22-41		
anti-HIV-1_HeavyChain	3267	22-41		
anti-HIV-1_HeavyChain	3268	22-41		
anti-HIV-1_HeavyChain	3269	22-41		
anti-HIV-1_HeavyChain	3270	22-41		
anti-HIV-1_HeavyChain	3271	22-41	95-104	
anti-HIV-1_HeavyChain	3272	22-41		
anti-HIV-1_HeavyChain	3273	22-41		
anti-HIV-1_HeavyChain	3274	22-41		
anti-HIV-1_HeavyChain	3275	22-41		
anti-HIV-1_HeavyChain	3276	22-41		
anti-HIV-1_HeavyChain	3277	22-41		
anti-HIV-1_HeavyChain	3278	22-41		
anti-HIV-1_HeavyChain	3279	22-41		
anti-HIV-1_HeavyChain	3280	22-41		
anti-HIV-1_HeavyChain	3281	22-41		
anti-HIV-1_HeavyChain	3282	22-41		
anti-HIV-1_HeavyChain	3283	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3284	22-41		
anti-HIV-1_HeavyChain	3285	22-41		
anti-HIV-1_HeavyChain	3286	22-41		
anti-HIV-1_HeavyChain	3287	22-41		
anti-HIV-1_HeavyChain	3288	22-41		
anti-HIV-1_HeavyChain	3289	22-41		
anti-HIV-1_HeavyChain	3290	22-41		
anti-HIV-1_HeavyChain	3291	22-41	95-104	
anti-HIV-1_HeavyChain	3292	22-41		
anti-HIV-1_HeavyChain	3293	22-41		
anti-HIV-1_HeavyChain	3294	22-41		
anti-HIV-1_HeavyChain	3295	22-41		
anti-HIV-1_HeavyChain	3296	22-41		
anti-HIV-1_HeavyChain	3297	22-41		
anti-HIV-1_HeavyChain	3298	22-41		
anti-HIV-1_HeavyChain	3299	22-41	35-44	
anti-HIV-1_HeavyChain	3300	22-41		
anti-HIV-1_HeavyChain	3301	22-41		
anti-HIV-1_HeavyChain	3302	22-41		
anti-HIV-1_HeavyChain	3303	22-41		
anti-HIV-1_HeavyChain	3304	22-41		
anti-HIV-1_HeavyChain	3305	22-41		
anti-HIV-1_HeavyChain	3306	22-41		
anti-HIV-1_HeavyChain	3307	22-41		
anti-HIV-1_HeavyChain	3308	22-41		
anti-HIV-1_HeavyChain	3309	22-41		
anti-HIV-1_HeavyChain	3310	22-41		
anti-HIV-1_HeavyChain	3311	22-41		
anti-HIV-1_HeavyChain	3312	22-41		
anti-HIV-1_HeavyChain	3313	22-41	35-44	
anti-HIV-1_HeavyChain	3314	22-41		
anti-HIV-1_HeavyChain	3315	22-41	95-104	
anti-HIV-1_HeavyChain	3316	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3317	22-41		
anti-HIV-1_HeavyChain	3318	22-41		
anti-HIV-1_HeavyChain	3319	22-41		
anti-HIV-1_HeavyChain	3320	22-41		
anti-HIV-1_HeavyChain	3321	22-41		
anti-HIV-1_HeavyChain	3322	22-41		
anti-HIV-1_HeavyChain	3323	22-41		
anti-HIV-1_HeavyChain	3324	22-41		
anti-HIV-1_HeavyChain	3325	22-41		
anti-HIV-1_HeavyChain	3326	22-41		
anti-HIV-1_HeavyChain	3327	22-41		
anti-HIV-1_HeavyChain	3328	22-41		
anti-HIV-1_HeavyChain	3329	22-41		
anti-HIV-1_HeavyChain	3330	22-41		
anti-HIV-1_HeavyChain	3331	22-41		
anti-HIV-1_HeavyChain	3332	22-41		
anti-HIV-1_HeavyChain	3333	22-41		
anti-HIV-1_HeavyChain	3334	22-41		
anti-HIV-1_HeavyChain	3335	22-41		
anti-HIV-1_HeavyChain	3336	22-41		
anti-HIV-1_HeavyChain	3337	22-41		
anti-HIV-1_HeavyChain	3338	22-41		
anti-HIV-1_HeavyChain	3339	22-41		
anti-HIV-1_HeavyChain	3340	22-41		
anti-HIV-1_HeavyChain	3341	22-41		
anti-HIV-1_HeavyChain	3342	22-41	95-104	
anti-HIV-1_HeavyChain	3343	22-41		
anti-HIV-1_HeavyChain	3344	22-41		
anti-HIV-1_HeavyChain	3345	22-41		
anti-HIV-1_HeavyChain	3346	22-41		
anti-HIV-1_HeavyChain	3347	22-41		
anti-HIV-1_HeavyChain	3348	22-41		
anti-HIV-1_HeavyChain	3349	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3350	22-41		
anti-HIV-1_HeavyChain	3351	22-41		
anti-HIV-1_HeavyChain	3352	22-41		
anti-HIV-1_HeavyChain	3353	22-41		
anti-HIV-1_HeavyChain	3354	22-41		
anti-HIV-1_HeavyChain	3355	22-41		
anti-HIV-1_HeavyChain	3356	22-41		
anti-HIV-1_HeavyChain	3357	22-41		
anti-HIV-1_HeavyChain	3358	22-41		
anti-HIV-1_HeavyChain	3359	22-41		
anti-HIV-1_HeavyChain	3360	22-41		
anti-HIV-1_HeavyChain	3361	22-41		
anti-HIV-1_HeavyChain	3362	22-41		
anti-HIV-1_HeavyChain	3363	22-41		
anti-HIV-1_HeavyChain	3364	22-41		
anti-HIV-1_HeavyChain	3365	22-41		
anti-HIV-1_HeavyChain	3366	22-41		
anti-HIV-1_HeavyChain	3367	22-41		
anti-HIV-1_HeavyChain	3368	22-41		
anti-HIV-1_HeavyChain	3369	22-41		
anti-HIV-1_HeavyChain	3370	22-41		
anti-HIV-1_HeavyChain	3371	22-41		
anti-HIV-1_HeavyChain	3372	22-41		
anti-HIV-1_HeavyChain	3373	22-41		
anti-HIV-1_HeavyChain	3374	22-41		
anti-HIV-1_HeavyChain	3375	22-41		
anti-HIV-1_HeavyChain	3376	22-41		
anti-HIV-1_HeavyChain	3377	22-41		
anti-HIV-1_HeavyChain	3378	22-41		
anti-HIV-1_HeavyChain	3379	22-41		
anti-HIV-1_HeavyChain	3380	22-41		
anti-HIV-1_HeavyChain	3381	22-41		
anti-HIV-1_HeavyChain	3382	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3383	22-41		
anti-HIV-1_HeavyChain	3384	22-41		
anti-HIV-1_HeavyChain	3385	22-41		
anti-HIV-1_HeavyChain	3386	22-41		
anti-HIV-1_HeavyChain	3387	22-41		
anti-HIV-1_HeavyChain	3388	22-41		
anti-HIV-1_HeavyChain	3389	22-41		
anti-HIV-1_HeavyChain	3390	22-41		
anti-HIV-1_HeavyChain	3391	22-41		
anti-HIV-1_HeavyChain	3392	22-41		
anti-HIV-1_HeavyChain	3393	22-41		
anti-HIV-1_HeavyChain	3394	22-41		
anti-HIV-1_HeavyChain	3395	22-41		
anti-HIV-1_HeavyChain	3396	22-41		
anti-HIV-1_HeavyChain	3397	22-41		
anti-HIV-1_HeavyChain	3398	22-41		
anti-HIV-1_HeavyChain	3399	22-41	35-44	
anti-HIV-1_HeavyChain	3400	22-41		
anti-HIV-1_HeavyChain	3401	22-41		
anti-HIV-1_HeavyChain	3402	22-41		
anti-HIV-1_HeavyChain	3403	22-41		
anti-HIV-1_HeavyChain	3404	22-41		
anti-HIV-1_HeavyChain	3405	22-41		
anti-HIV-1_HeavyChain	3406	22-41		
anti-HIV-1_HeavyChain	3407	22-41		
anti-HIV-1_HeavyChain	3408	22-41		
anti-HIV-1_HeavyChain	3409	22-41		
anti-HIV-1_HeavyChain	3410	22-41		
anti-HIV-1_HeavyChain	3411	22-41		
anti-HIV-1_HeavyChain	3412	22-41		
anti-HIV-1_HeavyChain	3413	22-41		
anti-HIV-1_HeavyChain	3414	22-41		
anti-HIV-1_HeavyChain	3415	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3416	22-41	35-44	
anti-HIV-1_HeavyChain	3417	22-41	34-43	
anti-HIV-1_HeavyChain	3418	22-41		
anti-HIV-1_HeavyChain	3419	22-41		
anti-HIV-1_HeavyChain	3420	22-41		
anti-HIV-1_HeavyChain	3421	22-41	34-43	
anti-HIV-1_HeavyChain	3422	22-41		
anti-HIV-1_HeavyChain	3423	22-41		
anti-HIV-1_HeavyChain	3424	22-41		
anti-HIV-1_HeavyChain	3425	22-41		
anti-HIV-1_HeavyChain	3426	22-41	35-44	
anti-HIV-1_HeavyChain	3427	22-41		
anti-HIV-1_HeavyChain	3428	22-41		
anti-HIV-1_HeavyChain	3429	22-41		
anti-HIV-1_HeavyChain	3430	22-41	35-44	
anti-HIV-1_HeavyChain	3431	22-41	35-44	
anti-HIV-1_HeavyChain	3432	22-41		
anti-HIV-1_HeavyChain	3433	22-41		
anti-HIV-1_HeavyChain	3434	22-41		
anti-HIV-1_HeavyChain	3435	22-41	35-44	
anti-HIV-1_HeavyChain	3436	22-41	35-44	
anti-HIV-1_HeavyChain	3437	22-41	35-44	
anti-HIV-1_HeavyChain	3438	22-41		
anti-HIV-1_HeavyChain	3439	22-41		
anti-HIV-1_HeavyChain	3440	22-41		
anti-HIV-1_HeavyChain	3441	22-41	35-44	
anti-HIV-1_HeavyChain	3442	22-41		
anti-HIV-1_HeavyChain	3443	22-41		
anti-HIV-1_HeavyChain	3444	22-41		
anti-HIV-1_HeavyChain	3445	22-41		
anti-HIV-1_HeavyChain	3446	22-41	35-44	
anti-HIV-1_HeavyChain	3447	22-41	35-44	
anti-HIV-1_HeavyChain	3448	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3449	22-41		
anti-HIV-1_HeavyChain	3450	22-41	35-44	
anti-HIV-1_HeavyChain	3451	22-41	35-44	
anti-HIV-1_HeavyChain	3452	22-41		
anti-HIV-1_HeavyChain	3453	22-41		
anti-HIV-1_HeavyChain	3454	22-41	35-44	
anti-HIV-1_HeavyChain	3455	22-41		
anti-HIV-1_HeavyChain	3456	22-41	35-44	
anti-HIV-1_HeavyChain	3457	22-41	35-44	
anti-HIV-1_HeavyChain	3458	22-41		
anti-HIV-1_HeavyChain	3459	22-41		
anti-HIV-1_HeavyChain	3460	22-41		
anti-HIV-1_HeavyChain	3461	22-41	35-44	
anti-HIV-1_HeavyChain	3462	22-41	35-44	
anti-HIV-1_HeavyChain	3463	22-41		
anti-HIV-1_HeavyChain	3464	22-41	35-44	
anti-HIV-1_HeavyChain	3465	22-41		
anti-HIV-1_HeavyChain	3466	22-41		
anti-HIV-1_HeavyChain	3467	22-41		
anti-HIV-1_HeavyChain	3468	22-41		
anti-HIV-1_HeavyChain	3469	22-41	35-44	
anti-HIV-1_HeavyChain	3470	22-41		
anti-HIV-1_HeavyChain	3471	22-41	35-44	
anti-HIV-1_HeavyChain	3472	22-41		
anti-HIV-1_HeavyChain	3473	22-41		
anti-HIV-1_HeavyChain	3474	22-41		
anti-HIV-1_HeavyChain	3475	22-41		
anti-HIV-1_HeavyChain	3476	22-41	35-44	
anti-HIV-1_HeavyChain	3477	22-41	35-44	
anti-HIV-1_HeavyChain	3478	22-41		
anti-HIV-1_HeavyChain	3479	22-41	35-44	
anti-HIV-1_HeavyChain	3480	22-41		
anti-HIV-1_HeavyChain	3481	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3482	22-41	35-44	
anti-HIV-1_HeavyChain	3483	22-41	35-44	
anti-HIV-1_HeavyChain	3484	22-41		
anti-HIV-1_HeavyChain	3485	22-41		
anti-HIV-1_HeavyChain	3486	22-41	35-44	
anti-HIV-1_HeavyChain	3487	22-41		
anti-HIV-1_HeavyChain	3488	22-41		
anti-HIV-1_HeavyChain	3489	22-41		
anti-HIV-1_HeavyChain	3490	22-41	35-44	
anti-HIV-1_HeavyChain	3491	22-41		
anti-HIV-1_HeavyChain	3492	22-41		
anti-HIV-1_HeavyChain	3493	22-41		
anti-HIV-1_HeavyChain	3494	22-41	35-44	
anti-HIV-1_HeavyChain	3495	22-41		
anti-HIV-1_HeavyChain	3496	22-41	35-44	
anti-HIV-1_HeavyChain	3497	22-41	35-44	
anti-HIV-1_HeavyChain	3498	22-41		
anti-HIV-1_HeavyChain	3499	22-41		
anti-HIV-1_HeavyChain	3500	22-41		
anti-HIV-1_HeavyChain	3501	22-41	35-44	
anti-HIV-1_HeavyChain	3502	22-41	35-44	
anti-HIV-1_HeavyChain	3503	22-41	35-44	
anti-HIV-1_HeavyChain	3504	22-41	35-44	
anti-HIV-1_HeavyChain	3505	22-41	35-44	
anti-HIV-1_HeavyChain	3506	22-41	35-44	
anti-HIV-1_HeavyChain	3507	22-41		
anti-HIV-1_HeavyChain	3508	22-41	35-44	
anti-HIV-1_HeavyChain	3509	22-41		
anti-HIV-1_HeavyChain	3510	22-41		
anti-HIV-1_HeavyChain	3511	22-41		
anti-HIV-1_HeavyChain	3512	22-41	35-44	
anti-HIV-1_HeavyChain	3513	22-41		
anti-HIV-1_HeavyChain	3514	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3515	22-41	35-44	
anti-HIV-1_HeavyChain	3516	22-41		
anti-HIV-1_HeavyChain	3517	22-41		
anti-HIV-1_HeavyChain	3518	22-41	35-44	
anti-HIV-1_HeavyChain	3519	22-41	35-44	
anti-HIV-1_HeavyChain	3520	22-41		
anti-HIV-1_HeavyChain	3521	22-41	35-44	
anti-HIV-1_HeavyChain	3522	22-41		
anti-HIV-1_HeavyChain	3523	22-41	35-44	
anti-HIV-1_HeavyChain	3524	22-41		
anti-HIV-1_HeavyChain	3525	22-41	35-44	
anti-HIV-1_HeavyChain	3526	22-41		
anti-HIV-1_HeavyChain	3527	22-41	35-44	
anti-HIV-1_HeavyChain	3528	22-41	35-44	
anti-HIV-1_HeavyChain	3529	22-41	35-44	
anti-HIV-1_HeavyChain	3530	22-41	35-44	
anti-HIV-1_HeavyChain	3531	22-41	35-44	
anti-HIV-1_HeavyChain	3532	22-41	35-44	
anti-HIV-1_HeavyChain	3533	22-41		
anti-HIV-1_HeavyChain	3534	22-41		
anti-HIV-1_HeavyChain	3535	22-41		
anti-HIV-1_HeavyChain	3536	22-41		
anti-HIV-1_HeavyChain	3537	22-41	35-44	
anti-HIV-1_HeavyChain	3538	22-41		
anti-HIV-1_HeavyChain	3539	22-41	35-44	
anti-HIV-1_HeavyChain	3540	22-41	35-44	
anti-HIV-1_HeavyChain	3541	22-41	35-44	
anti-HIV-1_HeavyChain	3542	22-41		
anti-HIV-1_HeavyChain	3543	22-41	35-44	
anti-HIV-1_HeavyChain	3544	22-41		
anti-HIV-1_HeavyChain	3545	22-41	35-44	
anti-HIV-1_HeavyChain	3546	22-41		
anti-HIV-1_HeavyChain	3547	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3548	22-41	35-44	
anti-HIV-1_HeavyChain	3549	22-41		
anti-HIV-1_HeavyChain	3550	22-41	35-44	
anti-HIV-1_HeavyChain	3551	22-41	35-44	
anti-HIV-1_HeavyChain	3552	22-41		
anti-HIV-1_HeavyChain	3553	22-41		
anti-HIV-1_HeavyChain	3554	22-41	35-44	
anti-HIV-1_HeavyChain	3555	22-41		
anti-HIV-1_HeavyChain	3556	22-41		
anti-HIV-1_HeavyChain	3557	22-41	35-44	
anti-HIV-1_HeavyChain	3558	22-41		
anti-HIV-1_HeavyChain	3559	22-41	35-44	
anti-HIV-1_HeavyChain	3560	22-41		
anti-HIV-1_HeavyChain	3561	22-41	35-44	
anti-HIV-1_HeavyChain	3562	22-41		
anti-HIV-1_HeavyChain	3563	22-41		
anti-HIV-1_HeavyChain	3564	22-41		
anti-HIV-1_HeavyChain	3565	22-41	35-44	
anti-HIV-1_HeavyChain	3566	22-41		
anti-HIV-1_HeavyChain	3567	22-41		
anti-HIV-1_HeavyChain	3568	22-41		
anti-HIV-1_HeavyChain	3569	22-41		
anti-HIV-1_HeavyChain	3570	22-41		
anti-HIV-1_HeavyChain	3571	22-41	35-44	
anti-HIV-1_HeavyChain	3572	22-41		
anti-HIV-1_HeavyChain	3573	22-41		
anti-HIV-1_HeavyChain	3574	22-41	35-44	
anti-HIV-1_HeavyChain	3575	22-41	35-44	
anti-HIV-1_HeavyChain	3576	22-41	36-45	
anti-HIV-1_HeavyChain	3577	22-41		
anti-HIV-1_HeavyChain	3578	22-41	35-44	
anti-HIV-1_HeavyChain	3579	22-41	36-45	
anti-HIV-1_HeavyChain	3580	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3581	22-41	35-44	
anti-HIV-1_HeavyChain	3582	22-41		
anti-HIV-1_HeavyChain	3583	22-41	34-43	
anti-HIV-1_HeavyChain	3584	22-41	34-43	
anti-HIV-1_HeavyChain	3585	22-41	34-43	
anti-HIV-1_HeavyChain	3586	22-41	34-43	
anti-HIV-1_HeavyChain	3587	22-41	34-43	
anti-HIV-1_HeavyChain	3588	22-41		
anti-HIV-1_HeavyChain	3589	22-41		
anti-HIV-1_HeavyChain	3590	22-41		
anti-HIV-1_HeavyChain	3591	22-41		
anti-HIV-1_HeavyChain	3592	22-41		
anti-HIV-1_HeavyChain	3593	22-41		
anti-HIV-1_HeavyChain	3594	22-41		
anti-HIV-1_HeavyChain	3595	22-41	137-139	
anti-HIV-1_HeavyChain	3596	22-41		
anti-HIV-1_HeavyChain	3597	22-41		
anti-HIV-1_HeavyChain	3598	22-41		
anti-HIV-1_HeavyChain	3599	22-41		
anti-HIV-1_HeavyChain	3600	22-41		
anti-HIV-1_HeavyChain	3601	22-41		
anti-HIV-1_HeavyChain	3602	22-41		
anti-HIV-1_HeavyChain	3603	22-41		
anti-HIV-1_HeavyChain	3604	22-41		
anti-HIV-1_HeavyChain	3605	22-41	136-138	
anti-HIV-1_HeavyChain	3606	22-41		
anti-HIV-1_HeavyChain	3607	22-41		
anti-HIV-1_HeavyChain	3608	22-41		
anti-HIV-1_HeavyChain	3609	22-41	95-104	
anti-HIV-1_HeavyChain	3610	22-41		
anti-HIV-1_HeavyChain	3611	22-41		
anti-HIV-1_HeavyChain	3612	22-41		
anti-HIV-1_HeavyChain	3613	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3614	22-41		
anti-HIV-1_HeavyChain	3615	22-41		
anti-HIV-1_HeavyChain	3616	22-41		
anti-HIV-1_HeavyChain	3617	22-41	137-139	
anti-HIV-1_HeavyChain	3618	22-41		
anti-HIV-1_HeavyChain	3619	22-41	137-139	
anti-HIV-1_HeavyChain	3620	22-41	137-139	
anti-HIV-1_HeavyChain	3621	22-41	137-139	
anti-HIV-1_HeavyChain	3622	22-41		
anti-HIV-1_HeavyChain	3623	22-41		
anti-HIV-1_HeavyChain	3624	22-41		
anti-HIV-1_HeavyChain	3625	22-41		
anti-HIV-1_HeavyChain	3626	22-41		
anti-HIV-1_HeavyChain	3627	22-41	137-139	
anti-HIV-1_HeavyChain	3628	22-41		
anti-HIV-1_HeavyChain	3629	22-41		
anti-HIV-1_HeavyChain	3630	22-41		
anti-HIV-1_HeavyChain	3631	22-41		
anti-HIV-1_HeavyChain	3632	22-41	137-139	
anti-HIV-1_HeavyChain	3633	22-41		
anti-HIV-1_HeavyChain	3634	22-41		
anti-HIV-1_HeavyChain	3635	22-41		
anti-HIV-1_HeavyChain	3636	22-41		
anti-HIV-1_HeavyChain	3637	22-41		
anti-HIV-1_HeavyChain	3638	22-41		
anti-HIV-1_HeavyChain	3639	22-41		
anti-HIV-1_HeavyChain	3640	22-41		
anti-HIV-1_HeavyChain	3641	22-41		
anti-HIV-1_HeavyChain	3642	22-41		
anti-HIV-1_HeavyChain	3643	22-41		
anti-HIV-1_HeavyChain	3644	22-41	137-139	
anti-HIV-1_HeavyChain	3645	22-41		
anti-HIV-1_HeavyChain	3646	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3647	22-41		
anti-HIV-1_HeavyChain	3648	22-41		
anti-HIV-1_HeavyChain	3649	22-41		
anti-HIV-1_HeavyChain	3650	22-41		
anti-HIV-1_HeavyChain	3651	22-41		
anti-HIV-1_HeavyChain	3652	22-41		
anti-HIV-1_HeavyChain	3653	22-41		
anti-HIV-1_HeavyChain	3654	22-41	137-139	
anti-HIV-1_HeavyChain	3655	22-41		
anti-HIV-1_HeavyChain	3656	22-41		
anti-HIV-1_HeavyChain	3657	22-41		
anti-HIV-1_HeavyChain	3658	22-41		
anti-HIV-1_HeavyChain	3659	22-41		
anti-HIV-1_HeavyChain	3660	22-41		
anti-HIV-1_HeavyChain	3661	22-41		
anti-HIV-1_HeavyChain	3662	22-41		
anti-HIV-1_HeavyChain	3663	22-41		
anti-HIV-1_HeavyChain	3664	22-41	35-44	
anti-HIV-1_HeavyChain	3665	22-41		
anti-HIV-1_HeavyChain	3666	22-41		
anti-HIV-1_HeavyChain	3667	22-41		
anti-HIV-1_HeavyChain	3668	22-41		
anti-HIV-1_HeavyChain	3669	22-41	35-44	
anti-HIV-1_HeavyChain	3670	22-41		
anti-HIV-1_HeavyChain	3671	22-41	95-104	
anti-HIV-1_HeavyChain	3672	22-41		
anti-HIV-1_HeavyChain	3673	22-41		
anti-HIV-1_HeavyChain	3674	22-41		
anti-HIV-1_HeavyChain	3675	22-41		
anti-HIV-1_HeavyChain	3676	22-41		
anti-HIV-1_HeavyChain	3677	22-41	35-44	
anti-HIV-1_HeavyChain	3678	22-41		
anti-HIV-1_HeavyChain	3679	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3680	22-41		
anti-HIV-1_HeavyChain	3681	22-41		
anti-HIV-1_HeavyChain	3682	22-41		
anti-HIV-1_HeavyChain	3683	22-41		
anti-HIV-1_HeavyChain	3684	22-41		
anti-HIV-1_HeavyChain	3685	22-41		
anti-HIV-1_HeavyChain	3686	22-41		
anti-HIV-1_HeavyChain	3687	22-41	35-44	
anti-HIV-1_HeavyChain	3688	22-41		
anti-HIV-1_HeavyChain	3689	22-41		
anti-HIV-1_HeavyChain	3690	22-41		
anti-HIV-1_HeavyChain	3691	22-41		
anti-HIV-1_HeavyChain	3692	22-41		
anti-HIV-1_HeavyChain	3693	22-41		
anti-HIV-1_HeavyChain	3694	22-41		
anti-HIV-1_HeavyChain	3695	22-41		
anti-HIV-1_HeavyChain	3696	22-41		
anti-HIV-1_HeavyChain	3697	22-41	35-44	
anti-HIV-1_HeavyChain	3698	22-41		
anti-HIV-1_HeavyChain	3699	22-41		
anti-HIV-1_HeavyChain	3700	22-41		
anti-HIV-1_HeavyChain	3701	22-41		
anti-HIV-1_HeavyChain	3702	22-41	138-140	
anti-HIV-1_HeavyChain	3703	22-41		
anti-HIV-1_HeavyChain	3704	22-41		
anti-HIV-1_HeavyChain	3705	22-41		
anti-HIV-1_HeavyChain	3706	22-41		
anti-HIV-1_HeavyChain	3707	22-41		
anti-HIV-1_HeavyChain	3708	22-41		
anti-HIV-1_HeavyChain	3709	22-41		
anti-HIV-1_HeavyChain	3710	22-41	35-44	
anti-HIV-1_HeavyChain	3711	22-41		
anti-HIV-1_HeavyChain	3712	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3713	22-41		
anti-HIV-1_HeavyChain	3714	22-41	35-44	
anti-HIV-1_HeavyChain	3715	22-41		
anti-HIV-1_HeavyChain	3716	22-41		
anti-HIV-1_HeavyChain	3717	22-41		
anti-HIV-1_HeavyChain	3718	22-41		
anti-HIV-1_HeavyChain	3719	22-41		
anti-HIV-1_HeavyChain	3720	22-41	94-103	
anti-HIV-1_HeavyChain	3721	22-41		
anti-HIV-1_HeavyChain	3722	22-41	35-44	
anti-HIV-1_HeavyChain	3723	22-41		
anti-HIV-1_HeavyChain	3724	22-41		
anti-HIV-1_HeavyChain	3725	22-41		
anti-HIV-1_HeavyChain	3726	22-41		
anti-HIV-1_HeavyChain	3727	22-41		
anti-HIV-1_HeavyChain	3728	22-41		
anti-HIV-1_HeavyChain	3729	22-41		
anti-HIV-1_HeavyChain	3730	22-41	137-139	
anti-HIV-1_HeavyChain	3731	22-41		
anti-HIV-1_HeavyChain	3732	22-41		
anti-HIV-1_HeavyChain	3733	22-41		
anti-HIV-1_HeavyChain	3734	22-41		
anti-HIV-1_HeavyChain	3735	22-41		
anti-HIV-1_HeavyChain	3736	22-41		
anti-HIV-1_HeavyChain	3737	22-41	138-140	
anti-HIV-1_HeavyChain	3738	22-41		
anti-HIV-1_HeavyChain	3739	22-41		
anti-HIV-1_HeavyChain	3740	22-41	137-139	
anti-HIV-1_HeavyChain	3741	22-41		
anti-HIV-1_HeavyChain	3742	22-41		
anti-HIV-1_HeavyChain	3743	22-41		
anti-HIV-1_HeavyChain	3744	22-41	35-44	
anti-HIV-1_HeavyChain	3745	22-41	137-139	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3746	22-41		
anti-HIV-1_HeavyChain	3747	22-41		
anti-HIV-1_HeavyChain	3748	22-41	139-141	
anti-HIV-1_HeavyChain	3749	22-41	139-141	
anti-HIV-1_HeavyChain	3750	22-41	139-141	
anti-HIV-1_HeavyChain	3751	22-41		
anti-HIV-1_HeavyChain	3752	22-41		
anti-HIV-1_HeavyChain	3753	22-41	35-44	
anti-HIV-1_HeavyChain	3754	22-41		
anti-HIV-1_HeavyChain	3755	22-41		
anti-HIV-1_HeavyChain	3756	22-41		
anti-HIV-1_HeavyChain	3757	22-41	139-141	
anti-HIV-1_HeavyChain	3758	22-41		
anti-HIV-1_HeavyChain	3759	22-41		
anti-HIV-1_HeavyChain	3760	22-41	35-44	
anti-HIV-1_HeavyChain	3761	22-41		
anti-HIV-1_HeavyChain	3762	22-41		
anti-HIV-1_HeavyChain	3763	22-41		
anti-HIV-1_HeavyChain	3764	22-41	139-141	
anti-HIV-1_HeavyChain	3765	22-41		
anti-HIV-1_HeavyChain	3766	22-41		
anti-HIV-1_HeavyChain	3767	22-41		
anti-HIV-1_HeavyChain	3768	22-41		
anti-HIV-1_HeavyChain	3769	22-41		
anti-HIV-1_HeavyChain	3770	22-41		
anti-HIV-1_HeavyChain	3771	22-41		
anti-HIV-1_HeavyChain	3772	22-41		
anti-HIV-1_HeavyChain	3773	22-41		
anti-HIV-1_HeavyChain	3774	22-41		
anti-HIV-1_HeavyChain	3775	22-41		
anti-HIV-1_HeavyChain	3776	22-41		
anti-HIV-1_HeavyChain	3777	22-41		
anti-HIV-1_HeavyChain	3778	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3779	22-41		
anti-HIV-1_HeavyChain	3780	22-41		
anti-HIV-1_HeavyChain	3781	22-41		
anti-HIV-1_HeavyChain	3782	22-41		
anti-HIV-1_HeavyChain	3783	22-41		
anti-HIV-1_HeavyChain	3784	22-41		
anti-HIV-1_HeavyChain	3785	22-41		
anti-HIV-1_HeavyChain	3786	22-41		
anti-HIV-1_HeavyChain	3787	22-41	35-44	
anti-HIV-1_HeavyChain	3788	22-41	35-44	
anti-HIV-1_HeavyChain	3789	22-41	35-44	
anti-HIV-1_HeavyChain	3790	22-41		
anti-HIV-1_HeavyChain	3791	22-41	35-44	
anti-HIV-1_HeavyChain	3792	22-41		
anti-HIV-1_HeavyChain	3793	22-41	35-44	
anti-HIV-1_HeavyChain	3794	22-41	35-44	
anti-HIV-1_HeavyChain	3795	22-41	35-44	
anti-HIV-1_HeavyChain	3796	22-41		
anti-HIV-1_HeavyChain	3797	22-41		
anti-HIV-1_HeavyChain	3798	22-41		
anti-HIV-1_HeavyChain	3799	22-41	35-44	
anti-HIV-1_HeavyChain	3800	22-41		
anti-HIV-1_HeavyChain	3801	22-41	35-44	
anti-HIV-1_HeavyChain	3802	22-41		
anti-HIV-1_HeavyChain	3803	22-41		
anti-HIV-1_HeavyChain	3804	22-41		
anti-HIV-1_HeavyChain	3805	22-41	35-44	
anti-HIV-1_HeavyChain	3806	22-41		
anti-HIV-1_HeavyChain	3807	22-41	35-44	
anti-HIV-1_HeavyChain	3808	22-41	139-141	
anti-HIV-1_HeavyChain	3809	22-41		
anti-HIV-1_HeavyChain	3810	22-41	35-44	
anti-HIV-1_HeavyChain	3811	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3812	22-41		
anti-HIV-1_HeavyChain	3813	22-41	35-44	
anti-HIV-1_HeavyChain	3814	22-41		
anti-HIV-1_HeavyChain	3815	22-41		
anti-HIV-1_HeavyChain	3816	22-41	140-142	
anti-HIV-1_HeavyChain	3817	22-41		
anti-HIV-1_HeavyChain	3818	22-41	35-44	
anti-HIV-1_HeavyChain	3819	22-41		
anti-HIV-1_HeavyChain	3820	22-41	35-44	
anti-HIV-1_HeavyChain	3821	22-41		
anti-HIV-1_HeavyChain	3822	22-41		
anti-HIV-1_HeavyChain	3823	22-41		
anti-HIV-1_HeavyChain	3824	22-41		
anti-HIV-1_HeavyChain	3825	22-41	35-44	
anti-HIV-1_HeavyChain	3826	22-41	35-44	
anti-HIV-1_HeavyChain	3827	22-41	35-44	
anti-HIV-1_HeavyChain	3828	22-41		
anti-HIV-1_HeavyChain	3829	22-41		
anti-HIV-1_HeavyChain	3830	22-41		
anti-HIV-1_HeavyChain	3831	22-41	35-44	
anti-HIV-1_HeavyChain	3832	22-41		
anti-HIV-1_HeavyChain	3833	22-41	35-44	
anti-HIV-1_HeavyChain	3834	22-41	35-44	
anti-HIV-1_HeavyChain	3835	22-41		
anti-HIV-1_HeavyChain	3836	22-41	35-44	
anti-HIV-1_HeavyChain	3837	22-41		
anti-HIV-1_HeavyChain	3838	22-41		
anti-HIV-1_HeavyChain	3839	22-41	35-44	
anti-HIV-1_HeavyChain	3840	22-41		
anti-HIV-1_HeavyChain	3841	22-41		
anti-HIV-1_HeavyChain	3842	22-41	35-44	
anti-HIV-1_HeavyChain	3843	22-41		
anti-HIV-1_HeavyChain	3844	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3845	22-41	139-141	
anti-HIV-1_HeavyChain	3846	22-41		
anti-HIV-1_HeavyChain	3847	22-41	35-44	
anti-HIV-1_HeavyChain	3848	22-41		
anti-HIV-1_HeavyChain	3849	22-41	35-44	
anti-HIV-1_HeavyChain	3850	22-41		
anti-HIV-1_HeavyChain	3851	22-41		
anti-HIV-1_HeavyChain	3852	22-41		
anti-HIV-1_HeavyChain	3853	22-41	35-44	
anti-HIV-1_HeavyChain	3854	22-41		
anti-HIV-1_HeavyChain	3855	22-41		
anti-HIV-1_HeavyChain	3856	22-41	35-44	
anti-HIV-1_HeavyChain	3857	22-41	35-44	
anti-HIV-1_HeavyChain	3858	22-41		
anti-HIV-1_HeavyChain	3859	22-41	35-44	
anti-HIV-1_HeavyChain	3860	22-41		
anti-HIV-1_HeavyChain	3861	22-41		
anti-HIV-1_HeavyChain	3862	22-41	35-44	
anti-HIV-1_HeavyChain	3863	22-41		
anti-HIV-1_HeavyChain	3864	22-41		
anti-HIV-1_HeavyChain	3865	22-41	35-44	
anti-HIV-1_HeavyChain	3866	22-41		
anti-HIV-1_HeavyChain	3867	22-41	35-44	
anti-HIV-1_HeavyChain	3868	22-41		
anti-HIV-1_HeavyChain	3869	22-41		
anti-HIV-1_HeavyChain	3870	22-41	35-44	
anti-HIV-1_HeavyChain	3871	22-41		
anti-HIV-1_HeavyChain	3872	22-41	140-142	
anti-HIV-1_HeavyChain	3873	22-41	35-44	
anti-HIV-1_HeavyChain	3874	22-41		
anti-HIV-1_HeavyChain	3875	22-41		
anti-HIV-1_HeavyChain	3876	22-41		
anti-HIV-1_HeavyChain	3877	22-41	35-44	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3878	22-41		
anti-HIV-1_HeavyChain	3879	22-41		
anti-HIV-1_HeavyChain	3880	22-41	35-44	
anti-HIV-1_HeavyChain	3881	22-41	35-44	
anti-HIV-1_HeavyChain	3882	22-41	35-44	
anti-HIV-1_HeavyChain	3883	22-41	35-44	
anti-HIV-1_HeavyChain	3884	22-41		
anti-HIV-1_HeavyChain	3885	22-41	35-44	
anti-HIV-1_HeavyChain	3886	22-41		
anti-HIV-1_HeavyChain	3887	22-41	35-44	
anti-HIV-1_HeavyChain	3888	22-41		
anti-HIV-1_HeavyChain	3889	22-41	35-44	
anti-HIV-1_HeavyChain	3890	22-41	35-44	
anti-HIV-1_HeavyChain	3891	22-41		
anti-HIV-1_HeavyChain	3892	22-41		
anti-HIV-1_HeavyChain	3893	22-41		
anti-HIV-1_HeavyChain	3894	22-41		
anti-HIV-1_HeavyChain	3895	22-41	37-46	
anti-HIV-1_HeavyChain	3896	22-41		
anti-HIV-1_HeavyChain	3897	22-41		
anti-HIV-1_HeavyChain	3898	22-41		
anti-HIV-1_HeavyChain	3899	22-41		
anti-HIV-1_HeavyChain	3900	22-41		
anti-HIV-1_HeavyChain	3901	22-41		
anti-HIV-1_HeavyChain	3902	22-41		
anti-HIV-1_HeavyChain	3903	22-41		
anti-HIV-1_HeavyChain	3904	22-41		
anti-HIV-1_HeavyChain	3905	22-41		
anti-HIV-1_HeavyChain	3906	22-41		
anti-HIV-1_HeavyChain	3907	22-41	35-44	
anti-HIV-1_HeavyChain	3908	22-41		
anti-HIV-1_HeavyChain	3909	22-41		
anti-HIV-1_HeavyChain	3910	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3911	22-41		
anti-HIV-1_HeavyChain	3912	22-41		
anti-HIV-1_HeavyChain	3913	22-41		
anti-HIV-1_HeavyChain	3914	22-41		
anti-HIV-1_HeavyChain	3915	22-41		
anti-HIV-1_HeavyChain	3916	22-41		
anti-HIV-1_HeavyChain	3917	22-41	93-102	94-113
anti-HIV-1_HeavyChain	3918	22-41		
anti-HIV-1_HeavyChain	3919	22-41		
anti-HIV-1_HeavyChain	3920	22-41		
anti-HIV-1_HeavyChain	3921	22-41		
anti-HIV-1_HeavyChain	3922	22-41		
anti-HIV-1_HeavyChain	3923	22-41		
anti-HIV-1_HeavyChain	3924	22-41		
anti-HIV-1_HeavyChain	3925	22-41		
anti-HIV-1_HeavyChain	3926	22-41	35-44	
anti-HIV-1_HeavyChain	3927	22-41	35-44	
anti-HIV-1_HeavyChain	3928	22-41		
anti-HIV-1_HeavyChain	3929	22-41		
anti-HIV-1_HeavyChain	3930	22-41		
anti-HIV-1_HeavyChain	3931	22-41	35-44	
anti-HIV-1_HeavyChain	3932	22-41		
anti-HIV-1_HeavyChain	3933	22-41	35-44	
anti-HIV-1_HeavyChain	3934	22-41	35-44	
anti-HIV-1_HeavyChain	3935	22-41		
anti-HIV-1_HeavyChain	3936	22-41	35-44	
anti-HIV-1_HeavyChain	3937	22-41		
anti-HIV-1_HeavyChain	3938	22-41		
anti-HIV-1_HeavyChain	3939	22-41		
anti-HIV-1_HeavyChain	3940	22-41		
anti-HIV-1_HeavyChain	3941	22-41		
anti-HIV-1_HeavyChain	3942	22-41	95-104	
anti-HIV-1_HeavyChain	3943	22-41	95-104	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3944	22-41		
anti-HIV-1_HeavyChain	3945	22-41		
anti-HIV-1_HeavyChain	3946	22-41	35-44	
anti-HIV-1_HeavyChain	3947	22-41		
anti-HIV-1_HeavyChain	3948	22-41		
anti-HIV-1_HeavyChain	3949	22-41		
anti-HIV-1_HeavyChain	3950	22-41		
anti-HIV-1_HeavyChain	3951	22-41		
anti-HIV-1_HeavyChain	3952	22-41		
anti-HIV-1_HeavyChain	3953	22-41		
anti-HIV-1_HeavyChain	3954	22-41		
anti-HIV-1_HeavyChain	3955	22-41		
anti-HIV-1_HeavyChain	3956	22-41		
anti-HIV-1_HeavyChain	3957	22-41		
anti-HIV-1_HeavyChain	3958	22-41		
anti-HIV-1_HeavyChain	3959	22-41		
anti-HIV-1_HeavyChain	3960	22-41		
anti-HIV-1_HeavyChain	3961	22-41		
anti-HIV-1_HeavyChain	3962	22-41		
anti-HIV-1_HeavyChain	3963	22-41		96-115
anti-HIV-1_HeavyChain	3964	22-41		
anti-HIV-1_HeavyChain	3965	22-41		
anti-HIV-1_HeavyChain	3966	22-41		
anti-HIV-1_HeavyChain	3967	22-41		
anti-HIV-1_HeavyChain	3968	22-41		
anti-HIV-1_HeavyChain	3969	22-41		96-115
anti-HIV-1_HeavyChain	3970	22-41		96-115
anti-HIV-1_HeavyChain	3971	22-41		96-115
anti-HIV-1_HeavyChain	3972	22-41		
anti-HIV-1_HeavyChain	3973	22-41		95-114
anti-HIV-1_HeavyChain	3974	22-41		
anti-HIV-1_HeavyChain	3975	22-41		96-115
anti-HIV-1_HeavyChain	3976	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV-1_HeavyChain	3977	22-41		96-115
anti-HIV-1_HeavyChain	3978	22-41		
anti-HIV-1_HeavyChain	3979	22-41		96-115
anti-HIV-1_HeavyChain	3980	22-41		
anti-HIV-1_HeavyChain	3981	22-41		
anti-HIV-1_HeavyChain	3982	22-41		
anti-HIV-1_HeavyChain	3983	22-41		96-115
anti-HIV-1_HeavyChain	3984	22-41		
anti-HIV-1_HeavyChain	3985	22-41		
anti-HIV-1_HeavyChain	3986	22-41		96-115
anti-HIV-1_HeavyChain	3987	22-41		
anti-HIV-1_HeavyChain	3988	22-41		96-115
anti-HIV-1_HeavyChain	3989	22-41		95-114
anti-HIV-1_HeavyChain	3990	22-41		
anti-HIV-1_HeavyChain	3991	22-41		
anti-HIV-1_HeavyChain	3992	22-41		
anti-HIV-1_HeavyChain	3993	22-41		
anti-HIV-1_HeavyChain	3994	22-41		96-115
anti-HIV-1_HeavyChain	3995	22-41		
anti-HIV-1_HeavyChain	3996	22-41		96-115
anti-HIV-1_HeavyChain	3997	22-41		96-115
anti-HIV-1_HeavyChain	3998	22-41		
anti-HIV-1_HeavyChain	3999	22-41		95-114
anti-HIV-1_HeavyChain	4000	22-41		
anti-HIV_5CIN_LightChain	4001	22-41	49-58	87-106
anti-HIV_5CIN_HeavyChain	4002	22-41		93-112
anti-HIV_5CIL_HeavyChain	4003	22-41		93-112
anti-HIV_5CIP_A-Chain	4004	22-41		93-112
anti-HIV_5CIP_HeavyChain	4005	22-41		93-112
anti-HIV_4JKP_LightChain	4006	22-41	46-55	84-103
anti-HIV_3TNN_E-Chain	4007	22-41		94-113
anti-HIV_3BQU_B-Chain	4008	22-41	53-62	
anti-HIV_3BQU_A-Chain	4009	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_IgG_VR-Chain	4010	22-41	69-78	107-126
anti-HIV_IgG_HeavyChain	4011	22-41	70-79	112-116
anti-HIV_4P9M_HeavyChain	4012	22-41		
anti-HIV_4P9M_LightChain	4013	22-41	49-58	
anti-HIV_4P9H_C-Chain	4014	22-41		
anti-HIV_4YBL_A-Chain	4015	22-41		
anti-HIV_4R4N_V-Chain	4016	22-41	294-303	
anti-HIV_4JKP_G-Chain	4017	22-41		
anti-HIV_3BQU_D-Chain	4018	22-41		113-132
anti-HIV_3BQU_C-Chain	4019	22-41		108-127
anti-HIV_Ig_LightChain	4020	22-41		90-109
anti-HIV_Ig_HeavyChain	4021	22-41		94-113
anti-HIV_4P9H_G-Chain	4022	22-41		
anti-HIV_Chain	4023	22-41		
anti-HIV_Chain	4024	22-41		
anti-HIV_Chain	4025	22-41		
anti-HIV_Chain	4026	22-41	53-62	
anti-HIV_Chain	4027	22-41		65-84
anti-HIV_Chain	4028	22-41		67-86
anti-HIV_Chain	4029	22-41		65-84
anti-HIV_Chain	4030	22-41		
anti-HIV_Chain	4031	22-41		
anti-HIV_Chain	4032	22-41		
anti-HIV_Chain	4033	22-41		82-100
anti-HIV_Chain	4034	22-41		82-100
anti-HIV_Chain	4035	22-41		82-100
anti-HIV_Chain	4036	22-41		
anti-HIV_Chain	4037	22-41		
anti-HIV_Chain	4038	22-41		
anti-HIV_Chain	4039	22-41		84-102
anti-HIV_Chain	4040	22-41		84-102
anti-HIV_Chain	4041	22-41		82-101
anti-HIV_Chain	4042	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4043	22-41	44-53	
anti-HIV_Chain	4044	22-41	44-53	
anti-HIV_Chain	4045	22-41	44-53	
anti-HIV_Chain	4046	22-41	44-53	
anti-HIV_Chain	4047	22-41	44-53	
anti-HIV_Chain	4048	22-41	44-53	
anti-HIV_Chain	4049	22-41		83-102
anti-HIV_Chain	4050	22-41		83-102
anti-HIV_Chain	4051	22-41	44-53	
anti-HIV_Chain	4052	22-41	71-80	72-91
anti-HIV_Chain	4053	22-41		
anti-HIV_Chain	4054	22-41	40-49	81-100
anti-HIV_Chain	4055	22-41	40-49	81-100
anti-HIV_Chain	4056	22-41	40-49	81-100
anti-HIV_Chain	4057	22-41		81-100
anti-HIV_Chain	4058	22-41		83-102
anti-HIV_Chain	4059	22-41		
anti-HIV_Chain	4060	22-41	32-41	74-93
anti-HIV_Chain	4061	22-41	42-51	83-102
anti-HIV_Chain	4062	22-41	42-51	83-102
anti-HIV_Chain	4063	22-41		
anti-HIV_Chain	4064	22-41		
anti-HIV_Chain	4065	22-41		
anti-HIV_Chain	4066	22-41		
anti-HIV_Chain	4067	22-41	46-55	84-103
anti-HIV_Chain	4068	22-41		
anti-HIV_Chain	4069	22-41		
anti-HIV_Chain	4070	22-41	43-52	84-103
anti-HIV_LightChain	4071	22-41	48-57	86-105
anti-HIV_LightChain	4072	22-41	48-57	86-105
anti-HIV_Chain	4073	22-41		83-102
anti-HIV_Chain	4074	22-41	38-47	76-95
anti-HIV_Chain	4075	22-41	47-56	85-104

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_HeavyChain	4076	22-41		
anti-HIV_Chain	4077	22-41	47-56	85-104
anti-HIV_Chain	4078	22-41	38-47	
anti-HIV_LightChain	4079	22-41	54-63	92-111
anti-HIV_LightChain	4080	22-41	48-57	86-105
anti-HIV_Chain	4081	22-41	44-53	
anti-HIV_Chain	4082	22-41	49-58	87-106
anti-HIV_Chain	4083	22-41		77-96
anti-HIV_Chain	4084	22-41	44-53	
anti-HIV_Chain	4085	22-41	44-53	
anti-HIV_Chain	4086	22-41	44-53	
anti-HIV_Chain	4087	22-41	44-53	
anti-HIV_Chain	4088	22-41		
anti-HIV_Chain	4089	22-41	44-53	
anti-HIV_Chain	4090	22-41	44-53	
anti-HIV_Chain	4091	22-41	44-53	
anti-HIV_Chain	4092	22-41	44-53	
anti-HIV_Chain	4093	22-41	44-53	
anti-HIV_Chain	4094	22-41	44-53	
anti-HIV_Chain	4095	22-41	51-60	89-108
anti-HIV_Chain	4096	22-41		83-102
anti-HIV_Chain	4097	22-41		83-102
anti-HIV_Chain	4098	22-41		83-102
anti-HIV_Chain	4099	22-41		83-102
anti-HIV_Chain	4100	22-41		83-102
anti-HIV_Chain	4101	22-41		83-102
anti-HIV_Chain	4102	22-41		83-102
anti-HIV_Chain	4103	22-41		83-102
anti-HIV_Chain	4104	22-41		83-102
anti-HIV_Chain	4105	22-41		83-102
anti-HIV_Chain	4106	22-41	41-50	79-98
anti-HIV_Chain	4107	22-41	39-48	77-96
anti-HIV_Chain	4108	22-41	49-58	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4109	22-41	41-50	83-102
anti-HIV_Chain	4110	22-41	79-88	80-99
anti-HIV_Chain	4111	22-41	42-51	
anti-HIV_Chain	4112	22-41	42-51	80-99
anti-HIV_LightChain	4113	22-41	49-58	
anti-HIV_LightChain	4114	22-41	49-58	
anti-HIV_LightChain	4115	22-41	49-58	
anti-HIV_LightChain	4116	22-41	49-58	
anti-HIV_LightChain	4117	22-41	49-58	
anti-HIV_LightChain	4118	22-41	49-58	
anti-HIV_LightChain	4119	22-41	49-58	
anti-HIV_LightChain	4120	22-41	49-58	
anti-HIV_LightChain	4121	22-41	49-58	
anti-HIV_LightChain	4122	22-41	49-58	
anti-HIV_LightChain	4123	22-41	49-58	
anti-HIV_LightChain	4124	22-41	49-58	
anti-HIV_LightChain	4125	22-41	49-58	
anti-HIV_LightChain	4126	22-41	49-58	
anti-HIV_LightChain	4127	22-41	49-58	
anti-HIV_Chain	4128	22-41		102-117
anti-HIV_Chain	4129	22-41	41-50	79-98
anti-HIV_Chain	4130	22-41		
anti-HIV_Chain	4131	22-41		
anti-HIV_Chain	4132	22-41		
anti-HIV_Chain	4133	22-41		82-101
anti-HIV_Chain	4134	22-41		
anti-HIV_Chain	4135	22-41	43-52	
anti-HIV_Chain	4136	22-41		
anti-HIV_HeavyChain	4137	22-41	51-60	
anti-HIV_Chain	4138	22-41	34-43	
anti-HIV_Chain	4139	22-41	34-43	
anti-HIV_Chain	4140	22-41		88-107
anti-HIV_Chain	4141	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4142	22-41	38-47	76-95
anti-HIV_Chain	4143	22-41		
anti-HIV_Chain	4144	22-41		
anti-HIV_Chain	4145	22-41	50-59	88-107
anti-HIV_Chain	4146	22-41	50-59	88-107
anti-HIV_Chain	4147	22-41		
anti-HIV_Chain	4148	22-41		
anti-HIV_Chain	4149	22-41		
anti-HIV_Chain	4150	22-41		
anti-HIV_Chain	4151	22-41		
anti-HIV_Chain	4152	22-41		
anti-HIV_Chain	4153	22-41		
anti-HIV_Chain	4154	22-41		
anti-HIV_Chain	4155	22-41	48-57	
anti-HIV_Chain	4156	22-41		
anti-HIV_Chain	4157	22-41	94-103	95-114
anti-HIV_HeavyChain	4158	22-41		94-113
anti-HIV_HeavyChain	4159	22-41		94-113
anti-HIV_Chain	4160	22-41	48-57	
anti-HIV_Chain	4161	22-41	48-57	
anti-HIV_Chain	4162	22-41		
anti-HIV_Chain	4163	22-41	48-57	86-105
anti-HIV_Chain	4164	22-41		
anti-HIV_Chain	4165	22-41	51-60	
anti-HIV_Chain	4166	22-41		94-113
anti-HIV_Chain	4167	22-41	95-104	96-115
anti-HIV_Chain	4168	22-41	74-83	
anti-HIV_Chain	4169	22-41	48-57	86-105
anti-HIV_Chain	4170	22-41	49-58	87-106
anti-HIV_Chain	4171	22-41	48-57	86-105
anti-HIV_Chain	4172	22-41	48-57	
anti-HIV_Chain	4173	22-41		
anti-HIV_Chain	4174	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4175	22-41		
anti-HIV_Chain	4176	22-41	59-68	94-113
anti-HIV_Chain	4177	22-41		94-113
anti-HIV_Chain	4178	22-41		94-113
anti-HIV_Chain	4179	22-41		94-113
anti-HIV_Chain	4180	22-41	97-106	
anti-HIV_Chain	4181	22-41	97-106	
anti-HIV_Chain	4182	22-41	97-106	
anti-HIV_Chain	4183	22-41		
anti-HIV_Chain	4184	22-41		
anti-HIV_Chain	4185	22-41		
anti-HIV_Chain	4186	22-41	51-60	93-112
anti-HIV_Chain	4187	22-41	51-60	
anti-HIV_Chain	4188	22-41	48-57	86-105
anti-HIV_Chain	4189	22-41		
anti-HIV_Chain	4190	22-41	48-57	86-105
anti-HIV_Chain	4191	22-41	48-57	86-105
anti-HIV_Chain	4192	22-41	49-58	87-106
anti-HIV_Chain	4193	22-41		
anti-HIV_Chain	4194	22-41		
anti-HIV_Chain	4195	22-41	84-93	85-104
anti-HIV_Chain	4196	22-41	47-56	85-104
anti-HIV_Chain	4197	22-41	47-56	85-104
anti-HIV_Chain	4198	22-41	84-93	85-104
anti-HIV_Chain	4199	22-41		85-104
anti-HIV_Chain	4200	22-41	84-93	85-104
anti-HIV_Chain	4201	22-41	93-102	94-113
anti-HIV_Chain	4202	22-41		94-113
anti-HIV_Chain	4203	22-41		94-113
anti-HIV_Chain	4204	22-41		91-110
anti-HIV_Chain	4205	22-41		94-113
anti-HIV_HeavyChain	4206	22-41	51-60	94-113
anti-HIV_Chain	4207	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4208	22-41		
anti-HIV_Chain	4209	22-41	58-67	94-113
anti-HIV_Chain	4210	22-41	48-57	86-105
anti-HIV_Chain	4211	22-41	49-58	87-106
anti-HIV_Chain	4212	22-41	49-58	87-106
anti-HIV_Chain	4213	22-41		85-104
anti-HIV_Chain	4214	22-41		
anti-HIV_Chain	4215	22-41		
anti-HIV_Chain	4216	22-41	48-57	
anti-HIV_Chain	4217	22-41	34-43	
anti-HIV_Chain	4218	22-41	34-43	
anti-HIV_Chain	4219	22-41	34-43	
anti-HIV_Chain	4220	22-41	34-43	
anti-HIV_Chain	4221	22-41	34-43	
anti-HIV_Chain	4222	22-41	34-43	
anti-HIV_Chain	4223	22-41	34-43	
anti-HIV_Chain	4224	22-41	34-43	
anti-HIV_Chain	4225	22-41	93-102	
anti-HIV_Chain	4226	22-41	34-43	
anti-HIV_Chain	4227	22-41	34-43	
anti-HIV_Chain	4228	22-41	34-43	
anti-HIV_Chain	4229	22-41	93-102	
anti-HIV_Chain	4230	22-41	34-43	
anti-HIV_Chain	4231	22-41	34-43	
anti-HIV_Chain	4232	22-41	34-43	
anti-HIV_Chain	4233	22-41	93-102	
anti-HIV_Chain	4234	22-41		94-113
anti-HIV_Chain	4235	22-41	58-67	94-113
anti-HIV_Chain	4236	22-41		94-113
anti-HIV_Chain	4237	22-41		
anti-HIV_Chain	4238	22-41		94-113
anti-HIV_Chain	4239	22-41		
anti-HIV_Chain	4240	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4241	22-41		94-113
anti-HIV_Chain	4242	22-41		94-113
anti-HIV_Chain	4243	22-41		96-115
anti-HIV_Chain	4244	22-41	48-57	86-105
anti-HIV_Chain	4245	22-41	50-59	88-107
anti-HIV_Chain	4246	22-41		
anti-HIV_Chain	4247	22-41	49-58	
anti-HIV_Chain	4248	22-41	48-57	86-105
anti-HIV_Chain	4249	22-41	35-44	
anti-HIV_Chain	4250	22-41	93-102	
anti-HIV_Chain	4251	22-41		94-113
anti-HIV_Chain	4252	22-41		95-114
anti-HIV_Chain	4253	22-41		
anti-HIV_Chain	4254	22-41		
anti-HIV_Chain	4255	22-41		
anti-HIV_Chain	4256	22-41	51-60	93-112
anti-HIV_Chain	4257	22-41	92-101	93-112
anti-HIV_Chain	4258	22-41		93-112
anti-HIV_Chain	4259	22-41		93-112
anti-HIV_Chain	4260	22-41		94-113
anti-HIV_Chain	4261	22-41		
anti-HIV_Chain	4262	22-41		94-113
anti-HIV_Chain	4263	22-41	53-62	95-114
anti-HIV_Chain	4264	22-41		
anti-HIV_Chain	4265	22-41		94-113
anti-HIV_Chain	4266	22-41		94-113
anti-HIV_Chain	4267	22-41		
anti-HIV_Chain	4268	22-41	51-60	93-112
anti-HIV_Chain	4269	22-41		94-113
anti-HIV_Chain	4270	22-41		94-113
anti-HIV_Chain	4271	22-41		94-113
anti-HIV_Chain	4272	22-41	49-58	87-106
anti-HIV_Chain	4273	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4274	22-41	49-58	87-106
anti-HIV_Chain	4275	22-41	93-102	94-113
anti-HIV_Chain	4276	22-41		
anti-HIV_Chain	4277	22-41		
anti-HIV_Chain	4278	22-41		88-107
anti-HIV_Chain	4279	22-41	93-102	94-113
anti-HIV_Chain	4280	22-41	93-102	94-113
anti-HIV_Chain	4281	22-41	93-102	94-113
anti-HIV_Chain	4282	22-41		94-113
anti-HIV_Chain	4283	22-41		93-112
anti-HIV_Chain	4284	22-41		94-113
anti-HIV_Chain	4285	22-41		94-113
anti-HIV_Chain	4286	22-41		
anti-HIV_Chain	4287	22-41		
anti-HIV_Chain	4288	22-41		94-113
anti-HIV_Chain	4289	22-41		94-113
anti-HIV_Chain	4290	22-41	58-67	94-113
anti-HIV_Chain	4291	22-41		
anti-HIV_Chain	4292	22-41		93-112
anti-HIV_Chain	4293	22-41	93-102	94-113
anti-HIV_Chain	4294	22-41	49-58	87-106
anti-HIV_Chain	4295	22-41		
anti-HIV_Chain	4296	22-41		
anti-HIV_Chain	4297	22-41		
anti-HIV_Chain	4298	22-41		
anti-HIV_Chain	4299	22-41	93-102	94-113
anti-HIV_Chain	4300	22-41	53-62	95-114
anti-HIV_Chain	4301	22-41		94-113
anti-HIV_Chain	4302	22-41		93-112
anti-HIV_Chain	4303	22-41		
anti-HIV_Chain	4304	22-41	74-83	94-113
anti-HIV_Chain	4305	22-41		
anti-HIV_Chain	4306	22-41	74-83	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4307	22-41	74-83	
anti-HIV_Chain	4308	22-41		94-113
anti-HIV_Chain	4309	22-41		94-113
anti-HIV_Chain	4310	22-41		94-113
anti-HIV_Chain	4311	22-41	74-83	
anti-HIV_Chain	4312	22-41	74-83	
anti-HIV_Chain	4313	22-41	74-83	
anti-HIV_Chain	4314	22-41	74-83	94-113
anti-HIV_Chain	4315	22-41	83-92	94-113
anti-HIV_Chain	4316	22-41	53-62	95-114
anti-HIV_Chain	4317	22-41	93-102	94-113
anti-HIV_Chain	4318	22-41	28-37	
anti-HIV_Chain	4319	22-41		93-112
anti-HIV_Chain	4320	22-41		
anti-HIV_Chain	4321	22-41	49-58	
anti-HIV_Chain	4322	22-41		
anti-HIV_Chain	4323	22-41		
anti-HIV_Chain	4324	22-41		
anti-HIV_Chain	4325	22-41	97-106	
anti-HIV_Chain	4326	22-41		
anti-HIV_Chain	4327	22-41		
anti-HIV_Chain	4328	22-41		
anti-HIV_Chain	4329	22-41	97-106	
anti-HIV_Chain	4330	22-41	97-106	
anti-HIV_Chain	4331	22-41		
anti-HIV_Chain	4332	22-41	97-106	
anti-HIV_Chain	4333	22-41		
anti-HIV_Chain	4334	22-41	97-106	
anti-HIV_Chain	4335	22-41		
anti-HIV_Chain	4336	22-41		
anti-HIV_Chain	4337	22-41		
anti-HIV_Chain	4338	22-41		
anti-HIV_Chain	4339	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4340	22-41		
anti-HIV_Chain	4341	22-41	97-106	
anti-HIV_Chain	4342	22-41		
anti-HIV_Chain	4343	22-41		
anti-HIV_Chain	4344	22-41		
anti-HIV_Chain	4345	22-41		
anti-HIV_Chain	4346	22-41		
anti-HIV_Chain	4347	22-41		
anti-HIV_Chain	4348	22-41		
anti-HIV_Chain	4349	22-41		
anti-HIV_Chain	4350	22-41		
anti-HIV_Chain	4351	22-41		
anti-HIV_Chain	4352	22-41		96-115
anti-HIV_Chain	4353	22-41		94-113
anti-HIV_Chain	4354	22-41		94-113
anti-HIV_Chain	4355	22-41		96-115
anti-HIV_Chain	4356	22-41	92-101	
anti-HIV_Chain	4357	22-41		
anti-HIV_Chain	4358	22-41		93-112
anti-HIV_Chain	4359	22-41	93-102	
anti-HIV_Chain	4360	22-41		94-113
anti-HIV_Chain	4361	22-41		
anti-HIV_Chain	4362	22-41		
anti-HIV_Chain	4363	22-41		93-112
anti-HIV_Chain	4364	22-41		94-113
anti-HIV_Chain	4365	22-41		94-113
anti-HIV_Chain	4366	22-41	59-68	94-113
anti-HIV_Chain	4367	22-41	59-68	94-113
anti-HIV_Chain	4368	22-41		94-113
anti-HIV_Chain	4369	22-41		94-113
anti-HIV_Chain	4370	22-41		94-113
anti-HIV_Chain	4371	22-41		94-113
anti-HIV_Chain	4372	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4373	22-41		94-113
anti-HIV_Chain	4374	22-41		94-113
anti-HIV_Chain	4375	22-41		93-112
anti-HIV_Chain	4376	22-41	50-59	88-107
anti-HIV_Chain	4377	22-41		88-107
anti-HIV_Chain	4378	22-41		93-112
anti-HIV_Chain	4379	22-41		
anti-HIV_Chain	4380	22-41		
anti-HIV_Chain	4381	22-41		
anti-HIV_Chain	4382	22-41		
anti-HIV_Chain	4383	22-41	86-95	
anti-HIV_Chain	4384	22-41		94-113
anti-HIV_Chain	4385	22-41		
anti-HIV_Chain	4386	22-41		
anti-HIV_Chain	4387	22-41	49-58	
anti-HIV_Chain	4388	22-41		
anti-HIV_Chain	4389	22-41		
anti-HIV_Chain	4390	22-41		
anti-HIV_Chain	4391	22-41		
anti-HIV_Chain	4392	22-41		
anti-HIV_Chain	4393	22-41	49-58	
anti-HIV_Chain	4394	22-41		
anti-HIV_Chain	4395	22-41		
anti-HIV_Chain	4396	22-41		93-112
anti-HIV_Chain	4397	22-41		
anti-HIV_Chain	4398	22-41		93-112
anti-HIV_Chain	4399	22-41		94-113
anti-HIV_Chain	4400	22-41		93-112
anti-HIV_Chain	4401	22-41		93-112
anti-HIV_Chain	4402	22-41		93-112
anti-HIV_Chain	4403	22-41		93-112
anti-HIV_Chain	4404	22-41		93-112
anti-HIV_Chain	4405	22-41		93-112

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4406	22-41		93-112
anti-HIV_Chain	4407	22-41	59-68	94-113
anti-HIV_Chain	4408	22-41		93-112
anti-HIV_Chain	4409	22-41		93-112
anti-HIV_Chain	4410	22-41		
anti-HIV_Chain	4411	22-41	93-102	
anti-HIV_Chain	4412	22-41	93-102	
anti-HIV_Chain	4413	22-41		
anti-HIV_Chain	4414	22-41	74-83	
anti-HIV_Chain	4415	22-41		93-112
anti-HIV_Chain	4416	22-41	93-102	
anti-HIV_Chain	4417	22-41	93-102	
anti-HIV_Chain	4418	22-41	74-83	
anti-HIV_Chain	4419	22-41		93-112
anti-HIV_Chain	4420	22-41		93-112
anti-HIV_Chain	4421	22-41		93-112
anti-HIV_Chain	4422	22-41		93-112
anti-HIV_Chain	4423	22-41		93-112
anti-HIV_Chain	4424	22-41		94-113
anti-HIV_Chain	4425	22-41	93-102	94-113
anti-HIV_Chain	4426	22-41		94-113
anti-HIV_Chain	4427	22-41		
anti-HIV_Chain	4428	22-41		
anti-HIV_Chain	4429	22-41		
anti-HIV_Chain	4430	22-41		96-115
anti-HIV_Chain	4431	22-41	53-62	95-114
anti-HIV_Chain	4432	22-41		94-113
anti-HIV_Chain	4433	22-41	50-59	88-107
anti-HIV_Chain	4434	22-41	50-59	88-107
anti-HIV_Chain	4435	22-41		
anti-HIV_Chain	4436	22-41		
anti-HIV_Chain	4437	22-41		
anti-HIV_Chain	4438	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4439	22-41		
anti-HIV_Chain	4440	22-41		
anti-HIV_Chain	4441	22-41		
anti-HIV_Chain	4442	22-41		
anti-HIV_Chain	4443	22-41		
anti-HIV_Chain	4444	22-41		
anti-HIV_Chain	4445	22-41	59-68	94-113
anti-HIV_Chain	4446	22-41		94-113
anti-HIV_Chain	4447	22-41	93-102	94-113
anti-HIV_Chain	4448	22-41		97-116
anti-HIV_Chain	4449	22-41	92-101	
anti-HIV_Chain	4450	22-41		
anti-HIV_Chain	4451	22-41		
anti-HIV_Chain	4452	22-41		
anti-HIV_Chain	4453	22-41		
anti-HIV_Chain	4454	22-41		
anti-HIV_Chain	4455	22-41		
anti-HIV_Chain	4456	22-41		
anti-HIV_Chain	4457	22-41		
anti-HIV_Chain	4458	22-41		
anti-HIV_Chain	4459	22-41		
anti-HIV_Chain	4460	22-41		
anti-HIV_Chain	4461	22-41		
anti-HIV_Chain	4462	22-41		
anti-HIV_Chain	4463	22-41		
anti-HIV_Chain	4464	22-41		103-122
anti-HIV_Chain	4465	22-41		93-112
anti-HIV_Chain	4466	22-41	58-67	94-113
anti-HIV_Chain	4467	22-41	108-117	
anti-HIV_Chain	4468	22-41	50-59	88-107
anti-HIV_Chain	4469	22-41		93-112
anti-HIV_Chain	4470	22-41		96-115
anti-HIV_Chain	4471	22-41	55-64	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_LightChain	4472	22-41	72-81	110-129
anti-HIV_Chain	4473	22-41	104-113	93-112
anti-HIV_Chain	4474	22-41	104-113	
anti-HIV_Chain	4475	22-41	104-113	93-112
anti-HIV_Chain	4476	22-41	104-113	93-112
anti-HIV_Chain	4477	22-41	104-113	93-112
anti-HIV_Chain	4478	22-41	104-113	93-112
anti-HIV_Chain	4479	22-41	104-113	
anti-HIV_Chain	4480	22-41	92-101	
anti-HIV_Chain	4481	22-41	104-113	93-112
anti-HIV_Chain	4482	22-41	104-113	93-112
anti-HIV_Chain	4483	22-41		
anti-HIV_Chain	4484	22-41		
anti-HIV_Chain	4485	22-41		
anti-HIV_Chain	4486	22-41		
anti-HIV_Chain	4487	22-41	59-68	94-113
anti-HIV_Chain	4488	22-41		94-113
anti-HIV_Chain	4489	22-41		94-113
anti-HIV_Chain	4490	22-41	92-101	93-112
anti-HIV_Chain	4491	22-41		94-113
anti-HIV_Chain	4492	22-41	59-68	94-113
anti-HIV_Chain	4493	22-41		94-113
anti-HIV_Chain	4494	22-41		94-113
anti-HIV_Chain	4495	22-41	59-68	94-113
anti-HIV_Chain	4496	22-41		94-113
anti-HIV_Chain	4497	22-41	59-68	94-113
anti-HIV_Chain	4498	22-41		100-119
anti-HIV_Chain	4499	22-41		100-119
anti-HIV_Chain	4500	22-41		
anti-HIV_Chain	4501	22-41	93-102	94-113
anti-HIV_Chain	4502	22-41		100-119
anti-HIV_Chain	4503	22-41		94-113
anti-HIV_Chain	4504	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4505	22-41	93-102	94-113
anti-HIV_Chain	4506	22-41		97-116
anti-HIV_Chain	4507	22-41		97-116
anti-HIV_Chain	4508	22-41		94-113
anti-HIV_Chain	4509	22-41		94-113
anti-HIV_Chain	4510	22-41		94-113
anti-HIV_Chain	4511	22-41		94-113
anti-HIV_Chain	4512	22-41		94-113
anti-HIV_Chain	4513	22-41		97-116
anti-HIV_Chain	4514	22-41	59-68	94-113
anti-HIV_Chain	4515	22-41		94-113
anti-HIV_Chain	4516	22-41		97-116
anti-HIV_Chain	4517	22-41		93-112
anti-HIV_Chain	4518	22-41		
anti-HIV_Chain	4519	22-41		96-115
anti-HIV_Chain	4520	22-41	93-102	94-113
anti-HIV_Chain	4521	22-41	56-65	98-117
anti-HIV_Chain	4522	22-41		95-114
anti-HIV_Chain	4523	22-41		95-114
anti-HIV_Chain	4524	22-41		94-113
anti-HIV_Chain	4525	22-41		
anti-HIV_Chain	4526	22-41		94-113
anti-HIV_Chain	4527	22-41	93-102	
anti-HIV_Chain	4528	22-41		
anti-HIV_Chain	4529	22-41	93-102	
anti-HIV_Chain	4530	22-41	93-102	
anti-HIV_Chain	4531	22-41		
anti-HIV_Chain	4532	22-41	93-102	
anti-HIV_Chain	4533	22-41		
anti-HIV_Chain	4534	22-41		94-113
anti-HIV_Chain	4535	22-41		
anti-HIV_Chain	4536	22-41		
anti-HIV_Chain	4537	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4538	22-41		
anti-HIV_Chain	4539	22-41		
anti-HIV_Chain	4540	22-41		
anti-HIV_Chain	4541	22-41		
anti-HIV_Chain	4542	22-41		
anti-HIV_LightChain	4543	22-41	72-81	110-129
anti-HIV_Chain	4544	22-41		
anti-HIV_Chain	4545	22-41		
anti-HIV_Chain	4546	22-41	57-66	99-118
anti-HIV_Chain	4547	22-41		96-115
anti-HIV_Chain	4548	22-41		
anti-HIV_Chain	4549	22-41	94-103	95-114
anti-HIV_Chain	4550	22-41		97-116
anti-HIV_Chain	4551	22-41		94-113
anti-HIV_Chain	4552	22-41		94-113
anti-HIV_Chain	4553	22-41		
anti-HIV_Chain	4554	22-41		
anti-HIV_Chain	4555	22-41		
anti-HIV_Chain	4556	22-41		
anti-HIV_Chain	4557	22-41		94-113
anti-HIV_Chain	4558	22-41		94-113
anti-HIV_Chain	4559	22-41	58-67	
anti-HIV_Chain	4560	22-41		94-113
anti-HIV_Chain	4561	22-41		94-113
anti-HIV_Chain	4562	22-41	60-69	95-114
anti-HIV_HeavyChain	4563	22-41		
anti-HIV_HeavyChain	4564	22-41		
anti-HIV_HeavyChain	4565	22-41		
anti-HIV_Chain	4566	22-41		
anti-HIV_Chain	4567	22-41		96-115
anti-HIV_Chain	4568	22-41		101-120
anti-HIV_Chain	4569	22-41		96-115
anti-HIV_Chain	4570	22-41	61-70	96-115

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4571	22-41	93-102	94-113
anti-HIV_Chain	4572	22-41	93-102	94-113
anti-HIV_Chain	4573	22-41		94-113
anti-HIV_Chain	4574	22-41	55-64	
anti-HIV_HeavyChain	4575	22-41		
anti-HIV_HeavyChain	4576	22-41		
anti-HIV_HeavyChain	4577	22-41		
anti-HIV_HeavyChain	4578	22-41		
anti-HIV_HeavyChain	4579	22-41		
anti-HIV_HeavyChain	4580	22-41		
anti-HIV_HeavyChain	4581	22-41		
anti-HIV_HeavyChain	4582	22-41		
anti-HIV_HeavyChain	4583	22-41		
anti-HIV_HeavyChain	4584	22-41		
anti-HIV_HeavyChain	4585	22-41		
anti-HIV_HeavyChain	4586	22-41		
anti-HIV_HeavyChain	4587	22-41		
anti-HIV_Chain	4588	22-41		
anti-HIV_Chain	4589	22-41		
anti-HIV_Chain	4590	22-41		94-113
anti-HIV_Chain	4591	22-41		94-113
anti-HIV_Chain	4592	22-41		94-113
anti-HIV_Chain	4593	22-41		94-113
anti-HIV_Chain	4594	22-41		94-113
anti-HIV_Chain	4595	22-41		94-113
anti-HIV_Chain	4596	22-41		94-113
anti-HIV_Chain	4597	22-41		94-113
anti-HIV_Chain	4598	22-41		94-113
anti-HIV_Chain	4599	22-41		100-119
anti-HIV_Chain	4600	22-41		94-113
anti-HIV_Chain	4601	22-41	93-102	94-113
anti-HIV_Chain	4602	22-41		94-113
anti-HIV_Chain	4603	22-41		93-112

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-HIV_Chain	4604	22-41		81-100
anti-HIV_Chain	4605	22-41		94-113
anti-HIV_Chain	4606	22-41		94-113
anti-HIV_HeavyChain	4607	22-41	70-79	113-132
anti-HIV_HeavyChain	4608	22-41	70-79	113-132
anti-HIV_Chain	4609	22-41	60-69	96-115
anti-HIV_Chain	4610	22-41	62-71	100-119
anti-HIV_Chain	4611	22-41		
anti-HIV_Chain	4612	22-41		
anti-HIV_Chain	4613	22-41		108-127
anti-HIV_Chain	4614	22-41	52-61	
anti-HIV_HeavyChain	4615	22-41	70-79	113-132
anti-HIV_HeavyChain	4616	22-41	70-79	113-132
anti-HIV_Chain	4617	22-41		93-112
anti-HIV_Chain	4618	22-41		93-112
anti-HIV_Chain	4619	22-41		93-112
anti-HIV_Chain	4620	22-41	93-102	
anti-HIV_Chain	4621	22-41	59-68	94-113
anti-HIV_Chain	4622	22-41	59-68	94-113
anti-HIV_Chain	4623	22-41		
anti-HIV_Chain	4624	22-41	59-68	94-113
anti-HIV_LightChain	4625	22-41	48-57	86-105
anti-HIV_Chain	4626	22-41	49-58	
anti-HIV_Chain	4627	22-41	54-63	92-111
anti-HIV_SingleChain	4628	22-41		95-114
anti-HIV_LightChain	4629	22-41		
anti-HIV_Chain	4630	22-41		
anti-HIV_Chain	4631	22-41		113-132
anti-influenza_Fab	4632	22-41	47-56	85-104
anti-influenza_Fab	4633	22-41		93-112
anti-influenza_Fab	4634	22-41	226-235	
anti-influenza_Fab	4635	22-41		94-113
anti-influenza_Fab	4636	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Fab	4637	22-41		
anti-influenza_Fab	4638	22-41		
anti-influenza_Apo	4639	22-41		85-104
anti-influenza_Apo	4640	22-41		94-113
anti-influenza-A_kappa_LightChain_V-Region	4641	22-41	52-61	90-109
anti-influenza-A_kappa_LightChain_V-Region	4642	22-41	52-61	90-109
anti-influenza-A_kappa_LightChain_V-Region	4643	22-41	52-61	90-109
anti-influenza-A_kappa_LightChain_V-Region	4644	22-41	52-61	90-109
anti-influenza-A_kappa_LightChain_V-Region	4645	22-41	54-63	92-111
anti-influenza-A_kappa_LightChain_V-Region	4646	22-41	52-61	90-109
anti-influenza-A_HeavyChain_V-Region	4647	22-41		94-113
anti-influenza-A_HeavyChain_V-Region	4648	22-41		94-113
anti-influenza-A_HeavyChain_V-Region	4649	22-41		94-113
anti-influenza-A_HeavyChain_V-Region	4650	22-41		94-113
anti-influenza-A_HeavyChain_V-Region	4651	22-41		94-113
anti-influenza-A_HeavyChain_V-Region	4652	22-41		94-113
anti-influenza-A_HeavyChain_V-Region	4653	22-41		94-113
anti-influenza-A_LightChain_V-Region	4654	22-41	49-58	87-106
anti-influenza-A_HeavyChain_V-Region	4655	22-41		94-113
anti-influenza_Chain	4656	22-41		
anti-influenza_Chain	4657	22-41		
anti-influenza_Chain	4658	22-41	51-60	
anti-influenza_Chain	4659	22-41		
anti-influenza_Chain	4660	22-41		84-100
anti-influenza_Chain	4661	22-41	45-54	83-100
anti-influenza_Chain	4662	22-41	47-56	85-102
anti-influenza_Chain	4663	22-41	47-56	85-102
anti-influenza_Chain	4664	22-41	48-57	86-103
anti-influenza_Chain	4665	22-41	48-57	86-103
anti-influenza_Chain	4666	22-41	48-57	86-103
anti-influenza_Chain	4667	22-41	48-57	86-103
anti-influenza_Chain	4668	22-41	48-57	86-103
anti-influenza_Chain	4669	22-41	48-57	86-103

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4670	22-41	48-57	86-103
anti-influenza_Chain	4671	22-41	48-57	86-103
anti-influenza_Chain	4672	22-41	48-57	86-103
anti-influenza_Chain	4673	22-41		86-105
anti-influenza_Chain	4674	22-41		86-105
anti-influenza_Chain	4675	22-41		
anti-influenza_Chain	4676	22-41	48-57	86-105
anti-influenza_Chain	4677	22-41	48-57	
anti-influenza_Chain	4678	22-41		86-105
anti-influenza_Chain	4679	22-41		86-105
anti-influenza_Chain	4680	22-41	48-57	
anti-influenza_Chain	4681	22-41		86-105
anti-influenza_Chain	4682	22-41	48-57	
anti-influenza_Chain	4683	22-41	29-38	86-105
anti-influenza_Chain	4684	22-41	29-38	86-105
anti-influenza_Chain	4685	22-41		86-105
anti-influenza_Chain	4686	22-41		86-105
anti-influenza_Chain	4687	22-41		86-105
anti-influenza_Chain	4688	22-41	48-57	86-105
anti-influenza_Chain	4689	22-41	29-38	
anti-influenza_Chain	4690	22-41	48-57	86-105
anti-influenza_Chain	4691	22-41		86-105
anti-influenza_Chain	4692	22-41		86-105
anti-influenza_Chain	4693	22-41		86-105
anti-influenza_Chain	4694	22-41	48-57	86-105
anti-influenza_Chain	4695	22-41	31-40	86-105
anti-influenza_Chain	4696	22-41	48-57	
anti-influenza_Chain	4697	22-41		86-105
anti-influenza_Chain	4698	22-41	48-57	86-105
anti-influenza_Chain	4699	22-41	29-38	86-105
anti-influenza_Chain	4700	22-41		
anti-influenza_Chain	4701	22-41		86-105
anti-influenza_Chain	4702	22-41		86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4703	22-41	48-57	86-105
anti-influenza_Chain	4704	22-41		86-105
anti-influenza_Chain	4705	22-41		86-105
anti-influenza_Chain	4706	22-41	48-57	86-105
anti-influenza_Chain	4707	22-41	48-57	
anti-influenza_Chain	4708	22-41		86-105
anti-influenza_Chain	4709	22-41	29-38	86-105
anti-influenza_Chain	4710	22-41	47-56	85-104
anti-influenza_Chain	4711	22-41	48-57	86-105
anti-influenza_Chain	4712	22-41	97-106	87-106
anti-influenza_Chain	4713	22-41	97-106	87-106
anti-influenza_Chain	4714	22-41	85-94	86-105
anti-influenza_Chain	4715	22-41	29-38	86-105
anti-influenza_Chain	4716	22-41	48-57	
anti-influenza_Chain	4717	22-41	48-57	
anti-influenza_Chain	4718	22-41	48-57	
anti-influenza_Chain	4719	22-41	48-57	86-105
anti-influenza_Chain	4720	22-41	48-57	86-105
anti-influenza_Chain	4721	22-41	48-57	86-105
anti-influenza_Chain	4722	22-41	48-57	86-105
anti-influenza_Chain	4723	22-41	48-57	86-105
anti-influenza_Chain	4724	22-41	49-58	87-106
anti-influenza_Chain	4725	22-41	49-58	87-106
anti-influenza_Chain	4726	22-41	49-58	87-106
anti-influenza_Chain	4727	22-41	48-57	86-105
anti-influenza_Chain	4728	22-41	49-58	87-106
anti-influenza_Chain	4729	22-41	49-58	
anti-influenza_Chain	4730	22-41		87-106
anti-influenza_Chain	4731	22-41	48-57	86-105
anti-influenza_Chain	4732	22-41	47-56	85-104
anti-influenza_Chain	4733	22-41		85-104
anti-influenza_Chain	4734	22-41	49-58	87-106
anti-influenza_Chain	4735	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4736	22-41		90-108
anti-influenza_Chain	4737	22-41	48-57	86-105
anti-influenza_Chain	4738	22-41		87-106
anti-influenza_Chain	4739	22-41	48-57	86-105
anti-influenza_Chain	4740	22-41	47-56	
anti-influenza_Chain	4741	22-41	47-56	
anti-influenza_Chain	4742	22-41	98-107	88-107
anti-influenza_Chain	4743	22-41		89-108
anti-influenza_Chain	4744	22-41		
anti-influenza_Chain	4745	22-41		86-105
anti-influenza_Chain	4746	22-41	49-58	87-106
anti-influenza_Chain	4747	22-41	48-57	86-105
anti-influenza_Chain	4748	22-41	49-58	87-106
anti-influenza_Chain	4749	22-41	49-58	
anti-influenza_Chain	4750	22-41	49-58	
anti-influenza_Chain	4751	22-41	48-57	86-105
anti-influenza_Chain	4752	22-41		88-107
anti-influenza_Chain	4753	22-41	48-57	86-105
anti-influenza_Chain	4754	22-41	48-57	86-105
anti-influenza_Chain	4755	22-41	48-57	86-105
anti-influenza_Chain	4756	22-41	48-57	86-105
anti-influenza_Chain	4757	22-41	48-57	86-105
anti-influenza_Chain	4758	22-41	49-58	87-106
anti-influenza_Chain	4759	22-41		85-104
anti-influenza_Chain	4760	22-41	49-58	87-106
anti-influenza_Chain	4761	22-41		85-104
anti-influenza_Chain	4762	22-41	49-58	87-106
anti-influenza_Chain	4763	22-41		85-104
anti-influenza_Chain	4764	22-41		85-104
anti-influenza_Chain	4765	22-41		87-106
anti-influenza_Chain	4766	22-41		85-104
anti-influenza_Chain	4767	22-41		85-104
anti-influenza_Chain	4768	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4769	22-41		86-105
anti-influenza_Chain	4770	22-41		86-105
anti-influenza_Chain	4771	22-41		86-105
anti-influenza_Chain	4772	22-41		86-105
anti-influenza_Chain	4773	22-41		86-105
anti-influenza_Chain	4774	22-41		86-105
anti-influenza_Chain	4775	22-41		86-105
anti-influenza_Chain	4776	22-41		86-105
anti-influenza_Chain	4777	22-41		86-105
anti-influenza_Chain	4778	22-41	48-57	86-105
anti-influenza_Chain	4779	22-41	48-57	86-105
anti-influenza_Chain	4780	22-41	48-57	86-105
anti-influenza_Chain	4781	22-41	48-57	86-105
anti-influenza_Chain	4782	22-41	48-57	86-105
anti-influenza_Chain	4783	22-41	48-57	86-105
anti-influenza_Chain	4784	22-41	48-57	86-105
anti-influenza_Chain	4785	22-41	48-57	86-105
anti-influenza_Chain	4786	22-41	48-57	86-105
anti-influenza_Chain	4787	22-41	48-57	86-105
anti-influenza_Chain	4788	22-41	48-57	86-105
anti-influenza_Chain	4789	22-41	48-57	
anti-influenza_Chain	4790	22-41	29-38	86-105
anti-influenza_Chain	4791	22-41	48-57	86-105
anti-influenza_Chain	4792	22-41	48-57	86-105
anti-influenza_Chain	4793	22-41		86-105
anti-influenza_Chain	4794	22-41		87-106
anti-influenza_Chain	4795	22-41	49-58	87-106
anti-influenza_Chain	4796	22-41	48-57	86-105
anti-influenza_Chain	4797	22-41	49-58	87-106
anti-influenza_Chain	4798	22-41	50-59	
anti-influenza_Chain	4799	22-41	50-59	88-107
anti-influenza_Chain	4800	22-41	50-59	88-107
anti-influenza_Chain	4801	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4802	22-41		
anti-influenza_Chain	4803	22-41	50-59	89-108
anti-influenza_Chain	4804	22-41	48-57	86-105
anti-influenza_Chain	4805	22-41	49-58	87-106
anti-influenza_Chain	4806	22-41		88-107
anti-influenza_Chain	4807	22-41	49-58	87-106
anti-influenza_Chain	4808	22-41	48-57	86-105
anti-influenza_Chain	4809	22-41		85-104
anti-influenza_Chain	4810	22-41		87-106
anti-influenza_Chain	4811	22-41	48-57	86-105
anti-influenza_Chain	4812	22-41	48-57	86-105
anti-influenza_Chain	4813	22-41	48-57	
anti-influenza_Chain	4814	22-41		85-104
anti-influenza_Chain	4815	22-41		86-105
anti-influenza_Chain	4816	22-41	50-59	88-107
anti-influenza_Chain	4817	22-41	50-59	88-107
anti-influenza_Chain	4818	22-41	50-59	88-107
anti-influenza_Chain	4819	22-41		88-107
anti-influenza_Chain	4820	22-41	50-59	88-107
anti-influenza_Chain	4821	22-41	50-59	88-107
anti-influenza_Chain	4822	22-41	50-59	88-107
anti-influenza_Chain	4823	22-41		88-107
anti-influenza_Chain	4824	22-41		88-107
anti-influenza_Chain	4825	22-41		88-107
anti-influenza_Chain	4826	22-41	52-61	90-109
anti-influenza_Chain	4827	22-41	50-59	88-107
anti-influenza_Chain	4828	22-41	49-58	87-106
anti-influenza_Chain	4829	22-41	49-58	87-106
anti-influenza_Chain	4830	22-41	50-59	88-107
anti-influenza_Chain	4831	22-41	49-58	89-108
anti-influenza_Chain	4832	22-41	49-58	87-106
anti-influenza_Chain	4833	22-41	48-57	86-105
anti-influenza_Chain	4834	22-41	49-58	87-106

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4835	22-41	50-59	88-107
anti-influenza_Chain	4836	22-41		87-106
anti-influenza_Chain	4837	22-41	48-57	86-105
anti-influenza_Chain	4838	22-41	50-59	88-107
anti-influenza_Chain	4839	22-41	49-58	87-106
anti-influenza_Chain	4840	22-41	50-59	88-107
anti-influenza_Chain	4841	22-41	49-58	87-106
anti-influenza_Chain	4842	22-41	50-59	88-107
anti-influenza_Chain	4843	22-41		
anti-influenza_Chain	4844	22-41		87-106
anti-influenza_Chain	4845	22-41		
anti-influenza_Chain	4846	22-41		
anti-influenza_Chain	4847	22-41		
anti-influenza_Chain	4848	22-41	31-40	90-109
anti-influenza_Chain	4849	22-41	31-40	90-109
anti-influenza_Chain	4850	22-41	48-57	86-105
anti-influenza_Chain	4851	22-41		92-111
anti-influenza_Chain	4852	22-41	53-62	91-110
anti-influenza_Chain	4853	22-41		91-110
anti-influenza_Chain	4854	22-41		91-110
anti-influenza_Chain	4855	22-41	53-62	91-110
anti-influenza_Chain	4856	22-41	50-59	88-107
anti-influenza_Chain	4857	22-41		88-107
anti-influenza_Chain	4858	22-41	49-58	87-106
anti-influenza_Chain	4859	22-41	49-58	87-106
anti-influenza_Chain	4860	22-41	53-62	91-110
anti-influenza_Chain	4861	22-41		87-106
anti-influenza_Chain	4862	22-41	50-59	88-107
anti-influenza_Chain	4863	22-41		
anti-influenza_Chain	4864	22-41		
anti-influenza_Chain	4865	22-41		
anti-influenza_Chain	4866	22-41		
anti-influenza_Chain	4867	22-41	53-62	91-110

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4868	22-41	54-63	92-111
anti-influenza_Chain	4869	22-41	54-63	92-111
anti-influenza_Chain	4870	22-41	54-63	92-111
anti-influenza_Chain	4871	22-41	54-63	
anti-influenza_Chain	4872	22-41	53-62	91-110
anti-influenza_Chain	4873	22-41		88-107
anti-influenza_Chain	4874	22-41	54-63	92-111
anti-influenza_Chain	4875	22-41	54-63	92-111
anti-influenza_Chain	4876	22-41	48-57	86-105
anti-influenza_Chain	4877	22-41	48-57	
anti-influenza_Chain	4878	22-41	53-62	91-110
anti-influenza_Chain	4879	22-41	53-62	91-110
anti-influenza_Chain	4880	22-41		94-113
anti-influenza_Chain	4881	22-41		94-113
anti-influenza_Chain	4882	22-41		94-113
anti-influenza_Chain	4883	22-41		94-113
anti-influenza_Chain	4884	22-41	36-45	91-110
anti-influenza_Chain	4885	22-41	50-59	88-107
anti-influenza_Chain	4886	22-41	54-63	92-111
anti-influenza_Chain	4887	22-41	53-62	91-110
anti-influenza_Chain	4888	22-41	89-98	90-109
anti-influenza_Chain	4889	22-41		94-113
anti-influenza_Chain	4890	22-41	51-60	
anti-influenza_Chain	4891	22-41	31-40	94-113
anti-influenza_Chain	4892	22-41	52-61	94-113
anti-influenza_Chain	4893	22-41		
anti-influenza_Chain	4894	22-41		94-113
anti-influenza_Chain	4895	22-41		94-113
anti-influenza_Chain	4896	22-41		94-113
anti-influenza_Chain	4897	22-41		91-110
anti-influenza_Chain	4898	22-41		
anti-influenza_Chain	4899	22-41		94-113
anti-influenza_Chain	4900	22-41		93-112

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4901	22-41		93-112
anti-influenza_Chain	4902	22-41		93-112
anti-influenza_Chain	4903	22-41		95-114
anti-influenza_Chain	4904	22-41		94-113
anti-influenza_Chain	4905	22-41		94-113
anti-influenza_Chain	4906	22-41	51-60	
anti-influenza_Chain	4907	22-41	51-60	93-112
anti-influenza_Chain	4908	22-41	51-60	93-112
anti-influenza_Chain	4909	22-41	51-60	93-112
anti-influenza_Chain	4910	22-41		93-112
anti-influenza_Chain	4911	22-41		94-113
anti-influenza_Chain	4912	22-41		94-113
anti-influenza_Chain	4913	22-41		93-112
anti-influenza_Chain	4914	22-41		
anti-influenza_Chain	4915	22-41	53-62	95-114
anti-influenza_Chain	4916	22-41	93-102	
anti-influenza_Chain	4917	22-41		94-113
anti-influenza_Chain	4918	22-41		93-112
anti-influenza_Chain	4919	22-41	51-60	93-112
anti-influenza_Chain	4920	22-41		93-112
anti-influenza_Chain	4921	22-41	92-101	93-112
anti-influenza_Chain	4922	22-41	51-60	93-112
anti-influenza_Chain	4923	22-41	51-60	
anti-influenza_Chain	4924	22-41		
anti-influenza_Chain	4925	22-41		94-113
anti-influenza_Chain	4926	22-41		94-113
anti-influenza_Chain	4927	22-41		94-113
anti-influenza_Chain	4928	22-41		94-113
anti-influenza_Chain	4929	22-41		94-113
anti-influenza_Chain	4930	22-41		94-113
anti-influenza_Chain	4931	22-41		94-113
anti-influenza_Chain	4932	22-41		94-113
anti-influenza_Chain	4933	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4934	22-41	59-68	94-113
anti-influenza_Chain	4935	22-41		94-113
anti-influenza_Chain	4936	22-41		94-113
anti-influenza_Chain	4937	22-41		95-114
anti-influenza_Chain	4938	22-41		94-113
anti-influenza_Chain	4939	22-41		94-113
anti-influenza_Chain	4940	22-41		
anti-influenza_Chain	4941	22-41	34-43	94-113
anti-influenza_Chain	4942	22-41	51-60	
anti-influenza_Chain	4943	22-41		92-111
anti-influenza_Chain	4944	22-41	100-109	94-113
anti-influenza_Chain	4945	22-41		93-112
anti-influenza_Chain	4946	22-41		93-112
anti-influenza_Chain	4947	22-41		
anti-influenza_Chain	4948	22-41		94-113
anti-influenza_Chain	4949	22-41		94-113
anti-influenza_Chain	4950	22-41		94-113
anti-influenza_Chain	4951	22-41	103-112	94-113
anti-influenza_Chain	4952	22-41		
anti-influenza_Chain	4953	22-41		94-113
anti-influenza_Chain	4954	22-41		94-113
anti-influenza_Chain	4955	22-41	93-102	94-113
anti-influenza_Chain	4956	22-41		94-113
anti-influenza_Chain	4957	22-41		94-113
anti-influenza_Chain	4958	22-41	58-67	94-113
anti-influenza_Chain	4959	22-41	58-67	94-113
anti-influenza_Chain	4960	22-41	51-60	94-113
anti-influenza_Chain	4961	22-41		94-113
anti-influenza_Chain	4962	22-41		94-113
anti-influenza_Chain	4963	22-41		
anti-influenza_Chain	4964	22-41		94-113
anti-influenza_Chain	4965	22-41		
anti-influenza_Chain	4966	22-41	51-60	93-112

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	4967	22-41		94-113
anti-influenza_Chain	4968	22-41		
anti-influenza_Chain	4969	22-41	93-102	94-113
anti-influenza_Chain	4970	22-41		94-113
anti-influenza_Chain	4971	22-41		
anti-influenza_Chain	4972	22-41	58-67	94-113
anti-influenza_Chain	4973	22-41		94-113
anti-influenza_Chain	4974	22-41		94-113
anti-influenza_Chain	4975	22-41		94-113
anti-influenza_Chain	4976	22-41		94-113
anti-influenza_Chain	4977	22-41		94-113
anti-influenza_Chain	4978	22-41		93-112
anti-influenza_Chain	4979	22-41		93-112
anti-influenza_Chain	4980	22-41		94-113
anti-influenza_Chain	4981	22-41		
anti-influenza_Chain	4982	22-41		94-113
anti-influenza_Chain	4983	22-41	53-62	95-114
anti-influenza_Chain	4984	22-41		94-113
anti-influenza_Chain	4985	22-41	53-62	95-114
anti-influenza_Chain	4986	22-41		94-113
anti-influenza_Chain	4987	22-41		
anti-influenza_Chain	4988	22-41	51-60	94-113
anti-influenza_Chain	4989	22-41		95-114
anti-influenza_Chain	4990	22-41	93-102	94-113
anti-influenza_Chain	4991	22-41	93-102	94-113
anti-influenza_Chain	4992	22-41	59-68	94-113
anti-influenza_Chain	4993	22-41	59-68	94-113
anti-influenza_Chain	4994	22-41	59-68	94-113
anti-influenza_Chain	4995	22-41	59-68	94-113
anti-influenza_Chain	4996	22-41	59-68	94-113
anti-influenza_Chain	4997	22-41	59-68	94-113
anti-influenza_Chain	4998	22-41	59-68	94-113
anti-influenza_Chain	4999	22-41	59-68	94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5000	22-41	59-68	94-113
anti-influenza_Chain	5001	22-41		94-113
anti-influenza_Chain	5002	22-41		93-112
anti-influenza_Chain	5003	22-41	53-62	95-114
anti-influenza_Chain	5004	22-41	53-62	95-114
anti-influenza_Chain	5005	22-41		94-113
anti-influenza_Chain	5006	22-41	93-102	
anti-influenza_Chain	5007	22-41	51-60	94-113
anti-influenza_Chain	5008	22-41	51-60	
anti-influenza_Chain	5009	22-41		94-113
anti-influenza_Chain	5010	22-41	53-62	95-114
anti-influenza_Chain	5011	22-41	51-60	
anti-influenza_Chain	5012	22-41		94-113
anti-influenza_Chain	5013	22-41	93-102	94-113
anti-influenza_Chain	5014	22-41	51-60	94-113
anti-influenza_Chain	5015	22-41		94-113
anti-influenza_Chain	5016	22-41	53-62	95-114
anti-influenza_Chain	5017	22-41		94-113
anti-influenza_Chain	5018	22-41	51-60	94-113
anti-influenza_Chain	5019	22-41	51-60	94-113
anti-influenza_Chain	5020	22-41		94-113
anti-influenza_Chain	5021	22-41		94-113
anti-influenza_Chain	5022	22-41		94-113
anti-influenza_Chain	5023	22-41		94-113
anti-influenza_Chain	5024	22-41		
anti-influenza_Chain	5025	22-41		94-113
anti-influenza_Chain	5026	22-41		
anti-influenza_Chain	5027	22-41		94-113
anti-influenza_Chain	5028	22-41		98-117
anti-influenza_Chain	5029	22-41	51-60	93-112
anti-influenza_Chain	5030	22-41		94-113
anti-influenza_Chain	5031	22-41		
anti-influenza_Chain	5032	22-41		92-111

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5033	22-41		94-113
anti-influenza_Chain	5034	22-41		94-113
anti-influenza_Chain	5035	22-41		94-113
anti-influenza_Chain	5036	22-41		94-113
anti-influenza_Chain	5037	22-41	53-62	95-114
anti-influenza_Chain	5038	22-41	54-63	94-113
anti-influenza_Chain	5039	22-41	31-40	94-113
anti-influenza_Chain	5040	22-41	96-105	97-116
anti-influenza_Chain	5041	22-41		93-112
anti-influenza_Chain	5042	22-41	51-60	94-113
anti-influenza_Chain	5043	22-41		
anti-influenza_Chain	5044	22-41		
anti-influenza_Chain	5045	22-41	96-105	97-116
anti-influenza_Chain	5046	22-41	96-105	97-116
anti-influenza_Chain	5047	22-41	96-105	97-116
anti-influenza_Chain	5048	22-41		
anti-influenza_Chain	5049	22-41		97-116
anti-influenza_Chain	5050	22-41		97-116
anti-influenza_Chain	5051	22-41		97-116
anti-influenza_Chain	5052	22-41		97-116
anti-influenza_Chain	5053	22-41		94-113
anti-influenza_Chain	5054	22-41		93-112
anti-influenza_Chain	5055	22-41	92-101	93-112
anti-influenza_Chain	5056	22-41		93-112
anti-influenza_Chain	5057	22-41		95-114
anti-influenza_Chain	5058	22-41		94-113
anti-influenza_Chain	5059	22-41		94-113
anti-influenza_Chain	5060	22-41		94-113
anti-influenza_Chain	5061	22-41		98-117
anti-influenza_Chain	5062	22-41		
anti-influenza_Chain	5063	22-41		
anti-influenza_Chain	5064	22-41		
anti-influenza_Chain	5065	22-41	114-123	94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5066	22-41		94-113
anti-influenza_Chain	5067	22-41		94-113
anti-influenza_Chain	5068	22-41		94-113
anti-influenza_Chain	5069	22-41	51-60	93-112
anti-influenza_Chain	5070	22-41		94-113
anti-influenza_Chain	5071	22-41		
anti-influenza_Chain	5072	22-41		96-115
anti-influenza_Chain	5073	22-41	51-60	94-113
anti-influenza_Chain	5074	22-41		94-113
anti-influenza_Chain	5075	22-41		
anti-influenza_Chain	5076	22-41		94-113
anti-influenza_Chain	5077	22-41	53-62	95-114
anti-influenza_Chain	5078	22-41		94-113
anti-influenza_Chain	5079	22-41		95-114
anti-influenza_Chain	5080	22-41		
anti-influenza_Chain	5081	22-41		94-113
anti-influenza_Chain	5082	22-41		94-113
anti-influenza_Chain	5083	22-41		94-113
anti-influenza_Chain	5084	22-41		95-114
anti-influenza_Chain	5085	22-41		95-114
anti-influenza_Chain	5086	22-41		
anti-influenza_Chain	5087	22-41	93-102	94-113
anti-influenza_Chain	5088	22-41		96-115
anti-influenza_Chain	5089	22-41		96-115
anti-influenza_Chain	5090	22-41		96-115
anti-influenza_Chain	5091	22-41		96-115
anti-influenza_Chain	5092	22-41		96-115
anti-influenza_Chain	5093	22-41		96-115
anti-influenza_Chain	5094	22-41		96-115
anti-influenza_Chain	5095	22-41		96-115
anti-influenza_Chain	5096	22-41		96-115
anti-influenza_Chain	5097	22-41		96-115
anti-influenza_Chain	5098	22-41		96-115

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5099	22-41		96-115
anti-influenza_Chain	5100	22-41		99-118
anti-influenza_Chain	5101	22-41		
anti-influenza_Chain	5102	22-41		
anti-influenza_Chain	5103	22-41	122-131	
anti-influenza_Chain	5104	22-41	183-192	
anti-influenza_Chain	5105	22-41	48-57	86-105
anti-influenza_Chain	5106	22-41		86-105
anti-influenza_Chain	5107	22-41	48-57	86-105
anti-influenza_Chain	5108	22-41	49-58	87-106
anti-influenza_Chain	5109	22-41	47-56	85-104
anti-influenza_Chain	5110	22-41	48-57	
anti-influenza_Chain	5111	22-41		
anti-influenza_Chain	5112	22-41	48-57	86-105
anti-influenza_Chain	5113	22-41	97-106	87-106
anti-influenza_Chain	5114	22-41	97-106	87-106
anti-influenza_Chain	5115	22-41	47-56	85-104
anti-influenza_Chain	5116	22-41	50-59	88-107
anti-influenza_Chain	5117	22-41		86-105
anti-influenza_Chain	5118	22-41		86-105
anti-influenza_Chain	5119	22-41		86-105
anti-influenza_Chain	5120	22-41		86-105
anti-influenza_Chain	5121	22-41		86-105
anti-influenza_Chain	5122	22-41		86-105
anti-influenza_Chain	5123	22-41		86-105
anti-influenza_Chain	5124	22-41		86-105
anti-influenza_Chain	5125	22-41		86-105
anti-influenza_Chain	5126	22-41	48-57	86-105
anti-influenza_Chain	5127	22-41	48-57	86-105
anti-influenza_Chain	5128	22-41	48-57	86-105
anti-influenza_Chain	5129	22-41	48-57	86-105
anti-influenza_Chain	5130	22-41	48-57	86-105
anti-influenza_Chain	5131	22-41	48-57	86-105

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5132	22-41	48-57	86-105
anti-influenza_Chain	5133	22-41	48-57	86-105
anti-influenza_Chain	5134	22-41	53-62	91-110
anti-influenza_Chain	5135	22-41		87-106
anti-influenza_Chain	5136	22-41	98-107	88-107
anti-influenza_Chain	5137	22-41	49-58	87-106
anti-influenza_Chain	5138	22-41	49-58	87-106
anti-influenza_Chain	5139	22-41	49-58	87-106
anti-influenza_Chain	5140	22-41		85-104
anti-influenza_Chain	5141	22-41		85-104
anti-influenza_Chain	5142	22-41		
anti-influenza_Chain	5143	22-41	49-58	87-106
anti-influenza_Chain	5144	22-41	53-62	91-110
anti-influenza_Chain	5145	22-41	49-58	87-106
anti-influenza_Chain	5146	22-41	50-59	88-107
anti-influenza_Chain	5147	22-41		87-106
anti-influenza_Chain	5148	22-41	49-58	87-106
anti-influenza_Chain	5149	22-41	50-59	88-107
anti-influenza_Chain	5150	22-41	49-58	87-106
anti-influenza_Chain	5151	22-41	49-58	87-106
anti-influenza_Chain	5152	22-41	145-154	
anti-influenza_Chain	5153	22-41		
anti-influenza_Chain	5154	22-41		
anti-influenza_Chain	5155	22-41		106-125
anti-influenza_Chain	5156	22-41	68-77	
anti-influenza_Chain	5157	22-41	105-114	
anti-influenza_Chain	5158	22-41	69-78	107-126
anti-influenza_Chain	5159	22-41	69-78	107-126
anti-influenza_Chain	5160	22-41	68-77	
anti-influenza_Chain	5161	22-41		
anti-influenza_Chain	5162	22-41	183-192	94-113
anti-influenza_Chain	5163	22-41	184-193	94-113
anti-influenza_Chain	5164	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5165	22-41	184-193	222-241
anti-influenza_Chain	5166	22-41	185-194	94-113
anti-influenza_Chain	5167	22-41		94-113
anti-influenza_Chain	5168	22-41	185-194	94-113
anti-influenza_Chain	5169	22-41		94-113
anti-influenza_Chain	5170	22-41		94-113
anti-influenza_Chain	5171	22-41		94-113
anti-influenza_Chain	5172	22-41	58-67	94-113
anti-influenza_Chain	5173	22-41		94-113
anti-influenza_Chain	5174	22-41	186-195	94-113
anti-influenza_Chain	5175	22-41	31-40	94-113
anti-influenza_Chain	5176	22-41		222-241
anti-influenza_Chain	5177	22-41	186-195	94-113
anti-influenza_Chain	5178	22-41		94-113
anti-influenza_Chain	5179	22-41	186-195	94-113
anti-influenza_Chain	5180	22-41	186-195	94-113
anti-influenza_Chain	5181	22-41	187-196	94-113
anti-influenza_Chain	5182	22-41		94-113
anti-influenza_Chain	5183	22-41	186-195	94-113
anti-influenza_Chain	5184	22-41	103-112	94-113
anti-influenza_Chain	5185	22-41		
anti-influenza_Chain	5186	22-41	186-195	94-113
anti-influenza_Chain	5187	22-41	188-197	94-113
anti-influenza_Chain	5188	22-41		94-113
anti-influenza_Chain	5189	22-41	196-205	92-111
anti-influenza_Chain	5190	22-41	196-205	92-111
anti-influenza_Chain	5191	22-41		
anti-influenza_Chain	5192	22-41		
anti-influenza_Chain	5193	22-41		
anti-influenza_Chain	5194	22-41		
anti-influenza_Chain	5195	22-41	48-57	223-242
anti-influenza_Chain	5196	22-41	48-57	223-242
anti-influenza_Chain	5197	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5198	22-41		
anti-influenza_Chain	5199	22-41	118-127	
anti-influenza_Chain	5200	22-41	118-127	
anti-influenza_Chain	5201	22-41		
anti-influenza_Chain	5202	22-41		
anti-influenza_Chain	5203	22-41		
anti-influenza_Chain	5204	22-41		
anti-influenza_Chain	5205	22-41		
anti-influenza_Chain	5206	22-41		
anti-influenza_Chain	5207	22-41	298-307	
anti-influenza_Chain	5208	22-41	298-307	
anti-influenza_Chain	5209	22-41		
anti-influenza_Chain	5210	22-41		
anti-influenza_Chain	5211	22-41		
anti-influenza_Chain	5212	22-41		
anti-influenza_Chain	5213	22-41		
anti-influenza_Chain	5214	22-41		
anti-influenza_Chain	5215	22-41	189-198	
anti-influenza_Chain	5216	22-41	189-198	
anti-influenza_Chain	5217	22-41		
anti-influenza_Chain	5218	22-41		
anti-influenza_Chain	5219	22-41		
anti-influenza_Chain	5220	22-41		
anti-influenza_Chain	5221	22-41	240-249	
anti-influenza_Chain	5222	22-41	51-60	94-113
anti-influenza_Chain	5223	22-41	51-60	94-113
anti-influenza_Chain	5224	22-41	240-249	
anti-influenza_Chain	5225	22-41	267-276	
anti-influenza_Chain	5226	22-41	267-276	
anti-influenza_Chain	5227	22-41		
anti-influenza_Chain	5228	22-41		
anti-influenza_Chain	5229	22-41		
anti-influenza_Chain	5230	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5231	22-41		
anti-influenza_Chain	5232	22-41		
anti-influenza_Chain	5233	22-41		
anti-influenza_Chain	5234	22-41		
anti-influenza_Chain	5235	22-41		
anti-influenza_Chain	5236	22-41		
anti-influenza_Chain	5237	22-41	204-213	
anti-influenza_Chain	5238	22-41	204-213	
anti-influenza_Chain	5239	22-41		96-115
anti-influenza_Chain	5240	22-41		96-115
anti-influenza_Chain	5241	22-41		94-113
anti-influenza_Chain	5242	22-41		94-113
anti-influenza_Chain	5243	22-41		
anti-influenza_Chain	5244	22-41		
anti-influenza_Chain	5245	22-41		95-114
anti-influenza_Chain	5246	22-41		95-114
anti-influenza_Chain	5247	22-41		94-113
anti-influenza_Chain	5248	22-41		
anti-influenza_Chain	5249	22-41		94-113
anti-influenza_Chain	5250	22-41		94-113
anti-influenza_Chain	5251	22-41		94-113
anti-influenza_Chain	5252	22-41		94-113
anti-influenza_Chain	5253	22-41		94-113
anti-influenza_Chain	5254	22-41		94-113
anti-influenza_Chain	5255	22-41		94-113
anti-influenza_Chain	5256	22-41		94-113
anti-influenza_Chain	5257	22-41		94-113
anti-influenza_Chain	5258	22-41		
anti-influenza_Chain	5259	22-41		94-113
anti-influenza_Chain	5260	22-41		94-113
anti-influenza_Chain	5261	22-41		94-113
anti-influenza_Chain	5262	22-41		94-113
anti-influenza_Chain	5263	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5264	22-41	103-112	94-113
anti-influenza_Chain	5265	22-41		94-113
anti-influenza_Chain	5266	22-41		94-113
anti-influenza_Chain	5267	22-41	103-112	94-113
anti-influenza_Chain	5268	22-41	58-67	94-113
anti-influenza_Chain	5269	22-41		94-113
anti-influenza_Chain	5270	22-41	93-102	94-113
anti-influenza_Chain	5271	22-41		94-113
anti-influenza_Chain	5272	22-41	58-67	94-113
anti-influenza_Chain	5273	22-41	93-102	94-113
anti-influenza_Chain	5274	22-41		94-113
anti-influenza_Chain	5275	22-41	93-102	94-113
anti-influenza_Chain	5276	22-41	93-102	94-113
anti-influenza_Chain	5277	22-41	59-68	94-113
anti-influenza_Chain	5278	22-41	59-68	94-113
anti-influenza_Chain	5279	22-41	59-68	94-113
anti-influenza_Chain	5280	22-41	59-68	94-113
anti-influenza_Chain	5281	22-41	59-68	94-113
anti-influenza_Chain	5282	22-41	59-68	94-113
anti-influenza_Chain	5283	22-41	59-68	94-113
anti-influenza_Chain	5284	22-41	59-68	94-113
anti-influenza_Chain	5285	22-41	59-68	94-113
anti-influenza_Chain	5286	22-41		94-113
anti-influenza_Chain	5287	22-41	93-102	94-113
anti-influenza_Chain	5288	22-41	93-102	94-113
anti-influenza_Chain	5289	22-41	59-68	94-113
anti-influenza_Chain	5290	22-41	59-68	94-113
anti-influenza_Chain	5291	22-41	59-68	94-113
anti-influenza_Chain	5292	22-41	59-68	94-113
anti-influenza_Chain	5293	22-41	59-68	94-113
anti-influenza_Chain	5294	22-41	59-68	94-113
anti-influenza_Chain	5295	22-41	59-68	94-113
anti-influenza_Chain	5296	22-41	59-68	94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5297	22-41	59-68	94-113
anti-influenza_Chain	5298	22-41	51-60	94-113
anti-influenza_Chain	5299	22-41	51-60	94-113
anti-influenza_Chain	5300	22-41		94-113
anti-influenza_Chain	5301	22-41		94-113
anti-influenza_Chain	5302	22-41		94-113
anti-influenza_Chain	5303	22-41		94-113
anti-influenza_Chain	5304	22-41		
anti-influenza_Chain	5305	22-41	51-60	94-113
anti-influenza_Chain	5306	22-41	51-60	94-113
anti-influenza_Chain	5307	22-41		94-113
anti-influenza_Chain	5308	22-41		94-113
anti-influenza_Chain	5309	22-41		94-113
anti-influenza_Chain	5310	22-41		94-113
anti-influenza_Chain	5311	22-41		
anti-influenza_Chain	5312	22-41		94-113
anti-influenza_Chain	5313	22-41		
anti-influenza_Chain	5314	22-41		
anti-influenza_Chain	5315	22-41		115-134
anti-influenza_Chain	5316	22-41		115-134
anti-influenza_Chain	5317	22-41		113-132
anti-influenza_Chain	5318	22-41		
anti-influenza_Chain	5319	22-41		
anti-influenza_Chain	5320	22-41		113-132
anti-influenza_Chain	5321	22-41	445-454	
anti-influenza_Chain	5322	22-41	445-454	
anti-influenza_Chain	5323	22-41		
anti-influenza_Chain	5324	22-41		
anti-influenza_Chain	5325	22-41		
anti-influenza_Chain	5326	22-41		
anti-influenza_Chain	5327	22-41		
anti-influenza_Chain	5328	22-41		113-132
anti-influenza_Chain	5329	22-41		113-132

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5330	22-41		113-132
anti-influenza_Chain	5331	22-41		
anti-influenza_Chain	5332	22-41		
anti-influenza_Chain	5333	22-41		
anti-influenza_Chain	5334	22-41		
anti-influenza_Chain	5335	22-41		113-132
anti-influenza_Chain	5336	22-41		113-132
anti-influenza_Chain	5337	22-41		113-132
anti-influenza_Chain	5338	22-41		
anti-influenza_Chain	5339	22-41		
anti-influenza_Chain	5340	22-41	263-272	
anti-influenza_Chain	5341	22-41	263-272	
anti-influenza_Chain	5342	22-41		
anti-influenza_Chain	5343	22-41		
anti-influenza_Chain	5344	22-41	264-273	
anti-influenza_Chain	5345	22-41	264-273	
anti-influenza_Chain	5346	22-41	96-105	
anti-influenza_Chain	5347	22-41	96-105	
anti-influenza_Chain	5348	22-41	96-105	
anti-influenza_Chain	5349	22-41	96-105	
anti-influenza_Chain	5350	22-41	96-105	
anti-influenza_Chain	5351	22-41	96-105	
anti-influenza_Chain	5352	22-41	275-284	
anti-influenza_Chain	5353	22-41	275-284	
anti-influenza_Chain	5354	22-41	34-43	
anti-influenza_Chain	5355	22-41	34-43	
anti-influenza_Chain	5356	22-41		
anti-influenza_Chain	5357	22-41		
anti-influenza_Chain	5358	22-41	509-518	
anti-influenza_Chain	5359	22-41	509-518	
anti-influenza_Chain	5360	22-41	509-518	
anti-influenza_Chain	5361	22-41	509-518	
anti-influenza_Chain	5362	22-41	509-518	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5363	22-41	509-518	
anti-influenza_Chain	5364	22-41	509-518	
anti-influenza_Chain	5365	22-41	509-518	
anti-influenza_Chain	5366	22-41	513-522	
anti-influenza_Chain	5367	22-41	513-522	
anti-influenza_Chain	5368	22-41	513-522	
anti-influenza_Chain	5369	22-41	513-522	
anti-influenza_Chain	5370	22-41	232-241	
anti-influenza_Chain	5371	22-41	232-241	
anti-influenza_Chain	5372	22-41	209-218	
anti-influenza_Chain	5373	22-41		
anti-influenza_Chain	5374	22-41		
anti-influenza_Chain	5375	22-41	209-218	
anti-influenza_Chain	5376	22-41	517-526	
anti-influenza_Chain	5377	22-41	517-526	
anti-influenza_Chain	5378	22-41		
anti-influenza_Chain	5379	22-41		
anti-influenza_Chain	5380	22-41		
anti-influenza_Chain	5381	22-41	519-528	
anti-influenza_Chain	5382	22-41	519-528	
anti-influenza_Chain	5383	22-41		
anti-influenza_Chain	5384	22-41		
anti-influenza_Chain	5385	22-41		
anti-influenza_Chain	5386	22-41	519-528	
anti-influenza_Chain	5387	22-41	519-528	
anti-influenza_Chain	5388	22-41	164-173	
anti-influenza_Chain	5389	22-41		
anti-influenza_Chain	5390	22-41		
anti-influenza_Chain	5391	22-41	535-544	
anti-influenza_Chain	5392	22-41	164-173	
anti-influenza_Chain	5393	22-41		
anti-influenza_Chain	5394	22-41		
anti-influenza_Chain	5395	22-41	535-544	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5396	22-41		
anti-influenza_Chain	5397	22-41	14-23	
anti-influenza_Chain	5398	22-41		
anti-influenza_Chain	5399	22-41	14-23	
anti-influenza_Chain	5400	22-41	525-534	
anti-influenza_Chain	5401	22-41	525-534	
anti-influenza_Chain	5402	22-41	531-540	
anti-influenza_Chain	5403	22-41	531-540	
anti-influenza_Chain	5404	22-41	529-538	
anti-influenza_Chain	5405	22-41	529-538	
anti-influenza_Chain	5406	22-41	529-538	
anti-influenza_Chain	5407	22-41	151-160	
anti-influenza_Chain	5408	22-41	532-541	
anti-influenza_Chain	5409	22-41	532-541	
anti-influenza_Chain	5410	22-41	532-541	
anti-influenza_Chain	5411	22-41	532-541	
anti-influenza_Chain	5412	22-41	532-541	
anti-influenza_Chain	5413	22-41	532-541	
anti-influenza_Chain	5414	22-41	61-70	
anti-influenza_Chain	5415	22-41	61-70	
anti-influenza_Chain	5416	22-41	151-160	
anti-influenza_Chain	5417	22-41	529-538	
anti-influenza_Chain	5418	22-41	529-538	
anti-influenza_Chain	5419	22-41	529-538	
anti-influenza_Chain	5420	22-41	532-541	
anti-influenza_Chain	5421	22-41	532-541	
anti-influenza_Chain	5422	22-41	532-541	
anti-influenza_Chain	5423	22-41	532-541	
anti-influenza_Chain	5424	22-41	532-541	
anti-influenza_Chain	5425	22-41	532-541	
anti-influenza_Chain	5426	22-41	248-257	
anti-influenza_Chain	5427	22-41	248-257	
anti-influenza_Chain	5428	22-41	248-257	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5429	22-41	248-257	
anti-influenza_Chain	5430	22-41	248-257	
anti-influenza_Chain	5431	22-41	248-257	
anti-influenza_Chain	5432	22-41	248-257	
anti-influenza_Chain	5433	22-41	533-542	
anti-influenza_Chain	5434	22-41	527-536	
anti-influenza_Chain	5435	22-41	527-536	
anti-influenza_Chain	5436	22-41	533-542	
anti-influenza_Chain	5437	22-41	248-257	
anti-influenza_Chain	5438	22-41	527-536	
anti-influenza_Chain	5439	22-41	527-536	
anti-influenza_Chain	5440	22-41	248-257	
anti-influenza_Chain	5441	22-41	248-257	
anti-influenza_Chain	5442	22-41	248-257	
anti-influenza_Chain	5443	22-41	248-257	
anti-influenza_Chain	5444	22-41	248-257	
anti-influenza_Chain	5445	22-41	248-257	
anti-influenza_Chain	5446	22-41	529-538	
anti-influenza_Chain	5447	22-41	529-538	
anti-influenza_Chain	5448	22-41	534-543	
anti-influenza_Chain	5449	22-41	534-543	
anti-influenza_Chain	5450	22-41		
anti-influenza_Chain	5451	22-41	534-543	
anti-influenza_Chain	5452	22-41		
anti-influenza_Chain	5453	22-41	529-538	
anti-influenza_Chain	5454	22-41	529-538	
anti-influenza_Chain	5455	22-41	534-543	
anti-influenza_Chain	5456	22-41	534-543	
anti-influenza_Chain	5457	22-41	534-543	
anti-influenza_Chain	5458	22-41	529-538	
anti-influenza_Chain	5459	22-41	535-544	
anti-influenza_Chain	5460	22-41	529-538	
anti-influenza_Chain	5461	22-41	529-538	

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5462	22-41	535-544	
anti-influenza_Chain	5463	22-41	529-538	
anti-influenza_Chain	5464	22-41		
anti-influenza_Chain	5465	22-41		
anti-influenza_Chain	5466	22-41		
anti-influenza_Chain	5467	22-41	232-241	
anti-influenza_Chain	5468	22-41		
anti-influenza_Chain	5469	22-41	232-241	
anti-influenza_Chain	5470	22-41		
anti-influenza_Chain	5471	22-41	488-497	
anti-influenza_Chain	5472	22-41	190-199	
anti-influenza_Chain	5473	22-41		
anti-influenza_Chain	5474	22-41	488-497	
anti-influenza_Chain	5475	22-41	190-199	
anti-influenza_Chain	5476	22-41	510-519	
anti-influenza_Chain	5477	22-41	61-70	
anti-influenza_Chain	5478	22-41	510-519	
anti-influenza_Chain	5479	22-41	61-70	
anti-influenza_Chain	5480	22-41		
anti-influenza_Chain	5481	22-41		
anti-influenza_Chain	5482	22-41		
anti-influenza_Chain	5483	22-41		
anti-influenza_Chain	5484	22-41		
anti-influenza_Chain	5485	22-41		
anti-influenza_Chain	5486	22-41	513-522	
anti-influenza_Chain	5487	22-41		
anti-influenza_Chain	5488	22-41	190-199	
anti-influenza_Chain	5489	22-41	513-522	
anti-influenza_Chain	5490	22-41		
anti-influenza_Chain	5491	22-41	190-199	
anti-influenza_Chain	5492	22-41		
anti-influenza_Chain	5493	22-41		
anti-influenza_Chain	5494	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5495	22-41		
anti-influenza_Chain	5496	22-41	538-547	
anti-influenza_Chain	5497	22-41	538-547	
anti-influenza_Chain	5498	22-41		
anti-influenza_Chain	5499	22-41		
anti-influenza_Chain	5500	22-41		
anti-influenza_Chain	5501	22-41		
anti-influenza_Chain	5502	22-41		
anti-influenza_Chain	5503	22-41		
anti-influenza_Chain	5504	22-41		
anti-influenza_Chain	5505	22-41		
anti-influenza_Chain	5506	22-41		
anti-influenza_Chain	5507	22-41		
anti-influenza_Chain	5508	22-41		
anti-influenza_Chain	5509	22-41		
anti-influenza_Chain	5510	22-41		
anti-influenza_Chain	5511	22-41		
anti-influenza_Chain	5512	22-41		
anti-influenza_Chain	5513	22-41		
anti-influenza_Chain	5514	22-41		
anti-influenza_Chain	5515	22-41	565-574	
anti-influenza_Chain	5516	22-41		
anti-influenza_Chain	5517	22-41	565-574	
anti-influenza_Chain	5518	22-41	108-117	
anti-influenza_Chain	5519	22-41	108-117	
anti-influenza_Chain	5520	22-41	5-14	
anti-influenza_Chain	5521	22-41	5-14	
anti-influenza_Chain	5522	22-41	116-125	
anti-influenza_Chain	5523	22-41	116-125	
anti-influenza_Chain	5524	22-41	129-138	
anti-influenza_Chain	5525	22-41	129-138	
anti-influenza_Chain	5526	22-41		
anti-influenza_Chain	5527	22-41		

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-influenza_Chain	5528	22-41	178-187	
anti-influenza_Chain	5529	22-41	178-187	
anti-influenza_Chain	5530	22-41	114-123	
anti-influenza_Chain	5531	22-41	114-123	
anti-influenza_Chain	5532	22-41	184-193	
anti-influenza_Chain	5533	22-41	184-193	
anti-influenza_Chain	5534	22-41		
anti-influenza_Chain	5535	22-41		
anti-influenza_Chain	5536	22-41	554-563	
anti-influenza_Chain	5537	22-41	554-563	
anti-influenza_Chain	5538	22-41	206-215	
anti-influenza_Chain	5539	22-41	206-215	
anti-OX40_LightChain	5540	22-41	48-57	86-105
anti-OX40_LightChain	5541	22-41	48-57	86-105
anti-OX40_LightChain	5542	22-41	48-57	86-105
anti-OX40_LightChain	5543	22-41	48-57	86-105
anti-OX40_LightChain	5544	22-41	48-57	
anti-OX40_LightChain	5545	22-41	48-57	86-105
anti-OX40_LightChain	5546	22-41	48-57	86-105
anti-OX40_LightChain	5547	22-41	48-57	86-105
anti-OX40_LightChain	5548	22-41	48-57	86-105
anti-OX40_LightChain	5549	22-41	48-57	86-105
anti-OX40_LightChain	5550	22-41	48-57	86-105
anti-OX40_LightChain	5551	22-41	48-57	86-105
anti-OX40_LightChain	5552	22-41	48-57	86-105
anti-OX40_LightChain	5553	22-41	48-57	86-105
anti-OX40_HeavyChain	5554	22-41		94-113
anti-OX40_HeavyChain	5555	22-41		94-113
anti-OX40_HeavyChain	5556	22-41		94-113
anti-OX40_HeavyChain	5557	22-41		94-113
anti-OX40_HeavyChain	5558	22-41		94-113
anti-OX40_HeavyChain	5559	22-41		94-113
anti-OX40_HeavyChain	5560	22-41		94-113

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-OX40_HeavyChain	5561	22-41		94-113
anti-OX40_HeavyChain	5562	22-41		94-113
anti-OX40_HeavyChain	5563	22-41		94-113
anti-OX40_HeavyChain	5564	22-41		94-113
anti-OX40_HeavyChain	5565	22-41		94-113
anti-OX40_HeavyChain	5566	22-41		94-113
anti-OX40_HeavyChain	5567	22-41		94-113
anti-OX40_HeavyChain	5568	22-41		94-113
anti-OX40_HeavyChain	5569	22-41		94-113
anti-OX40_HeavyChain	5570	22-41		93-112
anti-OX40_HeavyChain	5571	22-41		93-112
anti-OX40_HeavyChain	5572	22-41		
anti-OX40_HeavyChain	5573	22-41		
anti-OX40_HeavyChain	5574	22-41		
anti-OX40_HeavyChain	5575	22-41		93-112
anti-OX40_HeavyChain	5576	22-41		93-112
anti-OX40_HeavyChain	5577	22-41		
anti-OX40_HeavyChain	5578	22-41		
anti-OX40_HeavyChain	5579	22-41		93-112
anti-OX40_HeavyChain	5580	22-41		93-112
anti-OX40_HeavyChain	5581	22-41		93-112
anti-OX40_HeavyChain	5582	22-41		93-112
anti-OX40_HeavyChain	5583	22-41		93-112
anti-OX40_HeavyChain	5584	22-41		93-112
anti-OX40_HeavyChain	5585	22-41		93-112
anti-OX40_HeavyChain	5586	22-41		
anti-OX40_HeavyChain	5587	22-41		93-112
anti-OX40_HeavyChain	5588	22-41		94-113
anti-OX40_LightChain	5589	22-41	69-78	107-126
anti-OX40_LightChain	5590	22-41	68-77	106-125
anti-OX40_LightChain	5591	22-41	68-77	106-125
anti-OX40_LightChain	5592	22-41	69-78	107-126
anti-OX40_LightChain	5593	22-41	70-79	108-127

Name	Protein SEQ ID NO	CDR1	CDR2	CDR3
anti-OX40_HeavyChain	5594	22-41		114-133
anti-OX40_HeavyChain	5595	22-41	72-81	114-133
anti-OX40_HeavyChain	5596	22-41	77-86	113-132
anti-OX40_HeavyChain	5597	22-41	72-81	114-133
anti-OX40_HeavyChain	5598	22-41		129-148
anti-OX40_LightChain	5599	22-41	48-57	86-105
anti-OX40_HeavyChain	5600	22-41		94-113

Accordingly, it is preferred that the at least one coding sequence encodes a complementarity determining region (CDR) of an antibody. Preferably, the CDR encoded by the at least one coding sequence comprises or consists of an amino acid sequence as described in Table 5 above.

It is also preferred that the CDR encoded by the at least one coding sequence comprises or consists of an amino acid sequence as described in Table 6 below (referred to as "protein SEQ ID NO"). Particularly preferably, the at least one coding sequence comprises or consists of a nucleic acid sequence (RNA sequence) as described in Table 6 below (referred to as "RNA SEQ ID NO").

Table 6: Overview over the SEQ ID NOs of the amino acid sequences of preferred exemplary CDRs and of the respective encoding RNA sequences.

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_VRC01_VRC02_NIH45-46_LightChain_CDR	5601	13243, 20885, 28527, 36169, 43811, 51453, 59095
anti-HIV_VRC01_HeavyChain_CDR	5602	13244, 20886, 28528, 36170, 43812, 51454, 59096
anti-HIV_3BNC60_LightChain_CDR	5603	13245, 20887, 28529, 36171, 43813, 51455, 59097
anti-HIV_3BNC60_HeavyChain_CDR	5604	13246, 20888, 28530, 36172, 43814, 51456, 59098
anti-HIV_5H/11-BMV-05_HeavyChain_CDR	5605	13247, 20889, 28531, 36173, 43815, 51457, 59099
anti-HIV_8ANC195_LightChain_CDR	5606	13248, 20890, 28532, 36174, 43816, 51458, 59100
anti-HIV_CH01_CH02_CH03_LightChain_CDR	5607	13249, 20891, 28533, 36175, 43817, 51459, 59101
anti-HIV_CH01_HeavyChain_CDR	5608	13250, 20892, 28534, 36176, 43818, 51460, 59102
anti-HIV_CH02_HeavyChain_CDR	5609	13251, 20893, 28535, 36177, 43819, 51461, 59103
anti-HIV_CH03_HeavyChain_CDR	5610	13252, 20894, 28536, 36178, 43820, 51462, 59104
anti-HIV_CH04_LightChain_CDR	5611	13253, 20895, 28537, 36179, 43821, 51463, 59105
anti-HIV_CH04_HeavyChain_CDR	5612	13254, 20896, 28538, 36180, 43822, 51464, 59106
anti-HIV_NIH45-46_HeavyChain_CDR	5613	13255, 20897, 28539, 36181, 43823, 51465, 59107
anti-HIV_PG16_HeavyChain_CDR	5614	13256, 20898, 28540, 36182, 43824, 51466, 59108
anti-HIV_PGT122_LightChain_CDR	5615	13257, 20899, 28541, 36183, 43825, 51467, 59109
anti-HIV_PGT122_HeavyChain_CDR	5616	13258, 20900, 28542, 36184, 43826, 51468, 59110
anti-HIV_PGT123_LightChain_CDR	5617	13259, 20901, 28543, 36185, 43827, 51469, 59111
anti-HIV_PGT123_HeavyChain_CDR	5618	13260, 20902, 28544, 36186, 43828, 51470, 59112
anti-HIV_PGT125_PGT128_LightChain_CDR	5619	13261, 20903, 28545, 36187, 43829, 51471, 59113
anti-HIV_PGT125_HeavyChain_CDR	5620	13262, 20904, 28546, 36188, 43830, 51472, 59114
anti-HIV_PGT126_PGT127_LightChain_CDR	5621	13263, 20905, 28547, 36189, 43831, 51473, 59115
anti-HIV_PGT126_HeavyChain_CDR	5622	13264, 20906, 28548, 36190, 43832, 51474, 59116
anti-HIV_PGT127_HeavyChain_CDR	5623	13265, 20907, 28549, 36191, 43833, 51475, 59117
anti-HIV_PGT128_HeavyChain_CDR	5624	13266, 20908, 28550, 36192, 43834, 51476, 59118
anti-HIV_PGT130_LightChain_CDR	5625	13267, 20909, 28551, 36193, 43835, 51477, 59119
anti-HIV_PGT130_HeavyChain_CDR	5626	13268, 20910, 28552, 36194, 43836, 51478, 59120
anti-HIV_PGT131_LightChain_CDR	5627	13269, 20911, 28553, 36195, 43837, 51479, 59121
anti-HIV_PGT131_HeavyChain_CDR	5628	13270, 20912, 28554, 36196, 43838, 51480, 59122
anti-HIV_PGT135_PGT136_PGT137_LightChain_CDR	5629	13271, 20913, 28555, 36197, 43839, 51481, 59123
anti-HIV_PGT135_HeavyChain_CDR	5630	13272, 20914, 28556, 36198, 43840, 51482, 59124
anti-HIV_PGT136_HeavyChain_CDR	5631	13273, 20915, 28557, 36199, 43841, 51483, 59125
anti-HIV_PGT137_HeavyChain_CDR	5632	13274, 20916, 28558, 36200, 43842, 51484, 59126

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_PGT141_PGT142_PGT143_PGT144_ LightChain_CDR	5633	13275, 20917, 28559, 36201, 43843, 51485, 59127
anti-HIV_PGT141_HeavyChain_CDR	5634	13276, 20918, 28560, 36202, 43844, 51486, 59128
anti-HIV_PGT144_HeavyChain_CDR	5635	13277, 20919, 28561, 36203, 43845, 51487, 59129
anti-HIV_PGT145_LightChain_CDR	5636	13278, 20920, 28562, 36204, 43846, 51488, 59130
anti-HIV_PGT145_HeavyChain_CDR	5637	13279, 20921, 28563, 36205, 43847, 51489, 59131
anti-HIV_VRC-CH30_VRC-CH31_VRC-CH32_VRC-CH33_VRC-CH34_LightChain_CDR	5638	13280, 20922, 28564, 36206, 43848, 51490, 59132
anti-HIV_VRC-CH30_VRC-CH31_VRC-CH32_VRC-CH34_HeavyChain_CDR	5639	13281, 20923, 28565, 36207, 43849, 51491, 59133
anti-HIV_VRC-CH33_HeavyChain_CDR	5640	13282, 20924, 28566, 36208, 43850, 51492, 59134
anti-HIV_VRC-PG04_LightChain_CDR	5641	13283, 20925, 28567, 36209, 43851, 51493, 59135
anti-HIV_VRC-PG04_HeavyChain_CDR	5642	13284, 20926, 28568, 36210, 43852, 51494, 59136
anti-HIV_VRC-PG04b_LightChain_CDR	5643	13285, 20927, 28569, 36211, 43853, 51495, 59137
anti-HIV_VRC-PG04b_HeavyChain_CDR	5644	13286, 20928, 28570, 36212, 43854, 51496, 59138
anti-HIV_VRC03_LightChain_CDR	5645	13287, 20929, 28571, 36213, 43855, 51497, 59139
anti-HIV_VRC03_HeavyChain_CDR	5646	13288, 20930, 28572, 36214, 43856, 51498, 59140
anti-HIV_ITJG_P-Chain	5647	13289, 20931, 28573, 36215, 43857, 51499, 59141
anti-HIV_2B1H_P-Chain	5648	13290, 20932, 28574, 36216, 43858, 51500, 59142
anti-HIV_2B1A_P-Chain	5649	13291, 20933, 28575, 36217, 43859, 51501, 59143
anti-HIV_2B0S_P-Chain	5650	13292, 20934, 28576, 36218, 43860, 51502, 59144
anti-HIV_3UJJ_P-Chain	5651	13293, 20935, 28577, 36219, 43861, 51503, 59145
anti-HIV_3UJI_P-Chain	5652	13294, 20936, 28578, 36220, 43862, 51504, 59146
anti-HIV_3MLZ_P-Chain	5653	13295, 20937, 28579, 36221, 43863, 51505, 59147
anti-HIV_3MLV_Q-Chain	5654	13296, 20938, 28580, 36222, 43864, 51506, 59148
anti-HIV_3MLU_P-Chain	5655	13297, 20939, 28581, 36223, 43865, 51507, 59149
anti-HIV_3MLR_P-Chain	5656	13298, 20940, 28582, 36224, 43866, 51508, 59150
anti-HIV_4XCF_P-Chain	5657	13299, 20941, 28583, 36225, 43867, 51509, 59151
anti-HIV_4XBE_P-Chain	5658	13300, 20942, 28584, 36226, 43868, 51510, 59152
anti-HIV_4XAW_P-Chain	5659	13301, 20943, 28585, 36227, 43869, 51511, 59153
anti-HIV_2QSC_P-Chain	5660	13302, 20944, 28586, 36228, 43870, 51512, 59154
anti-HIV_3MLS_S-Chain	5661	13303, 20945, 28587, 36229, 43871, 51513, 59155
anti-HIV_3G01_P-Chain	5662	13304, 20946, 28588, 36230, 43872, 51514, 59156

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_4M1D_Q-Chain	5663	13305, 20947, 28589, 36231, 43873, 51515, 59157
anti-HIV_3C2A_Q-Chain	5664	13306, 20948, 28590, 36232, 43874, 51516, 59158
anti-HIV_CDR	5665	13307, 20949, 28591, 36233, 43875, 51517, 59159
anti-HIV_CDR	5666	13308, 20950, 28592, 36234, 43876, 51518, 59160
anti-HIV_CDR	5667	13309, 20951, 28593, 36235, 43877, 51519, 59161
anti-HIV_CDR	5668	13310, 20952, 28594, 36236, 43878, 51520, 59162
anti-HIV_CDR	5669	13311, 20953, 28595, 36237, 43879, 51521, 59163
anti-HIV_CDR	5670	13312, 20954, 28596, 36238, 43880, 51522, 59164
anti-HIV_CDR	5671	13313, 20955, 28597, 36239, 43881, 51523, 59165
anti-HIV_CDR	5672	13314, 20956, 28598, 36240, 43882, 51524, 59166
anti-HIV_CDR	5673	13315, 20957, 28599, 36241, 43883, 51525, 59167
anti-HIV_CDR	5674	13316, 20958, 28600, 36242, 43884, 51526, 59168
anti-HIV_CDR	5675	13317, 20959, 28601, 36243, 43885, 51527, 59169
anti-HIV_CDR	5676	13318, 20960, 28602, 36244, 43886, 51528, 59170
anti-HIV_CDR	5677	13319, 20961, 28603, 36245, 43887, 51529, 59171
anti-HIV_CDR	5678	13320, 20962, 28604, 36246, 43888, 51530, 59172
anti-HIV_CDR	5679	13321, 20963, 28605, 36247, 43889, 51531, 59173
anti-HIV_CDR	5680	13322, 20964, 28606, 36248, 43890, 51532, 59174
anti-HIV_CDR	5681	13323, 20965, 28607, 36249, 43891, 51533, 59175
anti-HIV_CDR	5682	13324, 20966, 28608, 36250, 43892, 51534, 59176
anti-HIV_CDR	5683	13325, 20967, 28609, 36251, 43893, 51535, 59177
anti-HIV_CDR	5684	13326, 20968, 28610, 36252, 43894, 51536, 59178
anti-HIV_CDR	5685	13327, 20969, 28611, 36253, 43895, 51537, 59179
anti-HIV_CDR	5686	13328, 20970, 28612, 36254, 43896, 51538, 59180
anti-HIV_CDR	5687	13329, 20971, 28613, 36255, 43897, 51539, 59181
anti-HIV_CDR	5688	13330, 20972, 28614, 36256, 43898, 51540, 59182
anti-HIV_CDR	5689	13331, 20973, 28615, 36257, 43899, 51541, 59183
anti-HIV_CDR	5690	13332, 20974, 28616, 36258, 43900, 51542, 59184
anti-HIV_CDR	5691	13333, 20975, 28617, 36259, 43901, 51543, 59185
anti-HIV_CDR	5692	13334, 20976, 28618, 36260, 43902, 51544, 59186
anti-HIV_CDR	5693	13335, 20977, 28619, 36261, 43903, 51545, 59187
anti-HIV_CDR	5694	13336, 20978, 28620, 36262, 43904, 51546, 59188
anti-HIV_CDR	5695	13337, 20979, 28621, 36263, 43905, 51547, 59189

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	5696	13338, 20980, 28622, 36264, 43906, 51548, 59190
anti-HIV_CDR	5697	13339, 20981, 28623, 36265, 43907, 51549, 59191
anti-HIV_CDR	5698	13340, 20982, 28624, 36266, 43908, 51550, 59192
anti-HIV_CDR	5699	13341, 20983, 28625, 36267, 43909, 51551, 59193
anti-HIV_CDR	5700	13342, 20984, 28626, 36268, 43910, 51552, 59194
anti-HIV_CDR	5701	13343, 20985, 28627, 36269, 43911, 51553, 59195
anti-HIV_CDR	5702	13344, 20986, 28628, 36270, 43912, 51554, 59196
anti-HIV_CDR	5703	13345, 20987, 28629, 36271, 43913, 51555, 59197
anti-HIV_CDR	5704	13346, 20988, 28630, 36272, 43914, 51556, 59198
anti-HIV_CDR	5705	13347, 20989, 28631, 36273, 43915, 51557, 59199
anti-HIV_CDR	5706	13348, 20990, 28632, 36274, 43916, 51558, 59200
anti-HIV_CDR	5707	13349, 20991, 28633, 36275, 43917, 51559, 59201
anti-HIV_CDR	5708	13350, 20992, 28634, 36276, 43918, 51560, 59202
anti-HIV_CDR	5709	13351, 20993, 28635, 36277, 43919, 51561, 59203
anti-HIV_CDR	5710	13352, 20994, 28636, 36278, 43920, 51562, 59204
anti-HIV_CDR	5711	13353, 20995, 28637, 36279, 43921, 51563, 59205
anti-HIV_CDR	5712	13354, 20996, 28638, 36280, 43922, 51564, 59206
anti-HIV_CDR	5713	13355, 20997, 28639, 36281, 43923, 51565, 59207
anti-HIV_CDR	5714	13356, 20998, 28640, 36282, 43924, 51566, 59208
anti-HIV_CDR	5715	13357, 20999, 28641, 36283, 43925, 51567, 59209
anti-HIV_CDR	5716	13358, 21000, 28642, 36284, 43926, 51568, 59210
anti-HIV_CDR	5717	13359, 21001, 28643, 36285, 43927, 51569, 59211
anti-HIV_CDR	5718	13360, 21002, 28644, 36286, 43928, 51570, 59212
anti-HIV_CDR	5719	13361, 21003, 28645, 36287, 43929, 51571, 59213
anti-HIV_CDR	5720	13362, 21004, 28646, 36288, 43930, 51572, 59214
anti-HIV_CDR	5721	13363, 21005, 28647, 36289, 43931, 51573, 59215
anti-HIV_CDR	5722	13364, 21006, 28648, 36290, 43932, 51574, 59216
anti-HIV_CDR	5723	13365, 21007, 28649, 36291, 43933, 51575, 59217
anti-HIV_CDR	5724	13366, 21008, 28650, 36292, 43934, 51576, 59218
anti-HIV_CDR	5725	13367, 21009, 28651, 36293, 43935, 51577, 59219
anti-HIV_CDR	5726	13368, 21010, 28652, 36294, 43936, 51578, 59220
anti-HIV_CDR	5727	13369, 21011, 28653, 36295, 43937, 51579, 59221
anti-HIV_CDR	5728	13370, 21012, 28654, 36296, 43938, 51580, 59222

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	5729	13371, 21013, 28655, 36297, 43939, 51581, 59223
anti-HIV_CDR	5730	13372, 21014, 28656, 36298, 43940, 51582, 59224
anti-HIV_CDR	5731	13373, 21015, 28657, 36299, 43941, 51583, 59225
anti-HIV_CDR	5732	13374, 21016, 28658, 36300, 43942, 51584, 59226
anti-HIV_CDR	5733	13375, 21017, 28659, 36301, 43943, 51585, 59227
anti-HIV_CDR	5734	13376, 21018, 28660, 36302, 43944, 51586, 59228
anti-HIV_CDR	5735	13377, 21019, 28661, 36303, 43945, 51587, 59229
anti-HIV_CDR	5736	13378, 21020, 28662, 36304, 43946, 51588, 59230
anti-HIV_CDR	5737	13379, 21021, 28663, 36305, 43947, 51589, 59231
anti-HIV_CDR	5738	13380, 21022, 28664, 36306, 43948, 51590, 59232
anti-HIV_CDR	5739	13381, 21023, 28665, 36307, 43949, 51591, 59233
anti-HIV_CDR	5740	13382, 21024, 28666, 36308, 43950, 51592, 59234
anti-HIV_CDR	5741	13383, 21025, 28667, 36309, 43951, 51593, 59235
anti-HIV_CDR	5742	13384, 21026, 28668, 36310, 43952, 51594, 59236
anti-HIV_CDR	5743	13385, 21027, 28669, 36311, 43953, 51595, 59237
anti-HIV_CDR	5744	13386, 21028, 28670, 36312, 43954, 51596, 59238
anti-HIV_CDR	5745	13387, 21029, 28671, 36313, 43955, 51597, 59239
anti-HIV_CDR	5746	13388, 21030, 28672, 36314, 43956, 51598, 59240
anti-HIV_CDR	5747	13389, 21031, 28673, 36315, 43957, 51599, 59241
anti-HIV_CDR	5748	13390, 21032, 28674, 36316, 43958, 51600, 59242
anti-HIV_CDR	5749	13391, 21033, 28675, 36317, 43959, 51601, 59243
anti-HIV_CDR	5750	13392, 21034, 28676, 36318, 43960, 51602, 59244
anti-HIV_CDR	5751	13393, 21035, 28677, 36319, 43961, 51603, 59245
anti-HIV_CDR	5752	13394, 21036, 28678, 36320, 43962, 51604, 59246
anti-HIV_CDR	5753	13395, 21037, 28679, 36321, 43963, 51605, 59247
anti-HIV_CDR	5754	13396, 21038, 28680, 36322, 43964, 51606, 59248
anti-HIV_CDR	5755	13397, 21039, 28681, 36323, 43965, 51607, 59249
anti-HIV_CDR	5756	13398, 21040, 28682, 36324, 43966, 51608, 59250
anti-HIV_CDR	5757	13399, 21041, 28683, 36325, 43967, 51609, 59251
anti-HIV_CDR	5758	13400, 21042, 28684, 36326, 43968, 51610, 59252
anti-HIV_CDR	5759	13401, 21043, 28685, 36327, 43969, 51611, 59253
anti-HIV_CDR	5760	13402, 21044, 28686, 36328, 43970, 51612, 59254
anti-HIV_CDR	5761	13403, 21045, 28687, 36329, 43971, 51613, 59255

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	5762	13404, 21046, 28688, 36330, 43972, 51614, 59256
anti-HIV_CDR	5763	13405, 21047, 28689, 36331, 43973, 51615, 59257
anti-HIV_CDR	5764	13406, 21048, 28690, 36332, 43974, 51616, 59258
anti-HIV_CDR	5765	13407, 21049, 28691, 36333, 43975, 51617, 59259
anti-HIV_CDR	5766	13408, 21050, 28692, 36334, 43976, 51618, 59260
anti-HIV_CDR	5767	13409, 21051, 28693, 36335, 43977, 51619, 59261
anti-HIV_CDR	5768	13410, 21052, 28694, 36336, 43978, 51620, 59262
anti-HIV_CDR	5769	13411, 21053, 28695, 36337, 43979, 51621, 59263
anti-HIV_CDR	5770	13412, 21054, 28696, 36338, 43980, 51622, 59264
anti-HIV_CDR	5771	13413, 21055, 28697, 36339, 43981, 51623, 59265
anti-HIV_CDR	5772	13414, 21056, 28698, 36340, 43982, 51624, 59266
anti-HIV_CDR	5773	13415, 21057, 28699, 36341, 43983, 51625, 59267
anti-HIV_CDR	5774	13416, 21058, 28700, 36342, 43984, 51626, 59268
anti-HIV_CDR	5775	13417, 21059, 28701, 36343, 43985, 51627, 59269
anti-HIV_CDR	5776	13418, 21060, 28702, 36344, 43986, 51628, 59270
anti-HIV_CDR	5777	13419, 21061, 28703, 36345, 43987, 51629, 59271
anti-HIV_CDR	5778	13420, 21062, 28704, 36346, 43988, 51630, 59272
anti-HIV_CDR	5779	13421, 21063, 28705, 36347, 43989, 51631, 59273
anti-HIV_CDR	5780	13422, 21064, 28706, 36348, 43990, 51632, 59274
anti-HIV_CDR	5781	13423, 21065, 28707, 36349, 43991, 51633, 59275
anti-HIV_CDR	5782	13424, 21066, 28708, 36350, 43992, 51634, 59276
anti-HIV_CDR	5783	13425, 21067, 28709, 36351, 43993, 51635, 59277
anti-HIV_CDR	5784	13426, 21068, 28710, 36352, 43994, 51636, 59278
anti-HIV_CDR	5785	13427, 21069, 28711, 36353, 43995, 51637, 59279
anti-HIV_CDR	5786	13428, 21070, 28712, 36354, 43996, 51638, 59280
anti-HIV_CDR	5787	13429, 21071, 28713, 36355, 43997, 51639, 59281
anti-HIV_CDR	5788	13430, 21072, 28714, 36356, 43998, 51640, 59282
anti-HIV_CDR	5789	13431, 21073, 28715, 36357, 43999, 51641, 59283
anti-HIV_CDR	5790	13432, 21074, 28716, 36358, 44000, 51642, 59284
anti-HIV_CDR	5791	13433, 21075, 28717, 36359, 44001, 51643, 59285
anti-HIV_CDR	5792	13434, 21076, 28718, 36360, 44002, 51644, 59286
anti-HIV_CDR	5793	13435, 21077, 28719, 36361, 44003, 51645, 59287
anti-HIV_CDR	5794	13436, 21078, 28720, 36362, 44004, 51646, 59288

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	5795	13437, 21079, 28721, 36363, 44005, 51647, 59289
anti-HIV_CDR	5796	13438, 21080, 28722, 36364, 44006, 51648, 59290
anti-HIV_CDR	5797	13439, 21081, 28723, 36365, 44007, 51649, 59291
anti-HIV_CDR	5798	13440, 21082, 28724, 36366, 44008, 51650, 59292
anti-HIV_CDR	5799	13441, 21083, 28725, 36367, 44009, 51651, 59293
anti-HIV_CDR	5800	13442, 21084, 28726, 36368, 44010, 51652, 59294
anti-HIV_CDR	5801	13443, 21085, 28727, 36369, 44011, 51653, 59295
anti-HIV_CDR	5802	13444, 21086, 28728, 36370, 44012, 51654, 59296
anti-HIV_CDR	5803	13445, 21087, 28729, 36371, 44013, 51655, 59297
anti-HIV_CDR	5804	13446, 21088, 28730, 36372, 44014, 51656, 59298
anti-HIV_CDR	5805	13447, 21089, 28731, 36373, 44015, 51657, 59299
anti-HIV_CDR	5806	13448, 21090, 28732, 36374, 44016, 51658, 59300
anti-HIV_CDR	5807	13449, 21091, 28733, 36375, 44017, 51659, 59301
anti-HIV_CDR	5808	13450, 21092, 28734, 36376, 44018, 51660, 59302
anti-HIV_CDR	5809	13451, 21093, 28735, 36377, 44019, 51661, 59303
anti-HIV_CDR	5810	13452, 21094, 28736, 36378, 44020, 51662, 59304
anti-HIV_CDR	5811	13453, 21095, 28737, 36379, 44021, 51663, 59305
anti-HIV_CDR	5812	13454, 21096, 28738, 36380, 44022, 51664, 59306
anti-HIV_CDR	5813	13455, 21097, 28739, 36381, 44023, 51665, 59307
anti-HIV_CDR	5814	13456, 21098, 28740, 36382, 44024, 51666, 59308
anti-HIV_CDR	5815	13457, 21099, 28741, 36383, 44025, 51667, 59309
anti-HIV_CDR	5816	13458, 21100, 28742, 36384, 44026, 51668, 59310
anti-HIV_CDR	5817	13459, 21101, 28743, 36385, 44027, 51669, 59311
anti-HIV_CDR	5818	13460, 21102, 28744, 36386, 44028, 51670, 59312
anti-HIV_CDR	5819	13461, 21103, 28745, 36387, 44029, 51671, 59313
anti-HIV_CDR	5820	13462, 21104, 28746, 36388, 44030, 51672, 59314
anti-HIV_CDR	5821	13463, 21105, 28747, 36389, 44031, 51673, 59315
anti-HIV_CDR	5822	13464, 21106, 28748, 36390, 44032, 51674, 59316
anti-HIV_CDR	5823	13465, 21107, 28749, 36391, 44033, 51675, 59317
anti-HIV_CDR	5824	13466, 21108, 28750, 36392, 44034, 51676, 59318
anti-HIV_CDR	5825	13467, 21109, 28751, 36393, 44035, 51677, 59319
anti-HIV_CDR	5826	13468, 21110, 28752, 36394, 44036, 51678, 59320
anti-HIV_CDR	5827	13469, 21111, 28753, 36395, 44037, 51679, 59321

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	5828	13470, 21112, 28754, 36396, 44038, 51680, 59322
anti-HIV_CDR	5829	13471, 21113, 28755, 36397, 44039, 51681, 59323
anti-HIV_CDR	5830	13472, 21114, 28756, 36398, 44040, 51682, 59324
anti-HIV_CDR	5831	13473, 21115, 28757, 36399, 44041, 51683, 59325
anti-HIV_CDR	5832	13474, 21116, 28758, 36400, 44042, 51684, 59326
anti-HIV_CDR	5833	13475, 21117, 28759, 36401, 44043, 51685, 59327
anti-HIV_CDR	5834	13476, 21118, 28760, 36402, 44044, 51686, 59328
anti-HIV_CDR	5835	13477, 21119, 28761, 36403, 44045, 51687, 59329
anti-HIV_CDR	5836	13478, 21120, 28762, 36404, 44046, 51688, 59330
anti-HIV_CDR	5837	13479, 21121, 28763, 36405, 44047, 51689, 59331
anti-HIV_CDR	5838	13480, 21122, 28764, 36406, 44048, 51690, 59332
anti-HIV_CDR	5839	13481, 21123, 28765, 36407, 44049, 51691, 59333
anti-HIV_CDR	5840	13482, 21124, 28766, 36408, 44050, 51692, 59334
anti-HIV_CDR	5841	13483, 21125, 28767, 36409, 44051, 51693, 59335
anti-HIV_CDR	5842	13484, 21126, 28768, 36410, 44052, 51694, 59336
anti-HIV_CDR	5843	13485, 21127, 28769, 36411, 44053, 51695, 59337
anti-HIV_CDR	5844	13486, 21128, 28770, 36412, 44054, 51696, 59338
anti-HIV_CDR	5845	13487, 21129, 28771, 36413, 44055, 51697, 59339
anti-HIV_CDR	5846	13488, 21130, 28772, 36414, 44056, 51698, 59340
anti-HIV_CDR	5847	13489, 21131, 28773, 36415, 44057, 51699, 59341
anti-HIV_CDR	5848	13490, 21132, 28774, 36416, 44058, 51700, 59342
anti-HIV_CDR	5849	13491, 21133, 28775, 36417, 44059, 51701, 59343
anti-HIV_CDR	5850	13492, 21134, 28776, 36418, 44060, 51702, 59344
anti-HIV_CDR	5851	13493, 21135, 28777, 36419, 44061, 51703, 59345
anti-HIV_CDR	5852	13494, 21136, 28778, 36420, 44062, 51704, 59346
anti-HIV_CDR	5853	13495, 21137, 28779, 36421, 44063, 51705, 59347
anti-HIV_CDR	5854	13496, 21138, 28780, 36422, 44064, 51706, 59348
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anti-HIV_CDR	5858	13500, 21142, 28784, 36426, 44068, 51710, 59352
anti-HIV_CDR	5859	13501, 21143, 28785, 36427, 44069, 51711, 59353
anti-HIV_CDR	5860	13502, 21144, 28786, 36428, 44070, 51712, 59354

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-HIV_CDR	5863	13505, 21147, 28789, 36431, 44073, 51715, 59357
anti-HIV_CDR	5864	13506, 21148, 28790, 36432, 44074, 51716, 59358
anti-HIV_CDR	5865	13507, 21149, 28791, 36433, 44075, 51717, 59359
anti-HIV_CDR	5866	13508, 21150, 28792, 36434, 44076, 51718, 59360
anti-HIV_CDR	5867	13509, 21151, 28793, 36435, 44077, 51719, 59361
anti-HIV_CDR	5868	13510, 21152, 28794, 36436, 44078, 51720, 59362
anti-HIV_CDR	5869	13511, 21153, 28795, 36437, 44079, 51721, 59363
anti-HIV_CDR	5870	13512, 21154, 28796, 36438, 44080, 51722, 59364
anti-HIV_CDR	5871	13513, 21155, 28797, 36439, 44081, 51723, 59365
anti-HIV_CDR	5872	13514, 21156, 28798, 36440, 44082, 51724, 59366
anti-HIV_CDR	5873	13515, 21157, 28799, 36441, 44083, 51725, 59367
anti-HIV_CDR	5874	13516, 21158, 28800, 36442, 44084, 51726, 59368
anti-HIV_CDR	5875	13517, 21159, 28801, 36443, 44085, 51727, 59369
anti-HIV_CDR	5876	13518, 21160, 28802, 36444, 44086, 51728, 59370
anti-HIV_CDR	5877	13519, 21161, 28803, 36445, 44087, 51729, 59371
anti-HIV_CDR	5878	13520, 21162, 28804, 36446, 44088, 51730, 59372
anti-HIV_CDR	5879	13521, 21163, 28805, 36447, 44089, 51731, 59373
anti-HIV_CDR	5880	13522, 21164, 28806, 36448, 44090, 51732, 59374
anti-HIV_CDR	5881	13523, 21165, 28807, 36449, 44091, 51733, 59375
anti-HIV_CDR	5882	13524, 21166, 28808, 36450, 44092, 51734, 59376
anti-HIV_CDR	5883	13525, 21167, 28809, 36451, 44093, 51735, 59377
anti-HIV_CDR	5884	13526, 21168, 28810, 36452, 44094, 51736, 59378
anti-HIV_CDR	5885	13527, 21169, 28811, 36453, 44095, 51737, 59379
anti-HIV_CDR	5886	13528, 21170, 28812, 36454, 44096, 51738, 59380
anti-HIV_CDR	5887	13529, 21171, 28813, 36455, 44097, 51739, 59381
anti-HIV_CDR	5888	13530, 21172, 28814, 36456, 44098, 51740, 59382
anti-HIV_CDR	5889	13531, 21173, 28815, 36457, 44099, 51741, 59383
anti-HIV_CDR	5890	13532, 21174, 28816, 36458, 44100, 51742, 59384
anti-HIV_CDR	5891	13533, 21175, 28817, 36459, 44101, 51743, 59385
anti-HIV_CDR	5892	13534, 21176, 28818, 36460, 44102, 51744, 59386
anti-HIV_CDR	5893	13535, 21177, 28819, 36461, 44103, 51745, 59387

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-HIV_CDR	5895	13537, 21179, 28821, 36463, 44105, 51747, 59389
anti-HIV_CDR	5896	13538, 21180, 28822, 36464, 44106, 51748, 59390
anti-HIV_CDR	5897	13539, 21181, 28823, 36465, 44107, 51749, 59391
anti-HIV_CDR	5898	13540, 21182, 28824, 36466, 44108, 51750, 59392
anti-HIV_CDR	5899	13541, 21183, 28825, 36467, 44109, 51751, 59393
anti-HIV_CDR	5900	13542, 21184, 28826, 36468, 44110, 51752, 59394
anti-HIV_CDR	5901	13543, 21185, 28827, 36469, 44111, 51753, 59395
anti-HIV_CDR	5902	13544, 21186, 28828, 36470, 44112, 51754, 59396
anti-HIV_CDR	5903	13545, 21187, 28829, 36471, 44113, 51755, 59397
anti-HIV_CDR	5904	13546, 21188, 28830, 36472, 44114, 51756, 59398
anti-HIV_CDR	5905	13547, 21189, 28831, 36473, 44115, 51757, 59399
anti-HIV_CDR	5906	13548, 21190, 28832, 36474, 44116, 51758, 59400
anti-HIV_CDR	5907	13549, 21191, 28833, 36475, 44117, 51759, 59401
anti-HIV_CDR	5908	13550, 21192, 28834, 36476, 44118, 51760, 59402
anti-HIV_CDR	5909	13551, 21193, 28835, 36477, 44119, 51761, 59403
anti-HIV_CDR	5910	13552, 21194, 28836, 36478, 44120, 51762, 59404
anti-HIV_CDR	5911	13553, 21195, 28837, 36479, 44121, 51763, 59405
anti-HIV_CDR	5912	13554, 21196, 28838, 36480, 44122, 51764, 59406
anti-HIV_CDR	5913	13555, 21197, 28839, 36481, 44123, 51765, 59407
anti-HIV_CDR	5914	13556, 21198, 28840, 36482, 44124, 51766, 59408
anti-HIV_CDR	5915	13557, 21199, 28841, 36483, 44125, 51767, 59409
anti-HIV_CDR	5916	13558, 21200, 28842, 36484, 44126, 51768, 59410
anti-HIV_CDR	5917	13559, 21201, 28843, 36485, 44127, 51769, 59411
anti-HIV_CDR	5918	13560, 21202, 28844, 36486, 44128, 51770, 59412
anti-HIV_CDR	5919	13561, 21203, 28845, 36487, 44129, 51771, 59413
anti-HIV_CDR	5920	13562, 21204, 28846, 36488, 44130, 51772, 59414
anti-HIV_CDR	5921	13563, 21205, 28847, 36489, 44131, 51773, 59415
anti-HIV_CDR	5922	13564, 21206, 28848, 36490, 44132, 51774, 59416
anti-HIV_CDR	5923	13565, 21207, 28849, 36491, 44133, 51775, 59417
anti-HIV_CDR	5924	13566, 21208, 28850, 36492, 44134, 51776, 59418
anti-HIV_CDR	5925	13567, 21209, 28851, 36493, 44135, 51777, 59419
anti-HIV_CDR	5926	13568, 21210, 28852, 36494, 44136, 51778, 59420

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	5927	13569, 21211, 28853, 36495, 44137, 51779, 59421
anti-HIV_CDR	5928	13570, 21212, 28854, 36496, 44138, 51780, 59422
anti-HIV_CDR	5929	13571, 21213, 28855, 36497, 44139, 51781, 59423
anti-HIV_CDR	5930	13572, 21214, 28856, 36498, 44140, 51782, 59424
anti-HIV_CDR	5931	13573, 21215, 28857, 36499, 44141, 51783, 59425
anti-HIV_CDR	5932	13574, 21216, 28858, 36500, 44142, 51784, 59426
anti-HIV_CDR	5933	13575, 21217, 28859, 36501, 44143, 51785, 59427
anti-HIV_CDR	5934	13576, 21218, 28860, 36502, 44144, 51786, 59428
anti-HIV_CDR	5935	13577, 21219, 28861, 36503, 44145, 51787, 59429
anti-HIV_CDR	5936	13578, 21220, 28862, 36504, 44146, 51788, 59430
anti-HIV_CDR	5937	13579, 21221, 28863, 36505, 44147, 51789, 59431
anti-HIV_CDR	5938	13580, 21222, 28864, 36506, 44148, 51790, 59432
anti-HIV_CDR	5939	13581, 21223, 28865, 36507, 44149, 51791, 59433
anti-HIV_CDR	5940	13582, 21224, 28866, 36508, 44150, 51792, 59434
anti-HIV_CDR	5941	13583, 21225, 28867, 36509, 44151, 51793, 59435
anti-HIV_CDR	5942	13584, 21226, 28868, 36510, 44152, 51794, 59436
anti-HIV_CDR	5943	13585, 21227, 28869, 36511, 44153, 51795, 59437
anti-HIV_CDR	5944	13586, 21228, 28870, 36512, 44154, 51796, 59438
anti-HIV_CDR	5945	13587, 21229, 28871, 36513, 44155, 51797, 59439
anti-HIV_CDR	5946	13588, 21230, 28872, 36514, 44156, 51798, 59440
anti-HIV_CDR	5947	13589, 21231, 28873, 36515, 44157, 51799, 59441
anti-HIV_CDR	5948	13590, 21232, 28874, 36516, 44158, 51800, 59442
anti-HIV_CDR	5949	13591, 21233, 28875, 36517, 44159, 51801, 59443
anti-HIV_CDR	5950	13592, 21234, 28876, 36518, 44160, 51802, 59444
anti-HIV_CDR	5951	13593, 21235, 28877, 36519, 44161, 51803, 59445
anti-HIV_CDR	5952	13594, 21236, 28878, 36520, 44162, 51804, 59446
anti-HIV_CDR	5953	13595, 21237, 28879, 36521, 44163, 51805, 59447
anti-HIV_CDR	5954	13596, 21238, 28880, 36522, 44164, 51806, 59448
anti-HIV_CDR	5955	13597, 21239, 28881, 36523, 44165, 51807, 59449
anti-HIV_CDR	5956	13598, 21240, 28882, 36524, 44166, 51808, 59450
anti-HIV_CDR	5957	13599, 21241, 28883, 36525, 44167, 51809, 59451
anti-HIV_CDR	5958	13600, 21242, 28884, 36526, 44168, 51810, 59452
anti-HIV_CDR	5959	13601, 21243, 28885, 36527, 44169, 51811, 59453

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	5960	13602, 21244, 28886, 36528, 44170, 51812, 59454
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anti-HIV_CDR	5962	13604, 21246, 28888, 36530, 44172, 51814, 59456
anti-HIV_CDR	5963	13605, 21247, 28889, 36531, 44173, 51815, 59457
anti-HIV_CDR	5964	13606, 21248, 28890, 36532, 44174, 51816, 59458
anti-HIV_CDR	5965	13607, 21249, 28891, 36533, 44175, 51817, 59459
anti-HIV_CDR	5966	13608, 21250, 28892, 36534, 44176, 51818, 59460
anti-HIV_CDR	5967	13609, 21251, 28893, 36535, 44177, 51819, 59461
anti-HIV_CDR	5968	13610, 21252, 28894, 36536, 44178, 51820, 59462
anti-HIV_CDR	5969	13611, 21253, 28895, 36537, 44179, 51821, 59463
anti-HIV_CDR	5970	13612, 21254, 28896, 36538, 44180, 51822, 59464
anti-HIV_CDR	5971	13613, 21255, 28897, 36539, 44181, 51823, 59465
anti-HIV_CDR	5972	13614, 21256, 28898, 36540, 44182, 51824, 59466
anti-HIV_CDR	5973	13615, 21257, 28899, 36541, 44183, 51825, 59467
anti-HIV_CDR	5974	13616, 21258, 28900, 36542, 44184, 51826, 59468
anti-HIV_CDR	5975	13617, 21259, 28901, 36543, 44185, 51827, 59469
anti-HIV_CDR	5976	13618, 21260, 28902, 36544, 44186, 51828, 59470
anti-HIV_CDR	5977	13619, 21261, 28903, 36545, 44187, 51829, 59471
anti-HIV_CDR	5978	13620, 21262, 28904, 36546, 44188, 51830, 59472
anti-HIV_CDR	5979	13621, 21263, 28905, 36547, 44189, 51831, 59473
anti-HIV_CDR	5980	13622, 21264, 28906, 36548, 44190, 51832, 59474
anti-HIV_CDR	5981	13623, 21265, 28907, 36549, 44191, 51833, 59475
anti-HIV_CDR	5982	13624, 21266, 28908, 36550, 44192, 51834, 59476
anti-HIV_CDR	5983	13625, 21267, 28909, 36551, 44193, 51835, 59477
anti-HIV_CDR	5984	13626, 21268, 28910, 36552, 44194, 51836, 59478
anti-HIV_CDR	5985	13627, 21269, 28911, 36553, 44195, 51837, 59479
anti-HIV_CDR	5986	13628, 21270, 28912, 36554, 44196, 51838, 59480
anti-HIV_CDR	5987	13629, 21271, 28913, 36555, 44197, 51839, 59481
anti-HIV_CDR	5988	13630, 21272, 28914, 36556, 44198, 51840, 59482
anti-HIV_CDR	5989	13631, 21273, 28915, 36557, 44199, 51841, 59483
anti-HIV_CDR	5990	13632, 21274, 28916, 36558, 44200, 51842, 59484
anti-HIV_CDR	5991	13633, 21275, 28917, 36559, 44201, 51843, 59485
anti-HIV_CDR	5992	13634, 21276, 28918, 36560, 44202, 51844, 59486

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	5993	13635, 21277, 28919, 36561, 44203, 51845, 59487
anti-HIV_CDR	5994	13636, 21278, 28920, 36562, 44204, 51846, 59488
anti-HIV_CDR	5995	13637, 21279, 28921, 36563, 44205, 51847, 59489
anti-HIV_CDR	5996	13638, 21280, 28922, 36564, 44206, 51848, 59490
anti-HIV_CDR	5997	13639, 21281, 28923, 36565, 44207, 51849, 59491
anti-HIV_CDR	5998	13640, 21282, 28924, 36566, 44208, 51850, 59492
anti-HIV_CDR	5999	13641, 21283, 28925, 36567, 44209, 51851, 59493
anti-HIV_CDR	6000	13642, 21284, 28926, 36568, 44210, 51852, 59494
anti-HIV_CDR	6001	13643, 21285, 28927, 36569, 44211, 51853, 59495
anti-HIV_CDR	6002	13644, 21286, 28928, 36570, 44212, 51854, 59496
anti-HIV_CDR	6003	13645, 21287, 28929, 36571, 44213, 51855, 59497
anti-HIV_CDR	6004	13646, 21288, 28930, 36572, 44214, 51856, 59498
anti-HIV_CDR	6005	13647, 21289, 28931, 36573, 44215, 51857, 59499
anti-HIV_CDR	6006	13648, 21290, 28932, 36574, 44216, 51858, 59500
anti-HIV_CDR	6007	13649, 21291, 28933, 36575, 44217, 51859, 59501
anti-HIV_CDR	6008	13650, 21292, 28934, 36576, 44218, 51860, 59502
anti-HIV_CDR	6009	13651, 21293, 28935, 36577, 44219, 51861, 59503
anti-HIV_CDR	6010	13652, 21294, 28936, 36578, 44220, 51862, 59504
anti-HIV_CDR	6011	13653, 21295, 28937, 36579, 44221, 51863, 59505
anti-HIV_CDR	6012	13654, 21296, 28938, 36580, 44222, 51864, 59506
anti-HIV_CDR	6013	13655, 21297, 28939, 36581, 44223, 51865, 59507
anti-HIV_CDR	6014	13656, 21298, 28940, 36582, 44224, 51866, 59508
anti-HIV_CDR	6015	13657, 21299, 28941, 36583, 44225, 51867, 59509
anti-HIV_CDR	6016	13658, 21300, 28942, 36584, 44226, 51868, 59510
anti-HIV_CDR	6017	13659, 21301, 28943, 36585, 44227, 51869, 59511
anti-HIV_CDR	6018	13660, 21302, 28944, 36586, 44228, 51870, 59512
anti-HIV_CDR	6019	13661, 21303, 28945, 36587, 44229, 51871, 59513
anti-HIV_CDR	6020	13662, 21304, 28946, 36588, 44230, 51872, 59514
anti-HIV_CDR	6021	13663, 21305, 28947, 36589, 44231, 51873, 59515
anti-HIV_CDR	6022	13664, 21306, 28948, 36590, 44232, 51874, 59516
anti-HIV_CDR	6023	13665, 21307, 28949, 36591, 44233, 51875, 59517
anti-HIV_CDR	6024	13666, 21308, 28950, 36592, 44234, 51876, 59518
anti-HIV_CDR	6025	13667, 21309, 28951, 36593, 44235, 51877, 59519

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	6026	13668, 21310, 28952, 36594, 44236, 51878, 59520
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anti-HIV_CDR	6028	13670, 21312, 28954, 36596, 44238, 51880, 59522
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anti-HIV_CDR	6032	13674, 21316, 28958, 36600, 44242, 51884, 59526
anti-HIV_CDR	6033	13675, 21317, 28959, 36601, 44243, 51885, 59527
anti-HIV_CDR	6034	13676, 21318, 28960, 36602, 44244, 51886, 59528
anti-HIV_CDR	6035	13677, 21319, 28961, 36603, 44245, 51887, 59529
anti-HIV_CDR	6036	13678, 21320, 28962, 36604, 44246, 51888, 59530
anti-HIV_CDR	6037	13679, 21321, 28963, 36605, 44247, 51889, 59531
anti-HIV_CDR	6038	13680, 21322, 28964, 36606, 44248, 51890, 59532
anti-HIV_CDR	6039	13681, 21323, 28965, 36607, 44249, 51891, 59533
anti-HIV_CDR	6040	13682, 21324, 28966, 36608, 44250, 51892, 59534
anti-HIV_CDR	6041	13683, 21325, 28967, 36609, 44251, 51893, 59535
anti-HIV_CDR	6042	13684, 21326, 28968, 36610, 44252, 51894, 59536
anti-HIV_CDR	6043	13685, 21327, 28969, 36611, 44253, 51895, 59537
anti-HIV_CDR	6044	13686, 21328, 28970, 36612, 44254, 51896, 59538
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anti-HIV_CDR	6049	13691, 21333, 28975, 36617, 44259, 51901, 59543
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anti-HIV_CDR	6051	13693, 21335, 28977, 36619, 44261, 51903, 59545
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anti-HIV_CDR	6053	13695, 21337, 28979, 36621, 44263, 51905, 59547
anti-HIV_CDR	6054	13696, 21338, 28980, 36622, 44264, 51906, 59548
anti-HIV_CDR	6055	13697, 21339, 28981, 36623, 44265, 51907, 59549
anti-HIV_CDR	6056	13698, 21340, 28982, 36624, 44266, 51908, 59550
anti-HIV_CDR	6057	13699, 21341, 28983, 36625, 44267, 51909, 59551
anti-HIV_CDR	6058	13700, 21342, 28984, 36626, 44268, 51910, 59552

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	6059	13701, 21343, 28985, 36627, 44269, 51911, 59553
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anti-HIV_CDR	6062	13704, 21346, 28988, 36630, 44272, 51914, 59556
anti-HIV_CDR	6063	13705, 21347, 28989, 36631, 44273, 51915, 59557
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anti-HIV_CDR	6065	13707, 21349, 28991, 36633, 44275, 51917, 59559
anti-HIV_CDR	6066	13708, 21350, 28992, 36634, 44276, 51918, 59560
anti-HIV_CDR	6067	13709, 21351, 28993, 36635, 44277, 51919, 59561
anti-HIV_CDR	6068	13710, 21352, 28994, 36636, 44278, 51920, 59562
anti-HIV_CDR	6069	13711, 21353, 28995, 36637, 44279, 51921, 59563
anti-HIV_CDR	6070	13712, 21354, 28996, 36638, 44280, 51922, 59564
anti-HIV_CDR	6071	13713, 21355, 28997, 36639, 44281, 51923, 59565
anti-HIV_CDR	6072	13714, 21356, 28998, 36640, 44282, 51924, 59566
anti-HIV_CDR	6073	13715, 21357, 28999, 36641, 44283, 51925, 59567
anti-HIV_CDR	6074	13716, 21358, 29000, 36642, 44284, 51926, 59568
anti-HIV_CDR	6075	13717, 21359, 29001, 36643, 44285, 51927, 59569
anti-HIV_CDR	6076	13718, 21360, 29002, 36644, 44286, 51928, 59570
anti-HIV_CDR	6077	13719, 21361, 29003, 36645, 44287, 51929, 59571
anti-HIV_CDR	6078	13720, 21362, 29004, 36646, 44288, 51930, 59572
anti-HIV_CDR	6079	13721, 21363, 29005, 36647, 44289, 51931, 59573
anti-HIV_CDR	6080	13722, 21364, 29006, 36648, 44290, 51932, 59574
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anti-HIV_CDR	6082	13724, 21366, 29008, 36650, 44292, 51934, 59576
anti-HIV_CDR	6083	13725, 21367, 29009, 36651, 44293, 51935, 59577
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anti-HIV_CDR	6085	13727, 21369, 29011, 36653, 44295, 51937, 59579
anti-HIV_CDR	6086	13728, 21370, 29012, 36654, 44296, 51938, 59580
anti-HIV_CDR	6087	13729, 21371, 29013, 36655, 44297, 51939, 59581
anti-HIV_CDR	6088	13730, 21372, 29014, 36656, 44298, 51940, 59582
anti-HIV_CDR	6089	13731, 21373, 29015, 36657, 44299, 51941, 59583
anti-HIV_CDR	6090	13732, 21374, 29016, 36658, 44300, 51942, 59584
anti-HIV_CDR	6091	13733, 21375, 29017, 36659, 44301, 51943, 59585

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-HIV_CDR	6094	13736, 21378, 29020, 36662, 44304, 51946, 59588
anti-HIV_CDR	6095	13737, 21379, 29021, 36663, 44305, 51947, 59589
anti-HIV_CDR	6096	13738, 21380, 29022, 36664, 44306, 51948, 59590
anti-HIV_CDR	6097	13739, 21381, 29023, 36665, 44307, 51949, 59591
anti-HIV_CDR	6098	13740, 21382, 29024, 36666, 44308, 51950, 59592
anti-HIV_CDR	6099	13741, 21383, 29025, 36667, 44309, 51951, 59593
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anti-HIV_CDR	6101	13743, 21385, 29027, 36669, 44311, 51953, 59595
anti-HIV_CDR	6102	13744, 21386, 29028, 36670, 44312, 51954, 59596
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anti-HIV_CDR	6104	13746, 21388, 29030, 36672, 44314, 51956, 59598
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anti-HIV_CDR	6106	13748, 21390, 29032, 36674, 44316, 51958, 59600
anti-HIV_CDR	6107	13749, 21391, 29033, 36675, 44317, 51959, 59601
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anti-HIV_CDR	6111	13753, 21395, 29037, 36679, 44321, 51963, 59605
anti-HIV_CDR	6112	13754, 21396, 29038, 36680, 44322, 51964, 59606
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anti-HIV_CDR	6115	13757, 21399, 29041, 36683, 44325, 51967, 59609
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anti-HIV_CDR	6123	13765, 21407, 29049, 36691, 44333, 51975, 59617
anti-HIV_CDR	6124	13766, 21408, 29050, 36692, 44334, 51976, 59618

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-HIV_CDR	6128	13770, 21412, 29054, 36696, 44338, 51980, 59622
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anti-HIV_CDR	6134	13776, 21418, 29060, 36702, 44344, 51986, 59628
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anti-HIV_CDR	6138	13780, 21422, 29064, 36706, 44348, 51990, 59632
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anti-HIV_CDR	6140	13782, 21424, 29066, 36708, 44350, 51992, 59634
anti-HIV_CDR	6141	13783, 21425, 29067, 36709, 44351, 51993, 59635
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anti-HIV_CDR	6144	13786, 21428, 29070, 36712, 44354, 51996, 59638
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anti-HIV_CDR	6150	13792, 21434, 29076, 36718, 44360, 52002, 59644
anti-HIV_CDR	6151	13793, 21435, 29077, 36719, 44361, 52003, 59645
anti-HIV_CDR	6152	13794, 21436, 29078, 36720, 44362, 52004, 59646
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anti-HIV_CDR	6156	13798, 21440, 29082, 36724, 44366, 52008, 59650
anti-HIV_CDR	6157	13799, 21441, 29083, 36725, 44367, 52009, 59651

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-HIV_CDR	6160	13802, 21444, 29086, 36728, 44370, 52012, 59654
anti-HIV_CDR	6161	13803, 21445, 29087, 36729, 44371, 52013, 59655
anti-HIV_CDR	6162	13804, 21446, 29088, 36730, 44372, 52014, 59656
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anti-HIV_CDR	6167	13809, 21451, 29093, 36735, 44377, 52019, 59661
anti-HIV_CDR	6168	13810, 21452, 29094, 36736, 44378, 52020, 59662
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anti-HIV_CDR	6184	13826, 21468, 29110, 36752, 44394, 52036, 59678
anti-HIV_CDR	6185	13827, 21469, 29111, 36753, 44395, 52037, 59679
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anti-HIV_CDR	6188	13830, 21472, 29114, 36756, 44398, 52040, 59682
anti-HIV_CDR	6189	13831, 21473, 29115, 36757, 44399, 52041, 59683
anti-HIV_CDR	6190	13832, 21474, 29116, 36758, 44400, 52042, 59684

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-HIV_CDR	6194	13836, 21478, 29120, 36762, 44404, 52046, 59688
anti-HIV_CDR	6195	13837, 21479, 29121, 36763, 44405, 52047, 59689
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anti-HIV_CDR	6197	13839, 21481, 29123, 36765, 44407, 52049, 59691
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anti-HIV_CDR	6222	13864, 21506, 29148, 36790, 44432, 52074, 59716
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-HIV_CDR	6227	13869, 21511, 29153, 36795, 44437, 52079, 59721
anti-HIV_CDR	6228	13870, 21512, 29154, 36796, 44438, 52080, 59722
anti-HIV_CDR	6229	13871, 21513, 29155, 36797, 44439, 52081, 59723
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anti-HIV_CDR	6231	13873, 21515, 29157, 36799, 44441, 52083, 59725
anti-HIV_CDR	6232	13874, 21516, 29158, 36800, 44442, 52084, 59726
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anti-HIV_CDR	6240	13882, 21524, 29166, 36808, 44450, 52092, 59734
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anti-HIV_CDR	6244	13886, 21528, 29170, 36812, 44454, 52096, 59738
anti-HIV_CDR	6245	13887, 21529, 29171, 36813, 44455, 52097, 59739
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anti-HIV_CDR	6247	13889, 21531, 29173, 36815, 44457, 52099, 59741
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anti-HIV_CDR	6255	13897, 21539, 29181, 36823, 44465, 52107, 59749
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-HIV_CDR	6261	13903, 21545, 29187, 36829, 44471, 52113, 59755
anti-HIV_CDR	6262	13904, 21546, 29188, 36830, 44472, 52114, 59756
anti-HIV_CDR	6263	13905, 21547, 29189, 36831, 44473, 52115, 59757
anti-HIV_CDR	6264	13906, 21548, 29190, 36832, 44474, 52116, 59758
anti-HIV_CDR	6265	13907, 21549, 29191, 36833, 44475, 52117, 59759
anti-HIV_CDR	6266	13908, 21550, 29192, 36834, 44476, 52118, 59760
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anti-HIV_CDR	6271	13913, 21555, 29197, 36839, 44481, 52123, 59765
anti-HIV_CDR	6272	13914, 21556, 29198, 36840, 44482, 52124, 59766
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anti-HIV_CDR	6286	13928, 21570, 29212, 36854, 44496, 52138, 59780
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anti-HIV_CDR	6288	13930, 21572, 29214, 36856, 44498, 52140, 59782
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-HIV_CDR	6295	13937, 21579, 29221, 36863, 44505, 52147, 59789
anti-HIV_CDR	6296	13938, 21580, 29222, 36864, 44506, 52148, 59790
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anti-HIV_CDR	6298	13940, 21582, 29224, 36866, 44508, 52150, 59792
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anti-HIV_CDR	6313	13955, 21597, 29239, 36881, 44523, 52165, 59807
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anti-HIV_CDR	6315	13957, 21599, 29241, 36883, 44525, 52167, 59809
anti-HIV_CDR	6316	13958, 21600, 29242, 36884, 44526, 52168, 59810
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anti-HIV_CDR	6318	13960, 21602, 29244, 36886, 44528, 52170, 59812
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anti-HIV_CDR	6320	13962, 21604, 29246, 36888, 44530, 52172, 59814
anti-HIV_CDR	6321	13963, 21605, 29247, 36889, 44531, 52173, 59815
anti-HIV_CDR	6322	13964, 21606, 29248, 36890, 44532, 52174, 59816

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	6323	13965, 21607, 29249, 36891, 44533, 52175, 59817
anti-HIV_CDR	6324	13966, 21608, 29250, 36892, 44534, 52176, 59818
anti-HIV_CDR	6325	13967, 21609, 29251, 36893, 44535, 52177, 59819
anti-HIV_CDR	6326	13968, 21610, 29252, 36894, 44536, 52178, 59820
anti-HIV_CDR	6327	13969, 21611, 29253, 36895, 44537, 52179, 59821
anti-HIV_CDR	6328	13970, 21612, 29254, 36896, 44538, 52180, 59822
anti-HIV_CDR	6329	13971, 21613, 29255, 36897, 44539, 52181, 59823
anti-HIV_CDR	6330	13972, 21614, 29256, 36898, 44540, 52182, 59824
anti-HIV_CDR	6331	13973, 21615, 29257, 36899, 44541, 52183, 59825
anti-HIV_CDR	6332	13974, 21616, 29258, 36900, 44542, 52184, 59826
anti-HIV_CDR	6333	13975, 21617, 29259, 36901, 44543, 52185, 59827
anti-HIV_CDR	6334	13976, 21618, 29260, 36902, 44544, 52186, 59828
anti-HIV_CDR	6335	13977, 21619, 29261, 36903, 44545, 52187, 59829
anti-HIV_CDR	6336	13978, 21620, 29262, 36904, 44546, 52188, 59830
anti-HIV_CDR	6337	13979, 21621, 29263, 36905, 44547, 52189, 59831
anti-HIV_CDR	6338	13980, 21622, 29264, 36906, 44548, 52190, 59832
anti-HIV_CDR	6339	13981, 21623, 29265, 36907, 44549, 52191, 59833
anti-HIV_CDR	6340	13982, 21624, 29266, 36908, 44550, 52192, 59834
anti-HIV_CDR	6341	13983, 21625, 29267, 36909, 44551, 52193, 59835
anti-HIV_CDR	6342	13984, 21626, 29268, 36910, 44552, 52194, 59836
anti-HIV_CDR	6343	13985, 21627, 29269, 36911, 44553, 52195, 59837
anti-HIV_CDR	6344	13986, 21628, 29270, 36912, 44554, 52196, 59838
anti-HIV_CDR	6345	13987, 21629, 29271, 36913, 44555, 52197, 59839
anti-HIV_CDR	6346	13988, 21630, 29272, 36914, 44556, 52198, 59840
anti-HIV_CDR	6347	13989, 21631, 29273, 36915, 44557, 52199, 59841
anti-HIV_CDR	6348	13990, 21632, 29274, 36916, 44558, 52200, 59842
anti-HIV_CDR	6349	13991, 21633, 29275, 36917, 44559, 52201, 59843
anti-HIV_CDR	6350	13992, 21634, 29276, 36918, 44560, 52202, 59844
anti-HIV_CDR	6351	13993, 21635, 29277, 36919, 44561, 52203, 59845
anti-HIV_CDR	6352	13994, 21636, 29278, 36920, 44562, 52204, 59846
anti-HIV_CDR	6353	13995, 21637, 29279, 36921, 44563, 52205, 59847
anti-HIV_CDR	6354	13996, 21638, 29280, 36922, 44564, 52206, 59848
anti-HIV_CDR	6355	13997, 21639, 29281, 36923, 44565, 52207, 59849

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	6356	13998, 21640, 29282, 36924, 44566, 52208, 59850
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anti-HIV_CDR	6358	14000, 21642, 29284, 36926, 44568, 52210, 59852
anti-HIV_CDR	6359	14001, 21643, 29285, 36927, 44569, 52211, 59853
anti-HIV_CDR	6360	14002, 21644, 29286, 36928, 44570, 52212, 59854
anti-HIV_CDR	6361	14003, 21645, 29287, 36929, 44571, 52213, 59855
anti-HIV_CDR	6362	14004, 21646, 29288, 36930, 44572, 52214, 59856
anti-HIV_CDR	6363	14005, 21647, 29289, 36931, 44573, 52215, 59857
anti-HIV_CDR	6364	14006, 21648, 29290, 36932, 44574, 52216, 59858
anti-HIV_CDR	6365	14007, 21649, 29291, 36933, 44575, 52217, 59859
anti-HIV_CDR	6366	14008, 21650, 29292, 36934, 44576, 52218, 59860
anti-HIV_CDR	6367	14009, 21651, 29293, 36935, 44577, 52219, 59861
anti-HIV_CDR	6368	14010, 21652, 29294, 36936, 44578, 52220, 59862
anti-HIV_CDR	6369	14011, 21653, 29295, 36937, 44579, 52221, 59863
anti-HIV_CDR	6370	14012, 21654, 29296, 36938, 44580, 52222, 59864
anti-HIV_CDR	6371	14013, 21655, 29297, 36939, 44581, 52223, 59865
anti-HIV_CDR	6372	14014, 21656, 29298, 36940, 44582, 52224, 59866
anti-HIV_CDR	6373	14015, 21657, 29299, 36941, 44583, 52225, 59867
anti-HIV_CDR	6374	14016, 21658, 29300, 36942, 44584, 52226, 59868
anti-HIV_CDR	6375	14017, 21659, 29301, 36943, 44585, 52227, 59869
anti-HIV_CDR	6376	14018, 21660, 29302, 36944, 44586, 52228, 59870
anti-HIV_CDR	6377	14019, 21661, 29303, 36945, 44587, 52229, 59871
anti-HIV_CDR	6378	14020, 21662, 29304, 36946, 44588, 52230, 59872
anti-HIV_CDR	6379	14021, 21663, 29305, 36947, 44589, 52231, 59873
anti-HIV_CDR	6380	14022, 21664, 29306, 36948, 44590, 52232, 59874
anti-HIV_CDR	6381	14023, 21665, 29307, 36949, 44591, 52233, 59875
anti-HIV_CDR	6382	14024, 21666, 29308, 36950, 44592, 52234, 59876
anti-HIV_CDR	6383	14025, 21667, 29309, 36951, 44593, 52235, 59877
anti-HIV_CDR	6384	14026, 21668, 29310, 36952, 44594, 52236, 59878
anti-HIV_CDR	6385	14027, 21669, 29311, 36953, 44595, 52237, 59879
anti-HIV_CDR	6386	14028, 21670, 29312, 36954, 44596, 52238, 59880
anti-HIV_CDR	6387	14029, 21671, 29313, 36955, 44597, 52239, 59881
anti-HIV_CDR	6388	14030, 21672, 29314, 36956, 44598, 52240, 59882

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	6389	14031, 21673, 29315, 36957, 44599, 52241, 59883
anti-HIV_CDR	6390	14032, 21674, 29316, 36958, 44600, 52242, 59884
anti-HIV_CDR	6391	14033, 21675, 29317, 36959, 44601, 52243, 59885
anti-HIV_CDR	6392	14034, 21676, 29318, 36960, 44602, 52244, 59886
anti-HIV_CDR	6393	14035, 21677, 29319, 36961, 44603, 52245, 59887
anti-HIV_CDR	6394	14036, 21678, 29320, 36962, 44604, 52246, 59888
anti-HIV_CDR	6395	14037, 21679, 29321, 36963, 44605, 52247, 59889
anti-HIV_CDR	6396	14038, 21680, 29322, 36964, 44606, 52248, 59890
anti-HIV_CDR	6397	14039, 21681, 29323, 36965, 44607, 52249, 59891
anti-HIV_CDR	6398	14040, 21682, 29324, 36966, 44608, 52250, 59892
anti-HIV_CDR	6399	14041, 21683, 29325, 36967, 44609, 52251, 59893
anti-HIV_CDR	6400	14042, 21684, 29326, 36968, 44610, 52252, 59894
anti-HIV_CDR	6401	14043, 21685, 29327, 36969, 44611, 52253, 59895
anti-HIV_CDR	6402	14044, 21686, 29328, 36970, 44612, 52254, 59896
anti-HIV_CDR	6403	14045, 21687, 29329, 36971, 44613, 52255, 59897
anti-HIV_CDR	6404	14046, 21688, 29330, 36972, 44614, 52256, 59898
anti-HIV_CDR	6405	14047, 21689, 29331, 36973, 44615, 52257, 59899
anti-HIV_CDR	6406	14048, 21690, 29332, 36974, 44616, 52258, 59900
anti-HIV_CDR	6407	14049, 21691, 29333, 36975, 44617, 52259, 59901
anti-HIV_CDR	6408	14050, 21692, 29334, 36976, 44618, 52260, 59902
anti-HIV_CDR	6409	14051, 21693, 29335, 36977, 44619, 52261, 59903
anti-HIV_CDR	6410	14052, 21694, 29336, 36978, 44620, 52262, 59904
anti-HIV_CDR	6411	14053, 21695, 29337, 36979, 44621, 52263, 59905
anti-HIV_CDR	6412	14054, 21696, 29338, 36980, 44622, 52264, 59906
anti-HIV_CDR	6413	14055, 21697, 29339, 36981, 44623, 52265, 59907
anti-HIV_CDR	6414	14056, 21698, 29340, 36982, 44624, 52266, 59908
anti-HIV_CDR	6415	14057, 21699, 29341, 36983, 44625, 52267, 59909
anti-HIV_CDR	6416	14058, 21700, 29342, 36984, 44626, 52268, 59910
anti-HIV_CDR	6417	14059, 21701, 29343, 36985, 44627, 52269, 59911
anti-HIV_CDR	6418	14060, 21702, 29344, 36986, 44628, 52270, 59912
anti-HIV_CDR	6419	14061, 21703, 29345, 36987, 44629, 52271, 59913
anti-HIV_CDR	6420	14062, 21704, 29346, 36988, 44630, 52272, 59914
anti-HIV_CDR	6421	14063, 21705, 29347, 36989, 44631, 52273, 59915

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	6422	14064, 21706, 29348, 36990, 44632, 52274, 59916
anti-HIV_CDR	6423	14065, 21707, 29349, 36991, 44633, 52275, 59917
anti-HIV_CDR	6424	14066, 21708, 29350, 36992, 44634, 52276, 59918
anti-HIV_CDR	6425	14067, 21709, 29351, 36993, 44635, 52277, 59919
anti-HIV_CDR	6426	14068, 21710, 29352, 36994, 44636, 52278, 59920
anti-HIV_CDR	6427	14069, 21711, 29353, 36995, 44637, 52279, 59921
anti-HIV_CDR	6428	14070, 21712, 29354, 36996, 44638, 52280, 59922
anti-HIV_CDR	6429	14071, 21713, 29355, 36997, 44639, 52281, 59923
anti-HIV_CDR	6430	14072, 21714, 29356, 36998, 44640, 52282, 59924
anti-HIV_CDR	6431	14073, 21715, 29357, 36999, 44641, 52283, 59925
anti-HIV_CDR	6432	14074, 21716, 29358, 37000, 44642, 52284, 59926
anti-HIV_CDR	6433	14075, 21717, 29359, 37001, 44643, 52285, 59927
anti-HIV_CDR	6434	14076, 21718, 29360, 37002, 44644, 52286, 59928
anti-HIV_CDR	6435	14077, 21719, 29361, 37003, 44645, 52287, 59929
anti-HIV_CDR	6436	14078, 21720, 29362, 37004, 44646, 52288, 59930
anti-HIV_CDR	6437	14079, 21721, 29363, 37005, 44647, 52289, 59931
anti-HIV_CDR	6438	14080, 21722, 29364, 37006, 44648, 52290, 59932
anti-HIV_CDR	6439	14081, 21723, 29365, 37007, 44649, 52291, 59933
anti-HIV_CDR	6440	14082, 21724, 29366, 37008, 44650, 52292, 59934
anti-HIV_CDR	6441	14083, 21725, 29367, 37009, 44651, 52293, 59935
anti-HIV_CDR	6442	14084, 21726, 29368, 37010, 44652, 52294, 59936
anti-HIV_CDR	6443	14085, 21727, 29369, 37011, 44653, 52295, 59937
anti-HIV_CDR	6444	14086, 21728, 29370, 37012, 44654, 52296, 59938
anti-HIV_CDR	6445	14087, 21729, 29371, 37013, 44655, 52297, 59939
anti-HIV_CDR	6446	14088, 21730, 29372, 37014, 44656, 52298, 59940
anti-HIV_CDR	6447	14089, 21731, 29373, 37015, 44657, 52299, 59941
anti-HIV_CDR	6448	14090, 21732, 29374, 37016, 44658, 52300, 59942
anti-HIV_CDR	6449	14091, 21733, 29375, 37017, 44659, 52301, 59943
anti-HIV_CDR	6450	14092, 21734, 29376, 37018, 44660, 52302, 59944
anti-HIV_CDR	6451	14093, 21735, 29377, 37019, 44661, 52303, 59945
anti-HIV_CDR	6452	14094, 21736, 29378, 37020, 44662, 52304, 59946
anti-HIV_CDR	6453	14095, 21737, 29379, 37021, 44663, 52305, 59947
anti-HIV_CDR	6454	14096, 21738, 29380, 37022, 44664, 52306, 59948

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-HIV_CDR	6455	14097, 21739, 29381, 37023, 44665, 52307, 59949
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anti-HIV_CDR	6457	14099, 21741, 29383, 37025, 44667, 52309, 59951
anti-HIV_CDR	6458	14100, 21742, 29384, 37026, 44668, 52310, 59952
anti-HIV_CDR	6459	14101, 21743, 29385, 37027, 44669, 52311, 59953
anti-HIV_CDR	6460	14102, 21744, 29386, 37028, 44670, 52312, 59954
anti-HIV_CDR	6461	14103, 21745, 29387, 37029, 44671, 52313, 59955
anti-HIV_CDR	6462	14104, 21746, 29388, 37030, 44672, 52314, 59956
anti-HIV_CDR	6463	14105, 21747, 29389, 37031, 44673, 52315, 59957
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anti-HIV_CDR	6465	14107, 21749, 29391, 37033, 44675, 52317, 59959
anti-HIV_CDR	6466	14108, 21750, 29392, 37034, 44676, 52318, 59960
anti-HIV_CDR	6467	14109, 21751, 29393, 37035, 44677, 52319, 59961
anti-HIV_CDR	6468	14110, 21752, 29394, 37036, 44678, 52320, 59962
anti-HIV_CDR	6469	14111, 21753, 29395, 37037, 44679, 52321, 59963
anti-HIV_CDR	6470	14112, 21754, 29396, 37038, 44680, 52322, 59964
anti-HIV_CDR	6471	14113, 21755, 29397, 37039, 44681, 52323, 59965
anti-HIV_CDR	6472	14114, 21756, 29398, 37040, 44682, 52324, 59966
anti-HIV_CDR	6473	14115, 21757, 29399, 37041, 44683, 52325, 59967
anti-HIV_CDR	6474	14116, 21758, 29400, 37042, 44684, 52326, 59968
anti-HIV_CDR	6475	14117, 21759, 29401, 37043, 44685, 52327, 59969
anti-HIV_CDR	6476	14118, 21760, 29402, 37044, 44686, 52328, 59970
anti-HIV_CDR	6477	14119, 21761, 29403, 37045, 44687, 52329, 59971
anti-influenza_CDR	6478	14120, 21762, 29404, 37046, 44688, 52330, 59972
anti-influenza_CDR	6479	14121, 21763, 29405, 37047, 44689, 52331, 59973
anti-influenza_CDR	6480	14122, 21764, 29406, 37048, 44690, 52332, 59974
anti-influenza_CDR	6481	14123, 21765, 29407, 37049, 44691, 52333, 59975
anti-influenza_CDR	6482	14124, 21766, 29408, 37050, 44692, 52334, 59976
anti-influenza_CDR	6483	14125, 21767, 29409, 37051, 44693, 52335, 59977
anti-influenza_CDR	6484	14126, 21768, 29410, 37052, 44694, 52336, 59978
anti-influenza_CDR	6485	14127, 21769, 29411, 37053, 44695, 52337, 59979
anti-influenza_CDR	6486	14128, 21770, 29412, 37054, 44696, 52338, 59980
anti-influenza_CDR	6487	14129, 21771, 29413, 37055, 44697, 52339, 59981

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-influenza_CDR	6488	14130, 21772, 29414, 37056, 44698, 52340, 59982
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anti-influenza_CDR	6490	14132, 21774, 29416, 37058, 44700, 52342, 59984
anti-influenza_CDR	6491	14133, 21775, 29417, 37059, 44701, 52343, 59985
anti-influenza_CDR	6492	14134, 21776, 29418, 37060, 44702, 52344, 59986
anti-influenza_CDR	6493	14135, 21777, 29419, 37061, 44703, 52345, 59987
anti-influenza_CDR	6494	14136, 21778, 29420, 37062, 44704, 52346, 59988
anti-influenza_CDR	6495	14137, 21779, 29421, 37063, 44705, 52347, 59989
anti-influenza_CDR	6496	14138, 21780, 29422, 37064, 44706, 52348, 59990
anti-influenza_CDR	6497	14139, 21781, 29423, 37065, 44707, 52349, 59991
anti-influenza_CDR	6498	14140, 21782, 29424, 37066, 44708, 52350, 59992
anti-influenza_CDR	6499	14141, 21783, 29425, 37067, 44709, 52351, 59993
anti-influenza_CDR	6500	14142, 21784, 29426, 37068, 44710, 52352, 59994
anti-influenza_CDR	6501	14143, 21785, 29427, 37069, 44711, 52353, 59995
anti-influenza_CDR	6502	14144, 21786, 29428, 37070, 44712, 52354, 59996
anti-influenza_CDR	6503	14145, 21787, 29429, 37071, 44713, 52355, 59997
anti-influenza_CDR	6504	14146, 21788, 29430, 37072, 44714, 52356, 59998
anti-influenza_CDR	6505	14147, 21789, 29431, 37073, 44715, 52357, 59999
anti-influenza_CDR	6506	14148, 21790, 29432, 37074, 44716, 52358, 60000
anti-influenza_CDR	6507	14149, 21791, 29433, 37075, 44717, 52359, 60001
anti-influenza_CDR	6508	14150, 21792, 29434, 37076, 44718, 52360, 60002
anti-influenza_CDR	6509	14151, 21793, 29435, 37077, 44719, 52361, 60003
anti-influenza_CDR	6510	14152, 21794, 29436, 37078, 44720, 52362, 60004
anti-influenza_CDR	6511	14153, 21795, 29437, 37079, 44721, 52363, 60005
anti-influenza_CDR	6512	14154, 21796, 29438, 37080, 44722, 52364, 60006
anti-influenza_CDR	6513	14155, 21797, 29439, 37081, 44723, 52365, 60007
anti-influenza_CDR	6514	14156, 21798, 29440, 37082, 44724, 52366, 60008
anti-influenza_CDR	6515	14157, 21799, 29441, 37083, 44725, 52367, 60009
anti-influenza_CDR	6516	14158, 21800, 29442, 37084, 44726, 52368, 60010
anti-influenza_CDR	6517	14159, 21801, 29443, 37085, 44727, 52369, 60011
anti-influenza_CDR	6518	14160, 21802, 29444, 37086, 44728, 52370, 60012
anti-influenza_CDR	6519	14161, 21803, 29445, 37087, 44729, 52371, 60013
anti-influenza_CDR	6520	14162, 21804, 29446, 37088, 44730, 52372, 60014

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-influenza_CDR	6521	14163, 21805, 29447, 37089, 44731, 52373, 60015
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anti-influenza_CDR	6523	14165, 21807, 29449, 37091, 44733, 52375, 60017
anti-influenza_CDR	6524	14166, 21808, 29450, 37092, 44734, 52376, 60018
anti-influenza_CDR	6525	14167, 21809, 29451, 37093, 44735, 52377, 60019
anti-influenza_CDR	6526	14168, 21810, 29452, 37094, 44736, 52378, 60020
anti-influenza_CDR	6527	14169, 21811, 29453, 37095, 44737, 52379, 60021
anti-influenza_CDR	6528	14170, 21812, 29454, 37096, 44738, 52380, 60022
anti-influenza_CDR	6529	14171, 21813, 29455, 37097, 44739, 52381, 60023
anti-influenza_CDR	6530	14172, 21814, 29456, 37098, 44740, 52382, 60024
anti-influenza_CDR	6531	14173, 21815, 29457, 37099, 44741, 52383, 60025
anti-influenza_CDR	6532	14174, 21816, 29458, 37100, 44742, 52384, 60026
anti-influenza_CDR	6533	14175, 21817, 29459, 37101, 44743, 52385, 60027
anti-influenza_CDR	6534	14176, 21818, 29460, 37102, 44744, 52386, 60028
anti-influenza_CDR	6535	14177, 21819, 29461, 37103, 44745, 52387, 60029
anti-influenza_CDR	6536	14178, 21820, 29462, 37104, 44746, 52388, 60030
anti-influenza_CDR	6537	14179, 21821, 29463, 37105, 44747, 52389, 60031
anti-influenza_CDR	6538	14180, 21822, 29464, 37106, 44748, 52390, 60032
anti-influenza_CDR	6539	14181, 21823, 29465, 37107, 44749, 52391, 60033
anti-influenza_CDR	6540	14182, 21824, 29466, 37108, 44750, 52392, 60034
anti-influenza_CDR	6541	14183, 21825, 29467, 37109, 44751, 52393, 60035
anti-influenza_CDR	6542	14184, 21826, 29468, 37110, 44752, 52394, 60036
anti-influenza_CDR	6543	14185, 21827, 29469, 37111, 44753, 52395, 60037
anti-influenza_CDR	6544	14186, 21828, 29470, 37112, 44754, 52396, 60038
anti-influenza_CDR	6545	14187, 21829, 29471, 37113, 44755, 52397, 60039
anti-influenza_CDR	6546	14188, 21830, 29472, 37114, 44756, 52398, 60040
anti-influenza_CDR	6547	14189, 21831, 29473, 37115, 44757, 52399, 60041
anti-influenza_CDR	6548	14190, 21832, 29474, 37116, 44758, 52400, 60042
anti-influenza_CDR	6549	14191, 21833, 29475, 37117, 44759, 52401, 60043
anti-influenza_CDR	6550	14192, 21834, 29476, 37118, 44760, 52402, 60044
anti-influenza_CDR	6551	14193, 21835, 29477, 37119, 44761, 52403, 60045
anti-influenza_CDR	6552	14194, 21836, 29478, 37120, 44762, 52404, 60046
anti-influenza_CDR	6553	14195, 21837, 29479, 37121, 44763, 52405, 60047

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-influenza_CDR	6554	14196, 21838, 29480, 37122, 44764, 52406, 60048
anti-influenza_CDR	6555	14197, 21839, 29481, 37123, 44765, 52407, 60049
anti-influenza_CDR	6556	14198, 21840, 29482, 37124, 44766, 52408, 60050
anti-influenza_CDR	6557	14199, 21841, 29483, 37125, 44767, 52409, 60051
anti-influenza_CDR	6558	14200, 21842, 29484, 37126, 44768, 52410, 60052
anti-influenza_CDR	6559	14201, 21843, 29485, 37127, 44769, 52411, 60053
anti-influenza_CDR	6560	14202, 21844, 29486, 37128, 44770, 52412, 60054
anti-influenza_CDR	6561	14203, 21845, 29487, 37129, 44771, 52413, 60055
anti-influenza_CDR	6562	14204, 21846, 29488, 37130, 44772, 52414, 60056
anti-influenza_CDR	6563	14205, 21847, 29489, 37131, 44773, 52415, 60057
anti-influenza_CDR	6564	14206, 21848, 29490, 37132, 44774, 52416, 60058
anti-influenza_CDR	6565	14207, 21849, 29491, 37133, 44775, 52417, 60059
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anti-influenza_CDR	6573	14215, 21857, 29499, 37141, 44783, 52425, 60067
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anti-influenza_CDR	6583	14225, 21867, 29509, 37151, 44793, 52435, 60077
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	6650	14292, 21934, 29576, 37218, 44860, 52502, 60144
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	6656	14298, 21940, 29582, 37224, 44866, 52508, 60150
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anti-influenza_CDR	6681	14323, 21965, 29607, 37249, 44891, 52533, 60175
anti-influenza_CDR	6682	14324, 21966, 29608, 37250, 44892, 52534, 60176
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	6799	14441, 22083, 29725, 37367, 45009, 52651, 60293
anti-influenza_CDR	6800	14442, 22084, 29726, 37368, 45010, 52652, 60294
anti-influenza_CDR	6801	14443, 22085, 29727, 37369, 45011, 52653, 60295
anti-influenza_CDR	6802	14444, 22086, 29728, 37370, 45012, 52654, 60296
anti-influenza_CDR	6803	14445, 22087, 29729, 37371, 45013, 52655, 60297
anti-influenza_CDR	6804	14446, 22088, 29730, 37372, 45014, 52656, 60298
anti-influenza_CDR	6805	14447, 22089, 29731, 37373, 45015, 52657, 60299
anti-influenza_CDR	6806	14448, 22090, 29732, 37374, 45016, 52658, 60300
anti-influenza_CDR	6807	14449, 22091, 29733, 37375, 45017, 52659, 60301
anti-influenza_CDR	6808	14450, 22092, 29734, 37376, 45018, 52660, 60302
anti-influenza_CDR	6809	14451, 22093, 29735, 37377, 45019, 52661, 60303
anti-influenza_CDR	6810	14452, 22094, 29736, 37378, 45020, 52662, 60304
anti-influenza_CDR	6811	14453, 22095, 29737, 37379, 45021, 52663, 60305
anti-influenza_CDR	6812	14454, 22096, 29738, 37380, 45022, 52664, 60306
anti-influenza_CDR	6813	14455, 22097, 29739, 37381, 45023, 52665, 60307
anti-influenza_CDR	6814	14456, 22098, 29740, 37382, 45024, 52666, 60308
anti-influenza_CDR	6815	14457, 22099, 29741, 37383, 45025, 52667, 60309
anti-influenza_CDR	6816	14458, 22100, 29742, 37384, 45026, 52668, 60310
anti-influenza_CDR	6817	14459, 22101, 29743, 37385, 45027, 52669, 60311

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-influenza_CDR	6818	14460, 22102, 29744, 37386, 45028, 52670, 60312
anti-influenza_CDR	6819	14461, 22103, 29745, 37387, 45029, 52671, 60313
anti-influenza_CDR	6820	14462, 22104, 29746, 37388, 45030, 52672, 60314
anti-influenza_CDR	6821	14463, 22105, 29747, 37389, 45031, 52673, 60315
anti-influenza_CDR	6822	14464, 22106, 29748, 37390, 45032, 52674, 60316
anti-influenza_CDR	6823	14465, 22107, 29749, 37391, 45033, 52675, 60317
anti-influenza_CDR	6824	14466, 22108, 29750, 37392, 45034, 52676, 60318
anti-influenza_CDR	6825	14467, 22109, 29751, 37393, 45035, 52677, 60319
anti-influenza_CDR	6826	14468, 22110, 29752, 37394, 45036, 52678, 60320
anti-influenza_CDR	6827	14469, 22111, 29753, 37395, 45037, 52679, 60321
anti-influenza_CDR	6828	14470, 22112, 29754, 37396, 45038, 52680, 60322
anti-influenza_CDR	6829	14471, 22113, 29755, 37397, 45039, 52681, 60323
anti-influenza_CDR	6830	14472, 22114, 29756, 37398, 45040, 52682, 60324
anti-influenza_CDR	6831	14473, 22115, 29757, 37399, 45041, 52683, 60325
anti-influenza_CDR	6832	14474, 22116, 29758, 37400, 45042, 52684, 60326
anti-influenza_CDR	6833	14475, 22117, 29759, 37401, 45043, 52685, 60327
anti-influenza_CDR	6834	14476, 22118, 29760, 37402, 45044, 52686, 60328
anti-influenza_CDR	6835	14477, 22119, 29761, 37403, 45045, 52687, 60329
anti-influenza_CDR	6836	14478, 22120, 29762, 37404, 45046, 52688, 60330
anti-influenza_CDR	6837	14479, 22121, 29763, 37405, 45047, 52689, 60331
anti-influenza_CDR	6838	14480, 22122, 29764, 37406, 45048, 52690, 60332
anti-influenza_CDR	6839	14481, 22123, 29765, 37407, 45049, 52691, 60333
anti-influenza_CDR	6840	14482, 22124, 29766, 37408, 45050, 52692, 60334
anti-influenza_CDR	6841	14483, 22125, 29767, 37409, 45051, 52693, 60335
anti-influenza_CDR	6842	14484, 22126, 29768, 37410, 45052, 52694, 60336
anti-influenza_CDR	6843	14485, 22127, 29769, 37411, 45053, 52695, 60337
anti-influenza_CDR	6844	14486, 22128, 29770, 37412, 45054, 52696, 60338
anti-influenza_CDR	6845	14487, 22129, 29771, 37413, 45055, 52697, 60339
anti-influenza_CDR	6846	14488, 22130, 29772, 37414, 45056, 52698, 60340
anti-influenza_CDR	6847	14489, 22131, 29773, 37415, 45057, 52699, 60341
anti-influenza_CDR	6848	14490, 22132, 29774, 37416, 45058, 52700, 60342
anti-influenza_CDR	6849	14491, 22133, 29775, 37417, 45059, 52701, 60343
anti-influenza_CDR	6850	14492, 22134, 29776, 37418, 45060, 52702, 60344

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	6853	14495, 22137, 29779, 37421, 45063, 52705, 60347
anti-influenza_CDR	6854	14496, 22138, 29780, 37422, 45064, 52706, 60348
anti-influenza_CDR	6855	14497, 22139, 29781, 37423, 45065, 52707, 60349
anti-influenza_CDR	6856	14498, 22140, 29782, 37424, 45066, 52708, 60350
anti-influenza_CDR	6857	14499, 22141, 29783, 37425, 45067, 52709, 60351
anti-influenza_CDR	6858	14500, 22142, 29784, 37426, 45068, 52710, 60352
anti-influenza_CDR	6859	14501, 22143, 29785, 37427, 45069, 52711, 60353
anti-influenza_CDR	6860	14502, 22144, 29786, 37428, 45070, 52712, 60354
anti-influenza_CDR	6861	14503, 22145, 29787, 37429, 45071, 52713, 60355
anti-influenza_CDR	6862	14504, 22146, 29788, 37430, 45072, 52714, 60356
anti-influenza_CDR	6863	14505, 22147, 29789, 37431, 45073, 52715, 60357
anti-influenza_CDR	6864	14506, 22148, 29790, 37432, 45074, 52716, 60358
anti-influenza_CDR	6865	14507, 22149, 29791, 37433, 45075, 52717, 60359
anti-influenza_CDR	6866	14508, 22150, 29792, 37434, 45076, 52718, 60360
anti-influenza_CDR	6867	14509, 22151, 29793, 37435, 45077, 52719, 60361
anti-influenza_CDR	6868	14510, 22152, 29794, 37436, 45078, 52720, 60362
anti-influenza_CDR	6869	14511, 22153, 29795, 37437, 45079, 52721, 60363
anti-influenza_CDR	6870	14512, 22154, 29796, 37438, 45080, 52722, 60364
anti-influenza_CDR	6871	14513, 22155, 29797, 37439, 45081, 52723, 60365
anti-influenza_CDR	6872	14514, 22156, 29798, 37440, 45082, 52724, 60366
anti-influenza_CDR	6873	14515, 22157, 29799, 37441, 45083, 52725, 60367
anti-influenza_CDR	6874	14516, 22158, 29800, 37442, 45084, 52726, 60368
anti-influenza_CDR	6875	14517, 22159, 29801, 37443, 45085, 52727, 60369
anti-influenza_CDR	6876	14518, 22160, 29802, 37444, 45086, 52728, 60370
anti-influenza_CDR	6877	14519, 22161, 29803, 37445, 45087, 52729, 60371
anti-influenza_CDR	6878	14520, 22162, 29804, 37446, 45088, 52730, 60372
anti-influenza_CDR	6879	14521, 22163, 29805, 37447, 45089, 52731, 60373
anti-influenza_CDR	6880	14522, 22164, 29806, 37448, 45090, 52732, 60374
anti-influenza_CDR	6881	14523, 22165, 29807, 37449, 45091, 52733, 60375
anti-influenza_CDR	6882	14524, 22166, 29808, 37450, 45092, 52734, 60376
anti-influenza_CDR	6883	14525, 22167, 29809, 37451, 45093, 52735, 60377

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	6885	14527, 22169, 29811, 37453, 45095, 52737, 60379
anti-influenza_CDR	6886	14528, 22170, 29812, 37454, 45096, 52738, 60380
anti-influenza_CDR	6887	14529, 22171, 29813, 37455, 45097, 52739, 60381
anti-influenza_CDR	6888	14530, 22172, 29814, 37456, 45098, 52740, 60382
anti-influenza_CDR	6889	14531, 22173, 29815, 37457, 45099, 52741, 60383
anti-influenza_CDR	6890	14532, 22174, 29816, 37458, 45100, 52742, 60384
anti-influenza_CDR	6891	14533, 22175, 29817, 37459, 45101, 52743, 60385
anti-influenza_CDR	6892	14534, 22176, 29818, 37460, 45102, 52744, 60386
anti-influenza_CDR	6893	14535, 22177, 29819, 37461, 45103, 52745, 60387
anti-influenza_CDR	6894	14536, 22178, 29820, 37462, 45104, 52746, 60388
anti-influenza_CDR	6895	14537, 22179, 29821, 37463, 45105, 52747, 60389
anti-influenza_CDR	6896	14538, 22180, 29822, 37464, 45106, 52748, 60390
anti-influenza_CDR	6897	14539, 22181, 29823, 37465, 45107, 52749, 60391
anti-influenza_CDR	6898	14540, 22182, 29824, 37466, 45108, 52750, 60392
anti-influenza_CDR	6899	14541, 22183, 29825, 37467, 45109, 52751, 60393
anti-influenza_CDR	6900	14542, 22184, 29826, 37468, 45110, 52752, 60394
anti-influenza_CDR	6901	14543, 22185, 29827, 37469, 45111, 52753, 60395
anti-influenza_CDR	6902	14544, 22186, 29828, 37470, 45112, 52754, 60396
anti-influenza_CDR	6903	14545, 22187, 29829, 37471, 45113, 52755, 60397
anti-influenza_CDR	6904	14546, 22188, 29830, 37472, 45114, 52756, 60398
anti-influenza_CDR	6905	14547, 22189, 29831, 37473, 45115, 52757, 60399
anti-influenza_CDR	6906	14548, 22190, 29832, 37474, 45116, 52758, 60400
anti-influenza_CDR	6907	14549, 22191, 29833, 37475, 45117, 52759, 60401
anti-influenza_CDR	6908	14550, 22192, 29834, 37476, 45118, 52760, 60402
anti-influenza_CDR	6909	14551, 22193, 29835, 37477, 45119, 52761, 60403
anti-influenza_CDR	6910	14552, 22194, 29836, 37478, 45120, 52762, 60404
anti-influenza_CDR	6911	14553, 22195, 29837, 37479, 45121, 52763, 60405
anti-influenza_CDR	6912	14554, 22196, 29838, 37480, 45122, 52764, 60406
anti-influenza_CDR	6913	14555, 22197, 29839, 37481, 45123, 52765, 60407
anti-influenza_CDR	6914	14556, 22198, 29840, 37482, 45124, 52766, 60408
anti-influenza_CDR	6915	14557, 22199, 29841, 37483, 45125, 52767, 60409
anti-influenza_CDR	6916	14558, 22200, 29842, 37484, 45126, 52768, 60410

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	6919	14561, 22203, 29845, 37487, 45129, 52771, 60413
anti-influenza_CDR	6920	14562, 22204, 29846, 37488, 45130, 52772, 60414
anti-influenza_CDR	6921	14563, 22205, 29847, 37489, 45131, 52773, 60415
anti-influenza_CDR	6922	14564, 22206, 29848, 37490, 45132, 52774, 60416
anti-influenza_CDR	6923	14565, 22207, 29849, 37491, 45133, 52775, 60417
anti-influenza_CDR	6924	14566, 22208, 29850, 37492, 45134, 52776, 60418
anti-influenza_CDR	6925	14567, 22209, 29851, 37493, 45135, 52777, 60419
anti-influenza_CDR	6926	14568, 22210, 29852, 37494, 45136, 52778, 60420
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anti-influenza_CDR	6928	14570, 22212, 29854, 37496, 45138, 52780, 60422
anti-influenza_CDR	6929	14571, 22213, 29855, 37497, 45139, 52781, 60423
anti-influenza_CDR	6930	14572, 22214, 29856, 37498, 45140, 52782, 60424
anti-influenza_CDR	6931	14573, 22215, 29857, 37499, 45141, 52783, 60425
anti-influenza_CDR	6932	14574, 22216, 29858, 37500, 45142, 52784, 60426
anti-influenza_CDR	6933	14575, 22217, 29859, 37501, 45143, 52785, 60427
anti-influenza_CDR	6934	14576, 22218, 29860, 37502, 45144, 52786, 60428
anti-influenza_CDR	6935	14577, 22219, 29861, 37503, 45145, 52787, 60429
anti-influenza_CDR	6936	14578, 22220, 29862, 37504, 45146, 52788, 60430
anti-influenza_CDR	6937	14579, 22221, 29863, 37505, 45147, 52789, 60431
anti-influenza_CDR	6938	14580, 22222, 29864, 37506, 45148, 52790, 60432
anti-influenza_CDR	6939	14581, 22223, 29865, 37507, 45149, 52791, 60433
anti-influenza_CDR	6940	14582, 22224, 29866, 37508, 45150, 52792, 60434
anti-influenza_CDR	6941	14583, 22225, 29867, 37509, 45151, 52793, 60435
anti-influenza_CDR	6942	14584, 22226, 29868, 37510, 45152, 52794, 60436
anti-influenza_CDR	6943	14585, 22227, 29869, 37511, 45153, 52795, 60437
anti-influenza_CDR	6944	14586, 22228, 29870, 37512, 45154, 52796, 60438
anti-influenza_CDR	6945	14587, 22229, 29871, 37513, 45155, 52797, 60439
anti-influenza_CDR	6946	14588, 22230, 29872, 37514, 45156, 52798, 60440
anti-influenza_CDR	6947	14589, 22231, 29873, 37515, 45157, 52799, 60441
anti-influenza_CDR	6948	14590, 22232, 29874, 37516, 45158, 52800, 60442
anti-influenza_CDR	6949	14591, 22233, 29875, 37517, 45159, 52801, 60443

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	6952	14594, 22236, 29878, 37520, 45162, 52804, 60446
anti-influenza_CDR	6953	14595, 22237, 29879, 37521, 45163, 52805, 60447
anti-influenza_CDR	6954	14596, 22238, 29880, 37522, 45164, 52806, 60448
anti-influenza_CDR	6955	14597, 22239, 29881, 37523, 45165, 52807, 60449
anti-influenza_CDR	6956	14598, 22240, 29882, 37524, 45166, 52808, 60450
anti-influenza_CDR	6957	14599, 22241, 29883, 37525, 45167, 52809, 60451
anti-influenza_CDR	6958	14600, 22242, 29884, 37526, 45168, 52810, 60452
anti-influenza_CDR	6959	14601, 22243, 29885, 37527, 45169, 52811, 60453
anti-influenza_CDR	6960	14602, 22244, 29886, 37528, 45170, 52812, 60454
anti-influenza_CDR	6961	14603, 22245, 29887, 37529, 45171, 52813, 60455
anti-influenza_CDR	6962	14604, 22246, 29888, 37530, 45172, 52814, 60456
anti-influenza_CDR	6963	14605, 22247, 29889, 37531, 45173, 52815, 60457
anti-influenza_CDR	6964	14606, 22248, 29890, 37532, 45174, 52816, 60458
anti-influenza_CDR	6965	14607, 22249, 29891, 37533, 45175, 52817, 60459
anti-influenza_CDR	6966	14608, 22250, 29892, 37534, 45176, 52818, 60460
anti-influenza_CDR	6967	14609, 22251, 29893, 37535, 45177, 52819, 60461
anti-influenza_CDR	6968	14610, 22252, 29894, 37536, 45178, 52820, 60462
anti-influenza_CDR	6969	14611, 22253, 29895, 37537, 45179, 52821, 60463
anti-influenza_CDR	6970	14612, 22254, 29896, 37538, 45180, 52822, 60464
anti-influenza_CDR	6971	14613, 22255, 29897, 37539, 45181, 52823, 60465
anti-influenza_CDR	6972	14614, 22256, 29898, 37540, 45182, 52824, 60466
anti-influenza_CDR	6973	14615, 22257, 29899, 37541, 45183, 52825, 60467
anti-influenza_CDR	6974	14616, 22258, 29900, 37542, 45184, 52826, 60468
anti-influenza_CDR	6975	14617, 22259, 29901, 37543, 45185, 52827, 60469
anti-influenza_CDR	6976	14618, 22260, 29902, 37544, 45186, 52828, 60470
anti-influenza_CDR	6977	14619, 22261, 29903, 37545, 45187, 52829, 60471
anti-influenza_CDR	6978	14620, 22262, 29904, 37546, 45188, 52830, 60472
anti-influenza_CDR	6979	14621, 22263, 29905, 37547, 45189, 52831, 60473
anti-influenza_CDR	6980	14622, 22264, 29906, 37548, 45190, 52832, 60474
anti-influenza_CDR	6981	14623, 22265, 29907, 37549, 45191, 52833, 60475
anti-influenza_CDR	6982	14624, 22266, 29908, 37550, 45192, 52834, 60476

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	6985	14627, 22269, 29911, 37553, 45195, 52837, 60479
anti-influenza_CDR	6986	14628, 22270, 29912, 37554, 45196, 52838, 60480
anti-influenza_CDR	6987	14629, 22271, 29913, 37555, 45197, 52839, 60481
anti-influenza_CDR	6988	14630, 22272, 29914, 37556, 45198, 52840, 60482
anti-influenza_CDR	6989	14631, 22273, 29915, 37557, 45199, 52841, 60483
anti-influenza_CDR	6990	14632, 22274, 29916, 37558, 45200, 52842, 60484
anti-influenza_CDR	6991	14633, 22275, 29917, 37559, 45201, 52843, 60485
anti-influenza_CDR	6992	14634, 22276, 29918, 37560, 45202, 52844, 60486
anti-influenza_CDR	6993	14635, 22277, 29919, 37561, 45203, 52845, 60487
anti-influenza_CDR	6994	14636, 22278, 29920, 37562, 45204, 52846, 60488
anti-influenza_CDR	6995	14637, 22279, 29921, 37563, 45205, 52847, 60489
anti-influenza_CDR	6996	14638, 22280, 29922, 37564, 45206, 52848, 60490
anti-influenza_CDR	6997	14639, 22281, 29923, 37565, 45207, 52849, 60491
anti-influenza_CDR	6998	14640, 22282, 29924, 37566, 45208, 52850, 60492
anti-influenza_CDR	6999	14641, 22283, 29925, 37567, 45209, 52851, 60493
anti-influenza_CDR	7000	14642, 22284, 29926, 37568, 45210, 52852, 60494
anti-influenza_CDR	7001	14643, 22285, 29927, 37569, 45211, 52853, 60495
anti-influenza_CDR	7002	14644, 22286, 29928, 37570, 45212, 52854, 60496
anti-influenza_CDR	7003	14645, 22287, 29929, 37571, 45213, 52855, 60497
anti-influenza_CDR	7004	14646, 22288, 29930, 37572, 45214, 52856, 60498
anti-influenza_CDR	7005	14647, 22289, 29931, 37573, 45215, 52857, 60499
anti-influenza_CDR	7006	14648, 22290, 29932, 37574, 45216, 52858, 60500
anti-influenza_CDR	7007	14649, 22291, 29933, 37575, 45217, 52859, 60501
anti-influenza_CDR	7008	14650, 22292, 29934, 37576, 45218, 52860, 60502
anti-influenza_CDR	7009	14651, 22293, 29935, 37577, 45219, 52861, 60503
anti-influenza_CDR	7010	14652, 22294, 29936, 37578, 45220, 52862, 60504
anti-influenza_CDR	7011	14653, 22295, 29937, 37579, 45221, 52863, 60505
anti-influenza_CDR	7012	14654, 22296, 29938, 37580, 45222, 52864, 60506
anti-influenza_CDR	7013	14655, 22297, 29939, 37581, 45223, 52865, 60507
anti-influenza_CDR	7014	14656, 22298, 29940, 37582, 45224, 52866, 60508
anti-influenza_CDR	7015	14657, 22299, 29941, 37583, 45225, 52867, 60509

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7018	14660, 22302, 29944, 37586, 45228, 52870, 60512
anti-influenza_CDR	7019	14661, 22303, 29945, 37587, 45229, 52871, 60513
anti-influenza_CDR	7020	14662, 22304, 29946, 37588, 45230, 52872, 60514
anti-influenza_CDR	7021	14663, 22305, 29947, 37589, 45231, 52873, 60515
anti-influenza_CDR	7022	14664, 22306, 29948, 37590, 45232, 52874, 60516
anti-influenza_CDR	7023	14665, 22307, 29949, 37591, 45233, 52875, 60517
anti-influenza_CDR	7024	14666, 22308, 29950, 37592, 45234, 52876, 60518
anti-influenza_CDR	7025	14667, 22309, 29951, 37593, 45235, 52877, 60519
anti-influenza_CDR	7026	14668, 22310, 29952, 37594, 45236, 52878, 60520
anti-influenza_CDR	7027	14669, 22311, 29953, 37595, 45237, 52879, 60521
anti-influenza_CDR	7028	14670, 22312, 29954, 37596, 45238, 52880, 60522
anti-influenza_CDR	7029	14671, 22313, 29955, 37597, 45239, 52881, 60523
anti-influenza_CDR	7030	14672, 22314, 29956, 37598, 45240, 52882, 60524
anti-influenza_CDR	7031	14673, 22315, 29957, 37599, 45241, 52883, 60525
anti-influenza_CDR	7032	14674, 22316, 29958, 37600, 45242, 52884, 60526
anti-influenza_CDR	7033	14675, 22317, 29959, 37601, 45243, 52885, 60527
anti-influenza_CDR	7034	14676, 22318, 29960, 37602, 45244, 52886, 60528
anti-influenza_CDR	7035	14677, 22319, 29961, 37603, 45245, 52887, 60529
anti-influenza_CDR	7036	14678, 22320, 29962, 37604, 45246, 52888, 60530
anti-influenza_CDR	7037	14679, 22321, 29963, 37605, 45247, 52889, 60531
anti-influenza_CDR	7038	14680, 22322, 29964, 37606, 45248, 52890, 60532
anti-influenza_CDR	7039	14681, 22323, 29965, 37607, 45249, 52891, 60533
anti-influenza_CDR	7040	14682, 22324, 29966, 37608, 45250, 52892, 60534
anti-influenza_CDR	7041	14683, 22325, 29967, 37609, 45251, 52893, 60535
anti-influenza_CDR	7042	14684, 22326, 29968, 37610, 45252, 52894, 60536
anti-influenza_CDR	7043	14685, 22327, 29969, 37611, 45253, 52895, 60537
anti-influenza_CDR	7044	14686, 22328, 29970, 37612, 45254, 52896, 60538
anti-influenza_CDR	7045	14687, 22329, 29971, 37613, 45255, 52897, 60539
anti-influenza_CDR	7046	14688, 22330, 29972, 37614, 45256, 52898, 60540
anti-influenza_CDR	7047	14689, 22331, 29973, 37615, 45257, 52899, 60541
anti-influenza_CDR	7048	14690, 22332, 29974, 37616, 45258, 52900, 60542

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7051	14693, 22335, 29977, 37619, 45261, 52903, 60545
anti-influenza_CDR	7052	14694, 22336, 29978, 37620, 45262, 52904, 60546
anti-influenza_CDR	7053	14695, 22337, 29979, 37621, 45263, 52905, 60547
anti-influenza_CDR	7054	14696, 22338, 29980, 37622, 45264, 52906, 60548
anti-influenza_CDR	7055	14697, 22339, 29981, 37623, 45265, 52907, 60549
anti-influenza_CDR	7056	14698, 22340, 29982, 37624, 45266, 52908, 60550
anti-influenza_CDR	7057	14699, 22341, 29983, 37625, 45267, 52909, 60551
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anti-influenza_CDR	7067	14709, 22351, 29993, 37635, 45277, 52919, 60561
anti-influenza_CDR	7068	14710, 22352, 29994, 37636, 45278, 52920, 60562
anti-influenza_CDR	7069	14711, 22353, 29995, 37637, 45279, 52921, 60563
anti-influenza_CDR	7070	14712, 22354, 29996, 37638, 45280, 52922, 60564
anti-influenza_CDR	7071	14713, 22355, 29997, 37639, 45281, 52923, 60565
anti-influenza_CDR	7072	14714, 22356, 29998, 37640, 45282, 52924, 60566
anti-influenza_CDR	7073	14715, 22357, 29999, 37641, 45283, 52925, 60567
anti-influenza_CDR	7074	14716, 22358, 30000, 37642, 45284, 52926, 60568
anti-influenza_CDR	7075	14717, 22359, 30001, 37643, 45285, 52927, 60569
anti-influenza_CDR	7076	14718, 22360, 30002, 37644, 45286, 52928, 60570
anti-influenza_CDR	7077	14719, 22361, 30003, 37645, 45287, 52929, 60571
anti-influenza_CDR	7078	14720, 22362, 30004, 37646, 45288, 52930, 60572
anti-influenza_CDR	7079	14721, 22363, 30005, 37647, 45289, 52931, 60573
anti-influenza_CDR	7080	14722, 22364, 30006, 37648, 45290, 52932, 60574
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anti-influenza_CDR	7085	14727, 22369, 30011, 37653, 45295, 52937, 60579
anti-influenza_CDR	7086	14728, 22370, 30012, 37654, 45296, 52938, 60580
anti-influenza_CDR	7087	14729, 22371, 30013, 37655, 45297, 52939, 60581
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anti-influenza_CDR	7089	14731, 22373, 30015, 37657, 45299, 52941, 60583
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anti-influenza_CDR	7097	14739, 22381, 30023, 37665, 45307, 52949, 60591
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anti-influenza_CDR	7107	14749, 22391, 30033, 37675, 45317, 52959, 60601
anti-influenza_CDR	7108	14750, 22392, 30034, 37676, 45318, 52960, 60602
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anti-influenza_CDR	7111	14753, 22395, 30037, 37679, 45321, 52963, 60605
anti-influenza_CDR	7112	14754, 22396, 30038, 37680, 45322, 52964, 60606
anti-influenza_CDR	7113	14755, 22397, 30039, 37681, 45323, 52965, 60607
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7118	14760, 22402, 30044, 37686, 45328, 52970, 60612
anti-influenza_CDR	7119	14761, 22403, 30045, 37687, 45329, 52971, 60613
anti-influenza_CDR	7120	14762, 22404, 30046, 37688, 45330, 52972, 60614
anti-influenza_CDR	7121	14763, 22405, 30047, 37689, 45331, 52973, 60615
anti-influenza_CDR	7122	14764, 22406, 30048, 37690, 45332, 52974, 60616
anti-influenza_CDR	7123	14765, 22407, 30049, 37691, 45333, 52975, 60617
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anti-influenza_CDR	7126	14768, 22410, 30052, 37694, 45336, 52978, 60620
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anti-influenza_CDR	7132	14774, 22416, 30058, 37700, 45342, 52984, 60626
anti-influenza_CDR	7133	14775, 22417, 30059, 37701, 45343, 52985, 60627
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anti-influenza_CDR	7140	14782, 22424, 30066, 37708, 45350, 52992, 60634
anti-influenza_CDR	7141	14783, 22425, 30067, 37709, 45351, 52993, 60635
anti-influenza_CDR	7142	14784, 22426, 30068, 37710, 45352, 52994, 60636
anti-influenza_CDR	7143	14785, 22427, 30069, 37711, 45353, 52995, 60637
anti-influenza_CDR	7144	14786, 22428, 30070, 37712, 45354, 52996, 60638
anti-influenza_CDR	7145	14787, 22429, 30071, 37713, 45355, 52997, 60639
anti-influenza_CDR	7146	14788, 22430, 30072, 37714, 45356, 52998, 60640
anti-influenza_CDR	7147	14789, 22431, 30073, 37715, 45357, 52999, 60641

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7151	14793, 22435, 30077, 37719, 45361, 53003, 60645
anti-influenza_CDR	7152	14794, 22436, 30078, 37720, 45362, 53004, 60646
anti-influenza_CDR	7153	14795, 22437, 30079, 37721, 45363, 53005, 60647
anti-influenza_CDR	7154	14796, 22438, 30080, 37722, 45364, 53006, 60648
anti-influenza_CDR	7155	14797, 22439, 30081, 37723, 45365, 53007, 60649
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anti-influenza_CDR	7164	14806, 22448, 30090, 37732, 45374, 53016, 60658
anti-influenza_CDR	7165	14807, 22449, 30091, 37733, 45375, 53017, 60659
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anti-influenza_CDR	7167	14809, 22451, 30093, 37735, 45377, 53019, 60661
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anti-influenza_CDR	7172	14814, 22456, 30098, 37740, 45382, 53024, 60666
anti-influenza_CDR	7173	14815, 22457, 30099, 37741, 45383, 53025, 60667
anti-influenza_CDR	7174	14816, 22458, 30100, 37742, 45384, 53026, 60668
anti-influenza_CDR	7175	14817, 22459, 30101, 37743, 45385, 53027, 60669
anti-influenza_CDR	7176	14818, 22460, 30102, 37744, 45386, 53028, 60670
anti-influenza_CDR	7177	14819, 22461, 30103, 37745, 45387, 53029, 60671
anti-influenza_CDR	7178	14820, 22462, 30104, 37746, 45388, 53030, 60672
anti-influenza_CDR	7179	14821, 22463, 30105, 37747, 45389, 53031, 60673
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7184	14826, 22468, 30110, 37752, 45394, 53036, 60678
anti-influenza_CDR	7185	14827, 22469, 30111, 37753, 45395, 53037, 60679
anti-influenza_CDR	7186	14828, 22470, 30112, 37754, 45396, 53038, 60680
anti-influenza_CDR	7187	14829, 22471, 30113, 37755, 45397, 53039, 60681
anti-influenza_CDR	7188	14830, 22472, 30114, 37756, 45398, 53040, 60682
anti-influenza_CDR	7189	14831, 22473, 30115, 37757, 45399, 53041, 60683
anti-influenza_CDR	7190	14832, 22474, 30116, 37758, 45400, 53042, 60684
anti-influenza_CDR	7191	14833, 22475, 30117, 37759, 45401, 53043, 60685
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anti-influenza_CDR	7195	14837, 22479, 30121, 37763, 45405, 53047, 60689
anti-influenza_CDR	7196	14838, 22480, 30122, 37764, 45406, 53048, 60690
anti-influenza_CDR	7197	14839, 22481, 30123, 37765, 45407, 53049, 60691
anti-influenza_CDR	7198	14840, 22482, 30124, 37766, 45408, 53050, 60692
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anti-influenza_CDR	7202	14844, 22486, 30128, 37770, 45412, 53054, 60696
anti-influenza_CDR	7203	14845, 22487, 30129, 37771, 45413, 53055, 60697
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anti-influenza_CDR	7205	14847, 22489, 30131, 37773, 45415, 53057, 60699
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anti-influenza_CDR	7209	14851, 22493, 30135, 37777, 45419, 53061, 60703
anti-influenza_CDR	7210	14852, 22494, 30136, 37778, 45420, 53062, 60704
anti-influenza_CDR	7211	14853, 22495, 30137, 37779, 45421, 53063, 60705
anti-influenza_CDR	7212	14854, 22496, 30138, 37780, 45422, 53064, 60706
anti-influenza_CDR	7213	14855, 22497, 30139, 37781, 45423, 53065, 60707

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7216	14858, 22500, 30142, 37784, 45426, 53068, 60710
anti-influenza_CDR	7217	14859, 22501, 30143, 37785, 45427, 53069, 60711
anti-influenza_CDR	7218	14860, 22502, 30144, 37786, 45428, 53070, 60712
anti-influenza_CDR	7219	14861, 22503, 30145, 37787, 45429, 53071, 60713
anti-influenza_CDR	7220	14862, 22504, 30146, 37788, 45430, 53072, 60714
anti-influenza_CDR	7221	14863, 22505, 30147, 37789, 45431, 53073, 60715
anti-influenza_CDR	7222	14864, 22506, 30148, 37790, 45432, 53074, 60716
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anti-influenza_CDR	7224	14866, 22508, 30150, 37792, 45434, 53076, 60718
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anti-influenza_CDR	7227	14869, 22511, 30153, 37795, 45437, 53079, 60721
anti-influenza_CDR	7228	14870, 22512, 30154, 37796, 45438, 53080, 60722
anti-influenza_CDR	7229	14871, 22513, 30155, 37797, 45439, 53081, 60723
anti-influenza_CDR	7230	14872, 22514, 30156, 37798, 45440, 53082, 60724
anti-influenza_CDR	7231	14873, 22515, 30157, 37799, 45441, 53083, 60725
anti-influenza_CDR	7232	14874, 22516, 30158, 37800, 45442, 53084, 60726
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anti-influenza_CDR	7236	14878, 22520, 30162, 37804, 45446, 53088, 60730
anti-influenza_CDR	7237	14879, 22521, 30163, 37805, 45447, 53089, 60731
anti-influenza_CDR	7238	14880, 22522, 30164, 37806, 45448, 53090, 60732
anti-influenza_CDR	7239	14881, 22523, 30165, 37807, 45449, 53091, 60733
anti-influenza_CDR	7240	14882, 22524, 30166, 37808, 45450, 53092, 60734
anti-influenza_CDR	7241	14883, 22525, 30167, 37809, 45451, 53093, 60735
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anti-influenza_CDR	7243	14885, 22527, 30169, 37811, 45453, 53095, 60737
anti-influenza_CDR	7244	14886, 22528, 30170, 37812, 45454, 53096, 60738
anti-influenza_CDR	7245	14887, 22529, 30171, 37813, 45455, 53097, 60739
anti-influenza_CDR	7246	14888, 22530, 30172, 37814, 45456, 53098, 60740

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7249	14891, 22533, 30175, 37817, 45459, 53101, 60743
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anti-influenza_CDR	7251	14893, 22535, 30177, 37819, 45461, 53103, 60745
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anti-influenza_CDR	7254	14896, 22538, 30180, 37822, 45464, 53106, 60748
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anti-influenza_CDR	7262	14904, 22546, 30188, 37830, 45472, 53114, 60756
anti-influenza_CDR	7263	14905, 22547, 30189, 37831, 45473, 53115, 60757
anti-influenza_CDR	7264	14906, 22548, 30190, 37832, 45474, 53116, 60758
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anti-influenza_CDR	7270	14912, 22554, 30196, 37838, 45480, 53122, 60764
anti-influenza_CDR	7271	14913, 22555, 30197, 37839, 45481, 53123, 60765
anti-influenza_CDR	7272	14914, 22556, 30198, 37840, 45482, 53124, 60766
anti-influenza_CDR	7273	14915, 22557, 30199, 37841, 45483, 53125, 60767
anti-influenza_CDR	7274	14916, 22558, 30200, 37842, 45484, 53126, 60768
anti-influenza_CDR	7275	14917, 22559, 30201, 37843, 45485, 53127, 60769
anti-influenza_CDR	7276	14918, 22560, 30202, 37844, 45486, 53128, 60770
anti-influenza_CDR	7277	14919, 22561, 30203, 37845, 45487, 53129, 60771
anti-influenza_CDR	7278	14920, 22562, 30204, 37846, 45488, 53130, 60772
anti-influenza_CDR	7279	14921, 22563, 30205, 37847, 45489, 53131, 60773

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7282	14924, 22566, 30208, 37850, 45492, 53134, 60776
anti-influenza_CDR	7283	14925, 22567, 30209, 37851, 45493, 53135, 60777
anti-influenza_CDR	7284	14926, 22568, 30210, 37852, 45494, 53136, 60778
anti-influenza_CDR	7285	14927, 22569, 30211, 37853, 45495, 53137, 60779
anti-influenza_CDR	7286	14928, 22570, 30212, 37854, 45496, 53138, 60780
anti-influenza_CDR	7287	14929, 22571, 30213, 37855, 45497, 53139, 60781
anti-influenza_CDR	7288	14930, 22572, 30214, 37856, 45498, 53140, 60782
anti-influenza_CDR	7289	14931, 22573, 30215, 37857, 45499, 53141, 60783
anti-influenza_CDR	7290	14932, 22574, 30216, 37858, 45500, 53142, 60784
anti-influenza_CDR	7291	14933, 22575, 30217, 37859, 45501, 53143, 60785
anti-influenza_CDR	7292	14934, 22576, 30218, 37860, 45502, 53144, 60786
anti-influenza_CDR	7293	14935, 22577, 30219, 37861, 45503, 53145, 60787
anti-influenza_CDR	7294	14936, 22578, 30220, 37862, 45504, 53146, 60788
anti-influenza_CDR	7295	14937, 22579, 30221, 37863, 45505, 53147, 60789
anti-influenza_CDR	7296	14938, 22580, 30222, 37864, 45506, 53148, 60790
anti-influenza_CDR	7297	14939, 22581, 30223, 37865, 45507, 53149, 60791
anti-influenza_CDR	7298	14940, 22582, 30224, 37866, 45508, 53150, 60792
anti-influenza_CDR	7299	14941, 22583, 30225, 37867, 45509, 53151, 60793
anti-influenza_CDR	7300	14942, 22584, 30226, 37868, 45510, 53152, 60794
anti-influenza_CDR	7301	14943, 22585, 30227, 37869, 45511, 53153, 60795
anti-influenza_CDR	7302	14944, 22586, 30228, 37870, 45512, 53154, 60796
anti-influenza_CDR	7303	14945, 22587, 30229, 37871, 45513, 53155, 60797
anti-influenza_CDR	7304	14946, 22588, 30230, 37872, 45514, 53156, 60798
anti-influenza_CDR	7305	14947, 22589, 30231, 37873, 45515, 53157, 60799
anti-influenza_CDR	7306	14948, 22590, 30232, 37874, 45516, 53158, 60800
anti-influenza_CDR	7307	14949, 22591, 30233, 37875, 45517, 53159, 60801
anti-influenza_CDR	7308	14950, 22592, 30234, 37876, 45518, 53160, 60802
anti-influenza_CDR	7309	14951, 22593, 30235, 37877, 45519, 53161, 60803
anti-influenza_CDR	7310	14952, 22594, 30236, 37878, 45520, 53162, 60804
anti-influenza_CDR	7311	14953, 22595, 30237, 37879, 45521, 53163, 60805
anti-influenza_CDR	7312	14954, 22596, 30238, 37880, 45522, 53164, 60806

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7315	14957, 22599, 30241, 37883, 45525, 53167, 60809
anti-influenza_CDR	7316	14958, 22600, 30242, 37884, 45526, 53168, 60810
anti-influenza_CDR	7317	14959, 22601, 30243, 37885, 45527, 53169, 60811
anti-influenza_CDR	7318	14960, 22602, 30244, 37886, 45528, 53170, 60812
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anti-influenza_CDR	7320	14962, 22604, 30246, 37888, 45530, 53172, 60814
anti-influenza_CDR	7321	14963, 22605, 30247, 37889, 45531, 53173, 60815
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anti-influenza_CDR	7324	14966, 22608, 30250, 37892, 45534, 53176, 60818
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anti-influenza_CDR	7328	14970, 22612, 30254, 37896, 45538, 53180, 60822
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anti-influenza_CDR	7331	14973, 22615, 30257, 37899, 45541, 53183, 60825
anti-influenza_CDR	7332	14974, 22616, 30258, 37900, 45542, 53184, 60826
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anti-influenza_CDR	7338	14980, 22622, 30264, 37906, 45548, 53190, 60832
anti-influenza_CDR	7339	14981, 22623, 30265, 37907, 45549, 53191, 60833
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anti-influenza_CDR	7341	14983, 22625, 30267, 37909, 45551, 53193, 60835
anti-influenza_CDR	7342	14984, 22626, 30268, 37910, 45552, 53194, 60836
anti-influenza_CDR	7343	14985, 22627, 30269, 37911, 45553, 53195, 60837
anti-influenza_CDR	7344	14986, 22628, 30270, 37912, 45554, 53196, 60838
anti-influenza_CDR	7345	14987, 22629, 30271, 37913, 45555, 53197, 60839

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7348	14990, 22632, 30274, 37916, 45558, 53200, 60842
anti-influenza_CDR	7349	14991, 22633, 30275, 37917, 45559, 53201, 60843
anti-influenza_CDR	7350	14992, 22634, 30276, 37918, 45560, 53202, 60844
anti-influenza_CDR	7351	14993, 22635, 30277, 37919, 45561, 53203, 60845
anti-influenza_CDR	7352	14994, 22636, 30278, 37920, 45562, 53204, 60846
anti-influenza_CDR	7353	14995, 22637, 30279, 37921, 45563, 53205, 60847
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anti-influenza_CDR	7357	14999, 22641, 30283, 37925, 45567, 53209, 60851
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anti-influenza_CDR	7359	15001, 22643, 30285, 37927, 45569, 53211, 60853
anti-influenza_CDR	7360	15002, 22644, 30286, 37928, 45570, 53212, 60854
anti-influenza_CDR	7361	15003, 22645, 30287, 37929, 45571, 53213, 60855
anti-influenza_CDR	7362	15004, 22646, 30288, 37930, 45572, 53214, 60856
anti-influenza_CDR	7363	15005, 22647, 30289, 37931, 45573, 53215, 60857
anti-influenza_CDR	7364	15006, 22648, 30290, 37932, 45574, 53216, 60858
anti-influenza_CDR	7365	15007, 22649, 30291, 37933, 45575, 53217, 60859
anti-influenza_CDR	7366	15008, 22650, 30292, 37934, 45576, 53218, 60860
anti-influenza_CDR	7367	15009, 22651, 30293, 37935, 45577, 53219, 60861
anti-influenza_CDR	7368	15010, 22652, 30294, 37936, 45578, 53220, 60862
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anti-influenza_CDR	7371	15013, 22655, 30297, 37939, 45581, 53223, 60865
anti-influenza_CDR	7372	15014, 22656, 30298, 37940, 45582, 53224, 60866
anti-influenza_CDR	7373	15015, 22657, 30299, 37941, 45583, 53225, 60867
anti-influenza_CDR	7374	15016, 22658, 30300, 37942, 45584, 53226, 60868
anti-influenza_CDR	7375	15017, 22659, 30301, 37943, 45585, 53227, 60869
anti-influenza_CDR	7376	15018, 22660, 30302, 37944, 45586, 53228, 60870
anti-influenza_CDR	7377	15019, 22661, 30303, 37945, 45587, 53229, 60871
anti-influenza_CDR	7378	15020, 22662, 30304, 37946, 45588, 53230, 60872

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7381	15023, 22665, 30307, 37949, 45591, 53233, 60875
anti-influenza_CDR	7382	15024, 22666, 30308, 37950, 45592, 53234, 60876
anti-influenza_CDR	7383	15025, 22667, 30309, 37951, 45593, 53235, 60877
anti-influenza_CDR	7384	15026, 22668, 30310, 37952, 45594, 53236, 60878
anti-influenza_CDR	7385	15027, 22669, 30311, 37953, 45595, 53237, 60879
anti-influenza_CDR	7386	15028, 22670, 30312, 37954, 45596, 53238, 60880
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anti-influenza_CDR	7388	15030, 22672, 30314, 37956, 45598, 53240, 60882
anti-influenza_CDR	7389	15031, 22673, 30315, 37957, 45599, 53241, 60883
anti-influenza_CDR	7390	15032, 22674, 30316, 37958, 45600, 53242, 60884
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anti-influenza_CDR	7393	15035, 22677, 30319, 37961, 45603, 53245, 60887
anti-influenza_CDR	7394	15036, 22678, 30320, 37962, 45604, 53246, 60888
anti-influenza_CDR	7395	15037, 22679, 30321, 37963, 45605, 53247, 60889
anti-influenza_CDR	7396	15038, 22680, 30322, 37964, 45606, 53248, 60890
anti-influenza_CDR	7397	15039, 22681, 30323, 37965, 45607, 53249, 60891
anti-influenza_CDR	7398	15040, 22682, 30324, 37966, 45608, 53250, 60892
anti-influenza_CDR	7399	15041, 22683, 30325, 37967, 45609, 53251, 60893
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anti-influenza_CDR	7401	15043, 22685, 30327, 37969, 45611, 53253, 60895
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anti-influenza_CDR	7403	15045, 22687, 30329, 37971, 45613, 53255, 60897
anti-influenza_CDR	7404	15046, 22688, 30330, 37972, 45614, 53256, 60898
anti-influenza_CDR	7405	15047, 22689, 30331, 37973, 45615, 53257, 60899
anti-influenza_CDR	7406	15048, 22690, 30332, 37974, 45616, 53258, 60900
anti-influenza_CDR	7407	15049, 22691, 30333, 37975, 45617, 53259, 60901
anti-influenza_CDR	7408	15050, 22692, 30334, 37976, 45618, 53260, 60902
anti-influenza_CDR	7409	15051, 22693, 30335, 37977, 45619, 53261, 60903
anti-influenza_CDR	7410	15052, 22694, 30336, 37978, 45620, 53262, 60904
anti-influenza_CDR	7411	15053, 22695, 30337, 37979, 45621, 53263, 60905

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7414	15056, 22698, 30340, 37982, 45624, 53266, 60908
anti-influenza_CDR	7415	15057, 22699, 30341, 37983, 45625, 53267, 60909
anti-influenza_CDR	7416	15058, 22700, 30342, 37984, 45626, 53268, 60910
anti-influenza_CDR	7417	15059, 22701, 30343, 37985, 45627, 53269, 60911
anti-influenza_CDR	7418	15060, 22702, 30344, 37986, 45628, 53270, 60912
anti-influenza_CDR	7419	15061, 22703, 30345, 37987, 45629, 53271, 60913
anti-influenza_CDR	7420	15062, 22704, 30346, 37988, 45630, 53272, 60914
anti-influenza_CDR	7421	15063, 22705, 30347, 37989, 45631, 53273, 60915
anti-influenza_CDR	7422	15064, 22706, 30348, 37990, 45632, 53274, 60916
anti-influenza_CDR	7423	15065, 22707, 30349, 37991, 45633, 53275, 60917
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anti-influenza_CDR	7426	15068, 22710, 30352, 37994, 45636, 53278, 60920
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anti-influenza_CDR	7429	15071, 22713, 30355, 37997, 45639, 53281, 60923
anti-influenza_CDR	7430	15072, 22714, 30356, 37998, 45640, 53282, 60924
anti-influenza_CDR	7431	15073, 22715, 30357, 37999, 45641, 53283, 60925
anti-influenza_CDR	7432	15074, 22716, 30358, 38000, 45642, 53284, 60926
anti-influenza_CDR	7433	15075, 22717, 30359, 38001, 45643, 53285, 60927
anti-influenza_CDR	7434	15076, 22718, 30360, 38002, 45644, 53286, 60928
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anti-influenza_CDR	7436	15078, 22720, 30362, 38004, 45646, 53288, 60930
anti-influenza_CDR	7437	15079, 22721, 30363, 38005, 45647, 53289, 60931
anti-influenza_CDR	7438	15080, 22722, 30364, 38006, 45648, 53290, 60932
anti-influenza_CDR	7439	15081, 22723, 30365, 38007, 45649, 53291, 60933
anti-influenza_CDR	7440	15082, 22724, 30366, 38008, 45650, 53292, 60934
anti-influenza_CDR	7441	15083, 22725, 30367, 38009, 45651, 53293, 60935
anti-influenza_CDR	7442	15084, 22726, 30368, 38010, 45652, 53294, 60936
anti-influenza_CDR	7443	15085, 22727, 30369, 38011, 45653, 53295, 60937
anti-influenza_CDR	7444	15086, 22728, 30370, 38012, 45654, 53296, 60938

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7447	15089, 22731, 30373, 38015, 45657, 53299, 60941
anti-influenza_CDR	7448	15090, 22732, 30374, 38016, 45658, 53300, 60942
anti-influenza_CDR	7449	15091, 22733, 30375, 38017, 45659, 53301, 60943
anti-influenza_CDR	7450	15092, 22734, 30376, 38018, 45660, 53302, 60944
anti-influenza_CDR	7451	15093, 22735, 30377, 38019, 45661, 53303, 60945
anti-influenza_CDR	7452	15094, 22736, 30378, 38020, 45662, 53304, 60946
anti-influenza_CDR	7453	15095, 22737, 30379, 38021, 45663, 53305, 60947
anti-influenza_CDR	7454	15096, 22738, 30380, 38022, 45664, 53306, 60948
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anti-influenza_CDR	7456	15098, 22740, 30382, 38024, 45666, 53308, 60950
anti-influenza_CDR	7457	15099, 22741, 30383, 38025, 45667, 53309, 60951
anti-influenza_CDR	7458	15100, 22742, 30384, 38026, 45668, 53310, 60952
anti-influenza_CDR	7459	15101, 22743, 30385, 38027, 45669, 53311, 60953
anti-influenza_CDR	7460	15102, 22744, 30386, 38028, 45670, 53312, 60954
anti-influenza_CDR	7461	15103, 22745, 30387, 38029, 45671, 53313, 60955
anti-influenza_CDR	7462	15104, 22746, 30388, 38030, 45672, 53314, 60956
anti-influenza_CDR	7463	15105, 22747, 30389, 38031, 45673, 53315, 60957
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anti-influenza_CDR	7465	15107, 22749, 30391, 38033, 45675, 53317, 60959
anti-influenza_CDR	7466	15108, 22750, 30392, 38034, 45676, 53318, 60960
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anti-influenza_CDR	7470	15112, 22754, 30396, 38038, 45680, 53322, 60964
anti-influenza_CDR	7471	15113, 22755, 30397, 38039, 45681, 53323, 60965
anti-influenza_CDR	7472	15114, 22756, 30398, 38040, 45682, 53324, 60966
anti-influenza_CDR	7473	15115, 22757, 30399, 38041, 45683, 53325, 60967
anti-influenza_CDR	7474	15116, 22758, 30400, 38042, 45684, 53326, 60968
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anti-influenza_CDR	7476	15118, 22760, 30402, 38044, 45686, 53328, 60970
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Name	Protein SEQ ID NO:	RNA SEQ ID NO:
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anti-influenza_CDR	7480	15122, 22764, 30406, 38048, 45690, 53332, 60974
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anti-influenza_CDR	7490	15132, 22774, 30416, 38058, 45700, 53342, 60984
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anti-influenza_CDR	7492	15134, 22776, 30418, 38060, 45702, 53344, 60986
anti-influenza_CDR	7493	15135, 22777, 30419, 38061, 45703, 53345, 60987
anti-influenza_CDR	7494	15136, 22778, 30420, 38062, 45704, 53346, 60988
anti-influenza_CDR	7495	15137, 22779, 30421, 38063, 45705, 53347, 60989
anti-influenza_CDR	7496	15138, 22780, 30422, 38064, 45706, 53348, 60990
anti-influenza_CDR	7497	15139, 22781, 30423, 38065, 45707, 53349, 60991
anti-influenza_CDR	7498	15140, 22782, 30424, 38066, 45708, 53350, 60992
anti-influenza_CDR	7499	15141, 22783, 30425, 38067, 45709, 53351, 60993
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anti-influenza_CDR	7502	15144, 22786, 30428, 38070, 45712, 53354, 60996
anti-influenza_CDR	7503	15145, 22787, 30429, 38071, 45713, 53355, 60997
anti-influenza_CDR	7504	15146, 22788, 30430, 38072, 45714, 53356, 60998
anti-influenza_CDR	7505	15147, 22789, 30431, 38073, 45715, 53357, 60999
anti-influenza_CDR	7506	15148, 22790, 30432, 38074, 45716, 53358, 61000
anti-influenza_CDR	7507	15149, 22791, 30433, 38075, 45717, 53359, 61001
anti-influenza_CDR	7508	15150, 22792, 30434, 38076, 45718, 53360, 61002
anti-influenza_CDR	7509	15151, 22793, 30435, 38077, 45719, 53361, 61003
anti-influenza_CDR	7510	15152, 22794, 30436, 38078, 45720, 53362, 61004

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-influenza_CDR	7511	15153, 22795, 30437, 38079, 45721, 53363, 61005
anti-influenza_CDR	7512	15154, 22796, 30438, 38080, 45722, 53364, 61006
anti-influenza_CDR	7513	15155, 22797, 30439, 38081, 45723, 53365, 61007
anti-influenza_CDR	7514	15156, 22798, 30440, 38082, 45724, 53366, 61008
anti-influenza_CDR	7515	15157, 22799, 30441, 38083, 45725, 53367, 61009
anti-influenza_CDR	7516	15158, 22800, 30442, 38084, 45726, 53368, 61010
anti-influenza_CDR	7517	15159, 22801, 30443, 38085, 45727, 53369, 61011
anti-influenza_CDR	7518	15160, 22802, 30444, 38086, 45728, 53370, 61012
anti-influenza_CDR	7519	15161, 22803, 30445, 38087, 45729, 53371, 61013
anti-influenza_CDR	7520	15162, 22804, 30446, 38088, 45730, 53372, 61014
anti-influenza_CDR	7521	15163, 22805, 30447, 38089, 45731, 53373, 61015
anti-influenza_CDR	7522	15164, 22806, 30448, 38090, 45732, 53374, 61016
anti-influenza_CDR	7523	15165, 22807, 30449, 38091, 45733, 53375, 61017
anti-influenza_CDR	7524	15166, 22808, 30450, 38092, 45734, 53376, 61018
anti-OX40_HeavyChain_CDR1	7525	15167, 22809, 30451, 38093, 45735, 53377, 61019
anti-OX40_HeavyChain_CDR1	7526	15168, 22810, 30452, 38094, 45736, 53378, 61020
anti-OX40_HeavyChain_CDR1	7527	15169, 22811, 30453, 38095, 45737, 53379, 61021
anti-OX40_HeavyChain_CDR1	7528	15170, 22812, 30454, 38096, 45738, 53380, 61022
anti-OX40_HeavyChain_CDR1	7529	15171, 22813, 30455, 38097, 45739, 53381, 61023
anti-OX40_HeavyChain_CDR1	7530	15172, 22814, 30456, 38098, 45740, 53382, 61024
anti-OX40_LightChain_CDR2	7531	15173, 22815, 30457, 38099, 45741, 53383, 61025
anti-OX40_LightChain_CDR2	7532	15174, 22816, 30458, 38100, 45742, 53384, 61026
anti-OX40_LightChain_CDR2	7533	15175, 22817, 30459, 38101, 45743, 53385, 61027
anti-OX40_LightChain_CDR2	7534	15176, 22818, 30460, 38102, 45744, 53386, 61028
anti-OX40_LightChain_CDR3	7535	15177, 22819, 30461, 38103, 45745, 53387, 61029
anti-OX40_HeavyChain_CDR3	7536	15178, 22820, 30462, 38104, 45746, 53388, 61030
anti-OX40_HeavyChain_CDR3	7537	15179, 22821, 30463, 38105, 45747, 53389, 61031
anti-OX40_HeavyChain_CDR3	7538	15180, 22822, 30464, 38106, 45748, 53390, 61032
anti-OX40_LightChain_CDR3	7539	15181, 22823, 30465, 38107, 45749, 53391, 61033
anti-OX40_HeavyChain_CDR3	7540	15182, 22824, 30466, 38108, 45750, 53392, 61034
anti-OX40_LightChain_CDR3	7541	15183, 22825, 30467, 38109, 45751, 53393, 61035
anti-OX40_LightChain_CDR3	7542	15184, 22826, 30468, 38110, 45752, 53394, 61036
anti-OX40_LightChain_CDR3	7543	15185, 22827, 30469, 38111, 45753, 53395, 61037

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
anti-OX40_LightChain_CDR3	7544	15186, 22828, 30470, 38112, 45754, 53396, 61038
anti-OX40_LightChain_CDR3	7545	15187, 22829, 30471, 38113, 45755, 53397, 61039
anti-OX40_LightChain_CDR3	7546	15188, 22830, 30472, 38114, 45756, 53398, 61040
anti-OX40_LightChain_CDR3	7547	15189, 22831, 30473, 38115, 45757, 53399, 61041
anti-OX40_LightChain_CDR3	7548	15190, 22832, 30474, 38116, 45758, 53400, 61042
anti-OX40_LightChain_CDR3	7549	15191, 22833, 30475, 38117, 45759, 53401, 61043
anti-OX40_HeavyChain_CDR1	7550	15192, 22834, 30476, 38118, 45760, 53402, 61044
anti-OX40_HeavyChain_CDR3	7551	15193, 22835, 30477, 38119, 45761, 53403, 61045
anti-OX40_LightChain_CDR1	7552	15194, 22836, 30478, 38120, 45762, 53404, 61046
anti-OX40_LightChain_CDR1	7553	15195, 22837, 30479, 38121, 45763, 53405, 61047
anti-OX40_LightChain_CDR1	7554	15196, 22838, 30480, 38122, 45764, 53406, 61048
anti-OX40_HeavyChain_CDR3	7555	15197, 22839, 30481, 38123, 45765, 53407, 61049
anti-OX40_HeavyChain_CDR3	7556	15198, 22840, 30482, 38124, 45766, 53408, 61050
anti-OX40_HeavyChain_CDR3	7557	15199, 22841, 30483, 38125, 45767, 53409, 61051
anti-OX40_HeavyChain_CDR3	7558	15200, 22842, 30484, 38126, 45768, 53410, 61052
anti-OX40_HeavyChain_CDR2	7559	15201, 22843, 30485, 38127, 45769, 53411, 61053
anti-OX40_HeavyChain_CDR2	7560	15202, 22844, 30486, 38128, 45770, 53412, 61054
anti-OX40_HeavyChain_CDR2	7561	15203, 22845, 30487, 38129, 45771, 53413, 61055
anti-OX40_HeavyChain_CDR2	7562	15204, 22846, 30488, 38130, 45772, 53414, 61056
anti-OX40_HeavyChain_CDR2	7563	15205, 22847, 30489, 38131, 45773, 53415, 61057
anti-OX40_HeavyChain_CDR2	7564	15206, 22848, 30490, 38132, 45774, 53416, 61058
anti-OX40_HeavyChain_CDR2	7565	15207, 22849, 30491, 38133, 45775, 53417, 61059
anti-OX40_HeavyChain_CDR2	7566	15208, 22850, 30492, 38134, 45776, 53418, 61060
anti-OX40_HeavyChain_CDR2	7567	15209, 22851, 30493, 38135, 45777, 53419, 61061
anti-OX40_HeavyChain_CDR2	7568	15210, 22852, 30494, 38136, 45778, 53420, 61062
anti-OX40_HeavyChain_CDR2	7569	15211, 22853, 30495, 38137, 45779, 53421, 61063
anti-OX40_HeavyChain_CDR2	7570	15212, 22854, 30496, 38138, 45780, 53422, 61064

Accordingly, it is preferred that the CDR encoded by the at least one coding sequence comprises or consists of an amino acid sequence as set forth in any of SEQ ID NOs: 5601-7570. It is also preferred that the at least one coding sequence comprises or consists of a nucleic acid sequence as set forth in any of SEQ ID NOs: 13243-15212, 20885-22854, 28527-30496, 36169-38138, 43811-45780, 51453-53422, and 59095-61064.

The amino acid sequences of exemplary CDRs comprising less than 4 amino acids are shown below in Table 7.

Table 7: Amino acid sequences and corresponding SEQ ID NOs of exemplary CDRs comprising less than 4 amino acids

Amino Acid Sequence	SEQ ID NO	Amino Acid Sequence	SEQ ID NO	Amino Acid Sequence	SEQ ID NO
AR	6478	DTD	6487	QDD	6496
AK	6479	GAS	6488	TDN	6497
SNN	6480	KAS	6489	LAS	6498
VAS	6481	DDS	6490	DAS	6499
ATY	6482	AAS	6491	EVR	6500
TAY	6483	SAS	6492	DDR	6501
DND	6484	LGS	6493	AAI	6502
HGT	6485	WAS	6494	RAS	6503
DVS	6486	EDS	6495		

The nucleic acid (RNA) sequences of exemplary CDRs comprising less than 10 nucleotides are shown below in Table 8.

Table 8: RNA sequences and corresponding SEQ ID NOs of exemplary CDRs comprising less than 10 nucleotides

RNA Sequence	SEQ ID NO	RNA Sequence	SEQ ID NO	RNA Sequence	SEQ ID NO
GCCCGC	14120	GACACCGAU	29413	CAGGACGAU	44706
GCCAAG	14121	GGCGCCAGC	29414	ACCGACAAC	44707
AGCAACAAC	14122	AAGGCCAGC	29415	CUGGCCAGC	44708
GUGGCCAGC	14123	GACGAUAGC	29416	GACGCCAGC	44709
GCCACCUAC	14124	GCCGCUAGC	29417	GAGGUGAGA	44710
ACCGCCUAC	14125	AGCGCCUCC	29418	GACGAUAGA	44711
GACAACGAC	14126	CUGGGCAGC	29419	GCCGCUAUC	44712
CACGGCACC	14127	UGGGCCAGC	29420	AGAGCCAGC	44713
GACGUGAGC	14128	GAGGACAGC	29421	GCGCGA	52330
GACACCGAC	14129	CAGGACGAU	29422	GCCAAG	52331
GGCGCCAGC	14130	ACCGACAAC	29423	AGCAAUAAC	52332
AAGGCCAGC	14131	CUGGCCAGC	29424	GUCGCUAGU	52333

RNA Sequence	SEQ ID NO	RNA Sequence	SEQ ID NO	RNA Sequence	SEQ ID NO
GACGACAGC	14132	GACGCCAGC	29425	GCCACAUAU	52334
GCCGCCAGC	14133	GAGGUGAGA	29426	ACCGCCUAC	52335
AGCGCCUCC	14134	GACGAUAGA	29427	GAUAACGAU	52336
CUGGGCAGC	14135	GCCGCUAUC	29428	CACGGCACC	52337
UGGGCCAGC	14136	AGAGCCAGC	29429	GACGUAAGU	52338
GAGGACAGC	14137	GCCAGA	37046	GAUACAGAU	52339
CAGGACGAC	14138	GCCAAG	37047	GGCGCGAGU	52340
ACCGACAAC	14139	AGCAACAAC	37048	AAAGCCAGC	52341
CUGGCCAGC	14140	GUGGCCAGC	37049	GACGACAGU	52342
GACGCCAGC	14141	GCCACCUAC	37050	GCCGCUUCA	52343
GAGGUGCGC	14142	ACCGCCUAC	37051	AGCGCGAGC	52344
GACGACCGC	14143	GACAACGAC	37052	CUAGGCAGC	52345
GCCGCCAUC	14144	CACGGCACC	37053	UGGGCAAGU	52346
CGCGCCAGC	14145	GACGUGAGC	37054	GAGGACAGU	52347
GCCCGC	21762	GACACCGAC	37055	CAAGACGAC	52348
GCCAAG	21763	GGCGCCAGC	37056	ACCGACAAC	52349
UCCAACAAC	21764	AAGGCCAGC	37057	CUCGCUAGC	52350
GUCGCCUCC	21765	GACGACAGC	37058	GACGCCAGU	52351
GCCACCUAC	21766	GCCGCCAGC	37059	GAGGUGAGA	52352
ACCGCCUAC	21767	AGCGCCAGC	37060	GACGAUAGA	52353
GACAACGAC	21768	CUGGGCAGC	37061	GCGGCUAUA	52354
CACGGCACC	21769	UGGGCCAGC	37062	CGCGCGAGC	52355
GACGUCUCC	21770	GAGGACAGC	37063	GCGCGG	59972
GACACCGAC	21771	CAGGACGAC	37064	GCGAAG	59973
GGCGCCUCC	21772	ACCGACAAC	37065	UCCAACAAC	59974
AAGGCCUCC	21773	CUGGCCAGC	37066	GUCGCCAGU	59975
GACGACUCC	21774	GACGCCAGC	37067	GCCACCUAU	59976
GCCGCCUCC	21775	GAGGUGAGA	37068	ACCGCCUAC	59977
UCCGCCUCC	21776	GACGACAGA	37069	GAUAACGAU	59978
CUCGGCUCC	21777	GCCGCCAUC	37070	CACGGCACC	59979
UGGGCCUCC	21778	AGAGCCAGC	37071	GACGUGAGU	59980
GAGGACUCC	21779	GCCAGA	44688	GAUACCGAU	59981
CAGGACGAC	21780	GCCAAG	44689	GGCGCGAGU	59982

RNA Sequence	SEQ ID NO	RNA Sequence	SEQ ID NO	RNA Sequence	SEQ ID NO
ACCGACAAC	21781	AGCAACAAU	44690	AAAGCGAGC	59983
CUCGCCUCC	21782	GUGGCCAGC	44691	GACGACAGU	59984
GACGCCUCC	21783	GCCACCUAC	44692	GCCGCCUCA	59985
GAGGUCCGC	21784	ACCGCCUAC	44693	AGCGCAAGU	59986
GACGACCGC	21785	GACAACGAU	44694	CUCGGCAGC	59987
GCCGCCAUC	21786	CACGGCACC	44695	UGGGCGAGU	59988
CGCGCCUCC	21787	GACGUGAGC	44696	GAGGACAGU	59989
GCCAGA	29404	GACACCGAU	44697	CAAGACGAC	59990
GCCAAG	29405	GGCGCCAGC	44698	ACCGACAAC	59991
AGCAACAAU	29406	AAGGCCAGC	44699	CUCGCCAGC	59992
GUGGCCAGC	29407	GACGAUAGC	44700	GACGCGAGU	59993
GCCACCUAC	29408	GCCGCUAGC	44701	GAGGUCAGG	59994
ACCGCCUAC	29409	AGCGCCUCC	44702	GACGACAGA	59995
GACAACGAU	29410	CUGGGCAGC	44703	GCGGCCAUA	59996
CACGGCACC	29411	UGGGCCAGC	44704	CGCGCGAGC	59997
GACGUGAGC	29412	GAGGACAGC	44705		

Preferably, the RNA according to the present invention comprises coding sequences encoding at least two CDRs of an antibody, more preferably at least three CDRs of an antibody, even more preferably at least four CDRs of an antibody, still more preferably at least five CDRs of an antibody, and most preferably six CDRs of an antibody.

It is also preferred that the at least one coding sequence of the RNA according to the present invention encodes a constant region of an antibody or a fragment or variant of constant region of an antibody. Typically, the constant region is identical in all antibodies of the same isotype, but differs in antibodies of different isotypes. Heavy chains γ, α and δ have a constant region composed of three tandem (in a line) immunoglobulin domains, and a hinge region for added flexibility; heavy chains μ and ε have a constant region composed of four immunoglobulin domains.

Preferably, the at least one coding sequence of the RNA according to the present invention encodes a heavy chain constant region of an antibody or a fragment or variant of heavy chain constant region of an antibody. It is also preferred that the at least one coding sequence encodes

a light chain constant region of an antibody or a fragment or variant of light chain constant region of an antibody.

It is also preferred that the constant region encoded by the at least one coding sequence comprises or consists of an amino acid sequence as described in Table 9 below (referred to as "protein SEQ ID NO"). Particularly preferably, the at least one coding sequence comprises or consists of a nucleic acid sequence (RNA sequence) as described in Table 9 below (referred to as "RNA SEQ ID NO").

Table 9: Overview over the SEQ ID NOs of the amino acid sequences of preferred exemplary constant regions and of the respective encoding RNA sequences.

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
Ig_LightChain_kappa_constant_domain	7571	15213, 22855, 30497, 38139, 45781, 53423, 61065
Ig_LightChain_kappa_constant_domain	7572	15214, 22856, 30498, 38140, 45782, 53424, 61066
Ig_LightChain_lambda_constant_domain	7573	15215, 22857, 30499, 38141, 45783, 53425, 61067
Ig_LightChain_lambda_constant_domain	7574	15216, 22858, 30500, 38142, 45784, 53426, 61068
Ig_LightChain_lambda_constant_domain	7575	15217, 22859, 30501, 38143, 45785, 53427, 61069
Ig_LightChain_lambda_constant_domain	7576	15218, 22860, 30502, 38144, 45786, 53428, 61070
IgG1_HeavyChain_CH1_constant_domain	7577	15219, 22861, 30503, 38145, 45787, 53429, 61071
IgG1_HeavyChain_CH1_constant_domain	7578	15220, 22862, 30504, 38146, 45788, 53430, 61072
IgG1_HeavyChain_CH1_constant_domain	7579	15221, 22863, 30505, 38147, 45789, 53431, 61073
IgG1_HeavyChain_CH1_constant_domain	7580	15222, 22864, 30506, 38148, 45790, 53432, 61074
IgG1_HeavyChain_CH1_constant_domain	7581	15223, 22865, 30507, 38149, 45791, 53433, 61075
IgG1_HeavyChain_CH1_constant_domain	7582	15224, 22866, 30508, 38150, 45792, 53434, 61076
IgG1_HeavyChain_CH1_constant_domain	7583	15225, 22867, 30509, 38151, 45793, 53435, 61077
IgG1_HeavyChain_CH1_constant_domain	7584	15226, 22868, 30510, 38152, 45794, 53436, 61078
IgG1_HeavyChain_CH1_constant_domain	7585	15227, 22869, 30511, 38153, 45795, 53437, 61079
IgG1_HeavyChain_CH1_constant_domain	7586	15228, 22870, 30512, 38154, 45796, 53438, 61080
IgG1_HeavyChain_CH1_constant_domain	7587	15229, 22871, 30513, 38155, 45797, 53439, 61081
IgG1_HeavyChain_CH1_constant_domain	7588	15230, 22872, 30514, 38156, 45798, 53440, 61082
IgG1_HeavyChain_CH1_constant_domain	7589	15231, 22873, 30515, 38157, 45799, 53441, 61083
IgG1_HeavyChain_CH1_constant_domain	7590	15232, 22874, 30516, 38158, 45800, 53442, 61084
IgG1_HeavyChain_CH1_constant_domain	7591	15233, 22875, 30517, 38159, 45801, 53443, 61085
IgG1_HeavyChain_CH1_constant_domain	7592	15234, 22876, 30518, 38160, 45802, 53444, 61086
IgG1_HeavyChain_CH2_constant_domain	7593	15235, 22877, 30519, 38161, 45803, 53445, 61087

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
IgG1_HeavyChain_CH2_constant_domain	7594	15236, 22878, 30520, 38162, 45804, 53446, 61088
IgG1_HeavyChain_CH2_constant_domain	7595	15237, 22879, 30521, 38163, 45805, 53447, 61089
IgG1_HeavyChain_CH2_constant_domain	7596	15238, 22880, 30522, 38164, 45806, 53448, 61090
IgG1_HeavyChain_CH2_constant_domain	7597	15239, 22881, 30523, 38165, 45807, 53449, 61091
IgG1_HeavyChain_CH2_constant_domain	7598	15240, 22882, 30524, 38166, 45808, 53450, 61092
IgG1_HeavyChain_CH2_constant_domain	7599	15241, 22883, 30525, 38167, 45809, 53451, 61093
IgG1_HeavyChain_CH2_constant_domain	7600	15242, 22884, 30526, 38168, 45810, 53452, 61094
IgG1_HeavyChain_CH2_constant_domain	7601	15243, 22885, 30527, 38169, 45811, 53453, 61095
IgG1_HeavyChain_CH2_constant_domain	7602	15244, 22886, 30528, 38170, 45812, 53454, 61096
IgG1_HeavyChain_CH2_constant_domain	7603	15245, 22887, 30529, 38171, 45813, 53455, 61097
IgG1_HeavyChain_CH2_constant_domain	7604	15246, 22888, 30530, 38172, 45814, 53456, 61098
IgG1_HeavyChain_CH2_constant_domain	7605	15247, 22889, 30531, 38173, 45815, 53457, 61099
IgG1_HeavyChain_CH2_constant_domain	7606	15248, 22890, 30532, 38174, 45816, 53458, 61100
IgG1_HeavyChain_CH2_constant_domain	7607	15249, 22891, 30533, 38175, 45817, 53459, 61101
IgG1_HeavyChain_CH2_constant_domain	7608	15250, 22892, 30534, 38176, 45818, 53460, 61102
IgG1_HeavyChain_CH2_constant_domain	7609	15251, 22893, 30535, 38177, 45819, 53461, 61103
IgG1_HeavyChain_CH2_constant_domain	7610	15252, 22894, 30536, 38178, 45820, 53462, 61104
IgG1_HeavyChain_CH2_constant_domain	7611	15253, 22895, 30537, 38179, 45821, 53463, 61105
IgG1_HeavyChain_CH2_constant_domain	7612	15254, 22896, 30538, 38180, 45822, 53464, 61106
IgG1_HeavyChain_CH2_constant_domain	7613	15255, 22897, 30539, 38181, 45823, 53465, 61107
IgG1_HeavyChain_CH2_constant_domain	7614	15256, 22898, 30540, 38182, 45824, 53466, 61108
IgG1_HeavyChain_CH2_constant_domain	7615	15257, 22899, 30541, 38183, 45825, 53467, 61109
IgG1_HeavyChain_CH2_constant_domain	7616	15258, 22900, 30542, 38184, 45826, 53468, 61110
IgG1_HeavyChain_CH2_constant_domain	7617	15259, 22901, 30543, 38185, 45827, 53469, 61111
IgG1_HeavyChain_CH2_constant_domain	7618	15260, 22902, 30544, 38186, 45828, 53470, 61112
IgG1_HeavyChain_CH2_constant_domain	7619	15261, 22903, 30545, 38187, 45829, 53471, 61113
IgG1_HeavyChain_CH2_constant_domain	7620	15262, 22904, 30546, 38188, 45830, 53472, 61114
IgG1_HeavyChain_CH2_constant_domain	7621	15263, 22905, 30547, 38189, 45831, 53473, 61115
IgG1_HeavyChain_CH2_constant_domain	7622	15264, 22906, 30548, 38190, 45832, 53474, 61116
IgG1_HeavyChain_CH2_constant_domain	7623	15265, 22907, 30549, 38191, 45833, 53475, 61117
IgG1_HeavyChain_CH2_constant_domain	7624	15266, 22908, 30550, 38192, 45834, 53476, 61118
IgG1_HeavyChain_CH3_constant_domain	7625	15267, 22909, 30551, 38193, 45835, 53477, 61119
IgG1_HeavyChain_CH3_constant_domain	7626	15268, 22910, 30552, 38194, 45836, 53478, 61120

Name	Protein SEQ ID NO:	RNA SEQ ID NO:
IgG1_HeavyChain_CH3_constant_domain	7627	15269, 22911, 30553, 38195, 45837, 53479, 61121
IgG1_HeavyChain_CH3_constant_domain	7628	15270, 22912, 30554, 38196, 45838, 53480, 61122
IgG2_HeavyChain_CH1_constant_domain	7629	15271, 22913, 30555, 38197, 45839, 53481, 61123
IgG2_HeavyChain_CH1_constant_domain	7630	15272, 22914, 30556, 38198, 45840, 53482, 61124
IgG2_HeavyChain_CH2_constant_domain	7631	15273, 22915, 30557, 38199, 45841, 53483, 61125
IgG2_HeavyChain_CH2_constant_domain	7632	15274, 22916, 30558, 38200, 45842, 53484, 61126
IgG2_HeavyChain_CH2_constant_domain	7633	15275, 22917, 30559, 38201, 45843, 53485, 61127
IgG2_HeavyChain_CH2_constant_domain	7634	15276, 22918, 30560, 38202, 45844, 53486, 61128
IgG2_HeavyChain_CH2_constant_domain	7635	15277, 22919, 30561, 38203, 45845, 53487, 61129
IgG2_HeavyChain_CH2_constant_domain	7636	15278, 22920, 30562, 38204, 45846, 53488, 61130
IgG2_HeavyChain_CH2_constant_domain	7637	15279, 22921, 30563, 38205, 45847, 53489, 61131
IgG2_HeavyChain_CH2_constant_domain	7638	15280, 22922, 30564, 38206, 45848, 53490, 61132
IgG2_HeavyChain_CH3_constant_domain	7639	15281, 22923, 30565, 38207, 45849, 53491, 61133
IgG4_HeavyChain_CH1_constant_domain	7640	15282, 22924, 30566, 38208, 45850, 53492, 61134
IgG4_HeavyChain_CH2_constant_domain	7641	15283, 22925, 30567, 38209, 45851, 53493, 61135
IgG4_HeavyChain_CH3_constant_domain	7642	15284, 22926, 30568, 38210, 45852, 53494, 61136

Accordingly, it is preferred that the constant region or the fragment or variant thereof encoded by the at least one coding sequence comprises or consists of an amino acid sequence as set forth in any of SEQ ID NOs: 7571-7642. It is also preferred that the at least one coding sequence comprises or consists of a nucleic acid sequence as set forth in any of SEQ ID NOs: 15213-15284, 22855-22926, 30497-30568, 38139-38210, 45781-45852, 53423-53494, and 61065-61136.

Preferably, the RNA according to the present invention comprises (i) a coding sequence encoding a heavy chain variable region, or a fragment or variant thereof, and a heavy chain constant region, or a fragment or variant thereof; and/or (ii) a coding sequence encoding a light chain variable region, or a fragment or variant thereof, and a light chain constant region, or a fragment or variant thereof.

Preferably, the antibody or the fragment thereof, which is encoded by the RNA according to the present invention, is chosen from monoclonal and polyclonal antibodies or fragments thereof, chimeric antibodies or fragments thereof, human antibodies or fragments thereof, humanized antibodies or fragments thereof, and intrabodies or fragments thereof.

It is also preferred that the antibody or the fragment thereof, which is encoded by the RNA according to the present invention, is a monospecific or a multispecific antibody or antibody fragment. Preferably, the antibody or the fragment thereof, which is encoded by the RNA according to the present invention, is a bispecific or a trispecific antibody or antibody fragment.

As used herein, the term "multispecific" refers to the ability to bind to at least two different epitopes, e.g. on different antigens, whereas a monospecific antibody can only bind to one type of antigens (a monospecific antibody comprising one or more binding site for one and the same epitope). Thus, terms like "monospecific", "bispecific", trispecific", "tetraspecific" etc. refer to the number of different epitopes to which the antibody can bind to. For example, conventional monospecific IgG-type antibodies have two identical epitope binding sites (paratopes) and can, thus, only bind to identical epitopes (but not to different epitopes). A multispecific antibody, in contrast, has at least two different types of paratopes and can, thus, bind to at least two different epitopes. Moreover, a single "specificity" may refer to one, two, three or more identical paratopes in a single antibody (the actual number of paratopes in one single antibody molecule is referred to as "valency"). For example, a single native IgG antibody is monospecific and bivalent, since it has two identical paratopes. Accordingly, a multispecific antibody comprises at least two (different) paratopes. Thus, the term "multispecific antibodies" refers to antibodies having more than one paratope and the ability to bind to two or more different epitopes. The term "multispecific antibodies" comprises in particular bispecific antibodies, but typically also antibodies, which bind in particular to three or more different epitopes, i.e. antibodies with three or more paratopes.

Accordingly, the present invention does not only provide RNA molecules encoding monospecific antibodies or fragments or variants thereof, but RNA molecules which code for multispecific, such as bispecific or trispecific, antibodies or fragments or variants thereof can also be provided in the context of the present invention. Bispecific antibodies in the context of the present invention are preferably antibodies which can act as adaptors between an effector and a corresponding target, e.g. for recruiting effector molecules (e.g. toxins, active compounds (drugs), cytokines etc.), targeting of effector cells (e.g. CTL, NK cells, macrophages, granulocytes etc. (see, for example, review by Kontermann R.E., Acta Pharmacol. Sin, 2005, 26(1): 1-9). In this context, bispecific antibodies are in principle built up such as is described here in general for antibodies, these bispecific antibodies e.g. recognizing two different antigens, immunogens or epitopes, or active compounds, cells, or other molecules (or structures) as mentioned above, i.e. the antigen-binding regions of the antibody are specific for two different molecules (or structures). The various antigens, immunogens or epitopes etc., for example, can thus be brought spatially close. Furthermore, by the binding e.g. of a binding domain or other specificities, the function of the antibody can be extended specifically, e.g. of a binding protein, an immunotoxin etc. Such

bispecific antibodies can also be single-chain antibodies (e.g. scFv fragments etc.). Bispecific antibodies can be used, for example, to bring two reaction partners, e.g. two cells, two proteins, a protein and the substrate thereof etc., spatially close in order to promote an interaction between these (e.g. protein-protein interactions, substrate conversions, modifications etc.). Bispecific antibodies are preferably used above all to bring effector cells (such as, for example, T cells, NK cells, macrophages etc.) and target cells (e.g. tumour cells, infected cells etc.) spatially close. Examples of bispecific antibodies can include, without being limited thereto, e.g. those antibodies or antibody fragments which bind on the one hand a surface factor as described here, and on the other hand an antigen as described here, preferably a tumour antigen as described here. This includes e.g. CD28 and a tumour antigen (Grosse-Hovest L. et al., 2003, Eur. Immunol. 33(5); 1334-40, (A recombinant bispecific single-chain antibody induces targeted, supra-agonistic CD28-stimulation and tumor cell killing)), CD19 and CD3 (CD19 tumour antigen of B cell lymphoma) etc.

Preferably, the antibody fragment encoded by the RNA according to the present invention is selected from the group consisting of Nanobody; Nanobody-HAS; BiTE; Diabody; DART; TandAb; scDiabody; sc-Diabody-CH3; Diabody-CH3; Triple Body; Miniantibody; Minibody; TriBi minibody; scFv-CH3 KIH; Fab-scFv; scFv-CH-CL-scFv; F(ab')2; F(ab')2-scFv2; scFv-KIH; Fab-scFv-Fc; Tetravalent HCAb; scDiabody-Fc; Diabody-Fc; Tandem scFv-Fc; Fab; Fab'; Fc; Facb; pFc'; Fd; Fv or scFv antibody fragment. These bispecific antibody formats are shown and described for example in Spiess C., Zhai Q. and Carter P.J. (2015) Molecular Immunology 67: 95-106, in particular Fig. 1 and corresponding description, e.g. p. 95-101.

Preferably, the antibody or the fragment thereof, which is encoded by the RNA according to the present invention, comprises a binding site for an Fc receptor, in particular an Fc moiety. As used herein, the term "Fc moiety" refers to a sequence derived from the portion of an immunoglobulin heavy chain beginning in the hinge region just upstream of the papain cleavage site and ending at the C-terminus of the immunoglobulin heavy chain. Preferably, the "Fc moiety" comprises a binding site for an Fc receptor. However, it is also preferred that an Fc moiety may mediate a functionality different from binding to an Fc receptor, for example binding to a protein of the complement system. Accordingly, an "Fc moiety" may be a complete Fc region or a part (e.g., a domain) thereof. Preferably, the "Fc moiety" mediates the full functionality of a complete Fc region, e.g. including Fc receptor binding and, optionally, binding to a protein from the complement system. Thus, the antibody as used according to the present invention preferably comprises a complete Fc region, whereby a complete Fc region comprises at least a hinge domain, a CH2 domain, and a CH3 domain. The Fc moiety may also comprise one or more amino acid insertions, deletions, or substitutions relative to a naturally-occurring Fc region. For example, at least one of

a hinge domain, CH2 domain or CH3 domain (or portion thereof) may be deleted. For example, an Fc moiety may comprise or consist of: (i) hinge domain (or portion thereof) fused to a CH2 domain (or portion thereof), (ii) a hinge domain (or portion thereof) fused to a CH3 domain (or portion thereof), (iii) a CH2 domain (or portion thereof) fused to a CH3 domain (or portion thereof), (iv) a hinge domain (or portion thereof), (v) a CH2 domain (or portion thereof), or (vi) a CH3 domain or portion thereof.

The antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, may be of any antibody format. In particular, antibodies preferably encompass "whole" antibodies, such as whole IgG- or IgG-like molecules, while antigen binding fragments in the context of the present invention preferably refer to small recombinant formats, such as bispecific T-cell engagers (BiTes), tandem single chain variable fragment molecules (taFvs), diabodies (Dbs), single chain diabodies (scDbs) and various other derivatives of these (cf. bispecific antibody formats as described by Byrne H. et al. (2013) Trends Biotech, 31 (11): 621-632 with Figure 2 showing various bispecific antibody formats; Weidle U.H. et al. (2013) Cancer Genomics and Proteomics 10: 1-18, in particular Fig. 1 showing various bispecific antibody formats; and Chan, A.C. and Carter, P.J. (2010) Nat Rev Immu 10: 301-316 with Fig. 3 showing various bispecific antibody formats). Examples of bispecific antibody formats include, but are not limited to, quadroma, chemically coupled Fab (fragment antigen binding), and BiTE® (bispecific T cell engager). In one embodiment of the present invention the antibody used is preferably a BiTE® (bispecific T cell engager).

Thus, the antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, may be selected from the group comprising hybrid hybridoma (quadroma); Multispecific anticalin platform (Pieris); Diabodies; Single chain diabodies; Tandem single chain Fv fragments; TandAbs, Trispecific Abs (Affimed) (105-110 kDa); Darts (dual affinity retargeting; Macrogenics); Bispecific Xmabs (Xencor); Bispecific T cell engagers (Bites; Amgen; 55kDa); Triplebodies; Tribody = Fab-scFv Fusion Protein (CreativeBiolabs) multifunctional recombinant antibody derivates (110 kDa); Duobody platform (Genmab); Dock and lock platform; Knob into hole (KIH) platform; Humanized bispecific IgG antibody (REGN1979) (Regeneron); Mab² bispecific antibodies (F-Star); DVD-Ig = dual variable domain immunoglobulin (Abbvie); kappa-lambda bodies; TBTI = tetravalent bispecific tandem Ig; and CrossMab.

The antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, may be selected from bispecific IgG-like antibodies (BsIgG) comprising CrossMab; DAF (two-in-one); DAF (four-in-one); DutaMab; DT-IgG; Knobs-in-holes common LC; Knobs-in-holes assembly; Charge pair; Fab-arm exchange; SEEDbody; Triomab; LUZ-Y; Fcab;

κλ-body; and Orthogonal Fab. These bispecific antibody formats are shown and described for example in Spiess C., Zhai Q. and Carter P.J. (2015) Molecular Immunology 67: 95-106, in particular Fig. 1 and corresponding description, e.g. p. 95- 101.

Preferably, the antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, may be selected from IgG-appended antibodies with an additional antigen-binding moiety comprising DVD-IgG; IgG(H)-scFv; scFv-(H)IgG; IgG(L)-scFv; scFV-(L)IgG; IgG(L,H)-Fv; IgG(H)-V; V(H)-IgG; IgG(L)-V; V(L)-IgG; KIH IgG-scFab; 2scFv-IgG; IgG-2scFv; scFv4-Ig; scFv4-Ig; Zybody; and DVI-IgG (four-in-one). These bispecific antibody formats are shown and described for example in Spiess C., Zhai Q. and Carter P.J. (2015) Molecular Immunology 67: 95-106, in particular Fig. 1 and corresponding description, e.g. p. 95-101.

Preferably, the antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, may be selected from bispecific antibody fragments comprising Nanobody; Nanobody-HAS; BiTE; Diabody; DART; TandAb; scDiabody; sc-Diabody-CH3; Diabody-CH3; Triple Body; Miniantibody; Minibody; TriBi minibody; scFv-CH3 KIH; Fab-scFv; scFv-CH-CL-scFv; F(ab')2; F(ab')2-scFv2; scFv-KIH; Fab-scFv-Fc; Tetravalent HCAb; scDiabody-Fc; Diabody-Fc; Tandem scFv-Fc; and Intrabody. These bispecific antibody formats are shown and described for example in Spiess C., Zhai Q. and Carter P.J. (2015) Molecular Immunology 67: 95-106, in particular Fig. 1 and corresponding description, e.g. p. 95-101.

Preferably, the antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, may be selected from bispecific fusion proteins comprising Dock and Lock; ImmTAC; HSAbody; scDiabody-HAS; and Tandem scFv-Toxin. These bispecific antibody formats are shown and described for example in Spiess C., Zhai Q. and Carter P.J. (2015) Molecular Immunology 67: 95-106, in particular Fig. 1 and corresponding description, e.g. p. 95-101.

In particular, the antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, may be selected from bispecific antibody conjugates comprising IgG-IgG; Cov-X-Body; and scFv1-PEG-scFv2. These bispecific antibody formats are shown and described for example in Spiess C., Zhai Q. and Carter P.J. (2015) Molecular Immunology 67: 95-106, in particular Fig. 1 and corresponding description, e.g. p. 95-101.

Depending on the amino acid sequence of the constant region of their heavy chains, antibodies or immunoglobulins are divided in the classes: IgA, IgD, IgE, IgG and IgM, and several of these

may be further divided into subclasses, e.g. IgG1, IgG2, IgG3, and IgG4, IgA1 and IgA2. The heavy chain constant regions that correspond to the different classes of immunoglobulins are called α, ε, γ, and μ, respectively. The antibodies according to the invention are preferably of IgG type. It is also preferred that the antibody, which is encoded by the RNA according to the present invention, has an IgG-like format, which includes, in addition to IgG type antibodies, recombinant antibodies based on IgG, such as the IgG-appended antibodies and the bispecific IgG-like antibodies described above.

Preferably, the antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, is a single-chain antibody or a single-chain antibody fragment. It is also preferred that the antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, is a multiple-chain antibody or a multiple-chain antibody fragment. The term "chain", as used herein, in particular in the context of a single-chain and a multiple-chain antibody, typically refers to a chain of amino acids connected by a peptide bond, such that a "chain" typically refers to a single peptide or protein. Accordingly, in particular two peptides/proteins connected via disulfide bridges (also referred to as "SS-bonds") do not form a single chain. For example, an sc-Fv antibody, wherein the variable regions are connected via a peptide linker is referred to – in the context of the present invention – as a single-chain antibody, whereas it were referred to as a multiple-chain antibody, if the variable regions are connected via a disulfide bridge.

It is also preferred that the antibody, or the antigen binding fragment thereof, which is encoded by the RNA according to the present invention, specifically recognizes and binds to tumour-specific surface antigens chosen from (TSSA), 5T4, α5β1-integrin, 707-AP, AFP, ART-4, B7H4, BAGE, β-catenin/m, Bcr-abl, MN/C IX-antigen, CA125, CAMEL, CAP-1, CASP-8, β-catenin/m, CD4, CD19, CD20, CD22, CD25, CDC27/m, CD 30, CD33, CD52, CD56, CD80, CDK4/m, CEA, CT, Cyp-B, DAM, EGFR, ErbB3, ELF2M, EMMPRIN, EpCam, ETV6-AML1, G250, GAGE, GnT-V, Gp100, HAGE, HER-2/neu, HLA-A*0201-R170I, HPV-E7, HSP70-2M, HAST-2, hTERT (or hTRT), iCE, IGF-1R, IL-2R, IL-5, KIAA0205, LAGE, LDLR/FUT, MAGE, MART-1/Melan-A, MART-2/Ski, MC1R, myosin/m, MUC1, MUM-1, -2, -3, NA88-A, PAP, proteinase-3, p190 minor bcr-abl, Pml/RARα, PRAME, PSA, PSM, PSMA, RAGE, RU1 or RU2, SAGE, SART-1 or SART-3, survivin, TEL/AML1, TGFβ, TPI/m, TRP-1, TRP-2, TRP-2/INT2, VEGF and WT1, NY-Eso-1 and NY-Eso-B, as described above.

Preferably, the at least one coding sequence of the RNA according to the present invention encodes an antibody selected from the group consisting of AAB-003; Abagovomab; Abciximab; Abituzumab; Abrilumab; Actoxumab; Adalimumab; Aducanumab; Afasevikumab; Aflibercept;

Afutuzuab; Afutuzumab; Alacizumab_pegol; Alemtuzumab; Alirocumab; ALX-0061; Amatuximab; Anetumab_ravtansine; Anifrolumab; Anrukinzumab; Apolizumab; Apomab; Aquaporumab; Arcitumomab_99tc; Ascrinvacumab; Aselizuab; Atezolizumab; Atinumab; Atlizuab; Aurograb; Avelumab; Bapineuzumab; Basiliximab; Bavituximab; Begelomab; Benralizumab; Betalutin; Bevacituzuab; Bevacizumab_154-aspartic_acid; Bevacizumab_154-substitution; Bevacizumab_180-serine; Bevacizumab_180-substitution; Bevacizumab_beta; Bevacizumab; Bevacizumab-rhuMAb-VEGF; Bezlotoxumab; Bimagrumab; Bimekizumab; Bleselumab; Blinatumomab; Blinatumumab; Blontuvetmab; Blosozumab; Bococizumab; Brentuximab_vedotin; Briakinumab; Brodalumab; Brolucizumab; Brontictuzumab; BTT-1023; Burosumab; Canakinumab; Cantuzumab; Cantuzumab_mertansine; Cantuzumab_ravtansine; Caplacizumab; Carlumab; Cergutuzumab_amunaleukin; Certolizumab_pegol; Cetuximab; Citatuzumab_bogatox; Cixutumumab; Clazakizumab; Clivatuzumab_tetraxetan; Codrituzumab; Coltuximab_ravtansine; Conatumumab_CV; Conatumumab; Concizumab; Crenezumab; Crotedumab; Dacetuzumab; Dacliximab; Daclizumab; Dalotuzumab; Dapirolizumab_pegol; Daratumumab; Dectrekumab; Demcizumab; Denintuzumab_mafodotin; Denosumab; Depatuxizumab; Depatuxizumab_mafodotin; Dinutuximab_beta; Dinutuximab; Diridavumab; Domagrozumab; Drozituab; Drozitumab; Duligotumab; Duligotuzumab; Dupilumab; Durvalumab; Dusigitumab; Ecromeximab; Eculizumab; Efalizumab; Efungumab; Eldelumab; Elgemtumab; Elotuzumab; Emactuzumab; Emibetuzumab; Emicizumab; Enavatuzumab; Enfortumab; Enfortumab_vedotin; Enoblituzumab; Enokizumab; Enoticumab; Ensituximab; Entolimod; Epratuzumab; Eptacog_beta; Erlizuab; Etaracizumab; Etrolizuab; Etrolizumab; Evinacumab; Evolocumab; Exbivirumab; Farletuzumab; Fasinumab; Fezakinumab; FG-3019; Fibatuzumab; Ficlatuzumab; Figitumumab; Firivumab; Flanvotumab; Fletikumab; Fontolizumab; Foralumab; Foravirumab; Fresolimumab; Fulranumab; Futuximab; Galcanezumab; Galiximab; Ganitumab; Gantenerumab; Gemtuzumab; Gemtuzumab_ozogamicin; Gevokizumab; Girentuximab; Glembatumumab; Goilixiab; Guselkumab; HuMab-001; HuMab-005; HuMab-006; HuMab-019; HuMab-021; HuMab-025; HuMab-027; HuMab-032; HuMab-033; HuMab-035; HuMab-036; HuMab-041; HuMab-044; HuMab-049; HuMab-050; HuMab-054; HuMab-055; HuMab-059; HuMab-060; HuMab-067; HuMab-072; HuMab-084; HuMab-091; HuMab-093; HuMab-098; HuMab-100; HuMab-106; HuMab_10F8; HuMab-111; HuMab-123; HuMab-124; HuMab-125; HuMab-127; HuMab-129; HuMab-132; HuMab-143; HuMab-150; HuMab-152; HuMab-153; HuMab-159; HuMab-160; HuMab-162; HuMab-163; HuMab-166; HuMab-167; HuMab-169; HuMab-7D8; huMAb-anti-MSP10.1; huMAb-anti-MSP10.2; HUMAB-Clone_18; HUMAB-Clone_22; HuMab-L612; HuMab_LC5002-002; HuMab_LC5002-003; HuMab_LC5002-005; HuMab_LC5002-007; HuMab_LC5002-018; Ibalizumab; Ibritumomab_tiuxetan; Icrucumab; Idarucizumab; Igatuzuab; IGF-IR_HUMAB-1A; IGF-IR_HUMAB-23; IGF-IR_HUMAB-8; ImAb1; Imalumab; Imgatuzumab; Inclacumab; Indatuximab_ravtansine; Indusatumab_vedotin;

Inebilizumab; Insulin_peglispro; Interferon_beta-1b; Intetumumab; Iodine_(124I)_Girentuximab; Iodine_(131I)_Derlotuxiab_biotin; Iodine_(131I)_Derlotuximab_biotin; Ipilimumab; Iratumumab; Isatuximab; Itolizumab; Ixekizumab; Labetuzumab_govitecan; Lambrolizumab; Lampalizumab; Lanadelumab; Landogrozumab; Laprituximab_emtansine; Lealesoab; Lebrikizumab; Lenercept_chain1; Lenzilumab; Lerdelimumab; Lexatumumab; Libivirumab; Lifastuzumab; Lifastuzumab_vedotin; Ligelizumab; Lilotomab; Lintuzumab; Lirilumab; Lodelcizumab; Lokivetmab; Lorvotuzumab_mertansine; Lpathomab; Lucatumumab; Lulizumab_pegol; Lumiliximab; Lumretuzumab; Lutetium_(177Lu)_lilotomab_satetraxetan; Margetuximab; Marzeptacog_alfa; Matuzumab; Mavrilimumab; MDX-1303; Mepolizumab; Metelimumab; Milatuzumab; Mirvetuximab; Modotuximab; Mogamulizumab; Monalizumab; Motavizumab; Moxetumomab_pasudotox; Muromonab-CD3; Namilumab; Naptumomab_estafenatox; Narnatumab; Natalizumab; Navicixizumab; Navivumab; Ndimab-varB; Necitumumab; Neliximab; Nemolizumab; Nesvacumab; Neuradiab; Nimotuzumab; Nivolumab; Obiltoxaximab; Obinutuzumab; Ocaratuzumab; Ocrelizumab; Ofatumumab; Olaratumab; Olizuab; Olokizumab; Omalizumab; Onartuzumab; Ontuxizumab; Opicinumab; Oportuzumab_monatox; Oreptacog_alfa; Orticumab; Otelixizumab; Otlertuzumab; Oxelumab; Ozanezumab; Ozoralizumab; Palivizumab; Pamrevlumab; Panitumumab; Pankoab; PankoMab; Panobacumab; Parsatuzumab; Pascolizumab; Pasotuxizumab; Pateclizumab; Patritumab; Pembrolizumab; Perakizumab; Pertuzuab; Pertuzumab; Pexelizumab_h5g1.1-scFv; Pexelizumab; PF-05082566; PF-05082568; Pidilizumab; Pinatuzumab_vedotin; Placulumab; Plozalizumab; Pogalizumab; Polatuzumab_vedotin; Ponezumab; Pritoxaximab; Pritumumab; Quilizumab; Racotumomab; Radretumab; Rafivirumab; Ralpancizumab; Ramucirumab; Ranibiziuab; Ranibizumab; Refanezumab; REGN2810; rhuMab_HER2(9CI); rhuMab_HER2; rhuMAb-VEGF; Rilotumumab; Rinucumab; Risankizumab; Rituximab; Rivabazumab_pegol; Robatumumab; Roledumab; Romosozumab; Rontalizuab; Rontalizumab; Rovalpituzumab_tesirine; Rovelizumab; Ruplizumab; Sacituzumab_govitecan; Samalizumab; Sarilumab; Satumomab_pendetide; Secukinumab; Seribantumab; Setoxaximab; Sifalimumab; Siltuximab; Simtuzumab; Sirukumab; Sofituzumab_vedotin; Solanezumab; Solitomab; Sonepcizumab; Stamulumab; Suptavumab; Suvizumab; Tabalumab; Tacatuzuab; Tadocizumab; Talizumab; Tamtuvetmab; Tanezumab; Tarextumab; Tefibazumab; Tenatumomab; Teneliximab; Teplizumab; Teprotumumab; Tesidolumab; Tezepelumab; ThioMAb-chMA79b-HC(A118C); ThioMab-hu10A8.v1-HC(A118C); ThioMab-hu10A8.v1-HC(V205C); ThioMab-hu10A8.v1-LC(A118C); ThioMab-hu10A8.v1-LC(V205C); ThioMAb-huMA79b.v17-HC(A118C); ThioMAb-huMA79b.v18-HC(A118C); ThioMAb-huMA79b.v28-HC(A118C); ThioMAb-huMA79b.v28-LC(V205C); Ticiliuab; Tigatuzumab; Tildrakizumab; Tisotumab_vedotin; Tocilizumab; Tosatoxumab; Tositumomab; Tovetumab; Tralokinumab; Trastuzuab; Trastuzumab_emtansine; Trastuzumab; TRC-105; Tregalizumab; Tremelimumab; Trevogrumab; Tucotuzumab_celmoleukin; Ublituximab;

Ulocuplumab; Urelumab; Urtoxazumab; Ustekinumab; Vadastuximab_talirine; Vandortuzumab_vedotin; Vantictumab; Vanucizumab; Varlilumab; Vatelizumab; Vedolizumab; Veltuzumab; Vesencumab; Visilizumab; Volociximab; Vorsetuzumab; Vorsetuzumab_mafodotin; Yttrium_(90Y)_clivatuzumab_tetraxetan; Yttrium_Y_90_epratuzumab_tetraxetan; Yttrium_Y_90_epratuzumab; Zalutumumab; Zanolimumab; Zatuximab; Andecaliximab; Aprutumab; Azintuxizumab; Brazikumab; Cabiralizumab; Camrelizumab; Cosfroviximab; Crizanlizumab; Dezamizumab; Duvortuxizumab; Elezanumab; Emapalumab; Eptinezumab; Erenumab; Fremanezumab; Frunevetmab; Gatipotuzumab; Gedivumab; Gemetuzumab; Gilvetmab; Ifabotuzumab; Lacnotuzumab; Larcaviximab; Lendalizumab; Lesofavumab; Letolizumab; Losatuxizumab; Lupartumab; Lutikizumab; Oleclumab; Porgaviximab; Prezalumab; Ranevetmab; Remtolumab; Rosmantuzumab; Rozanolixizumab; Sapelizumab; Selicrelumab; Suvratoxumab; Tavolixizumab; Telisotuzumab; Telisotuzumab_vedotin; Timigutuzumab; Timolumab; Tomuzotuximab; Trastuzumab_duocarmazine; Varisacumab; Vunakizumab; Xentuzumab; anti-rabies_SO57; anti-rabies_SOJB; anti-rabies_SOJA; anti-rabies; anti-RSV_5ITB; anti-alpha-toxin_4U6V; anti-IsdB_5D1Q; anti-IsdB_5D1X; anti-IsdB_5D1Z; anti-HIV_b12; anti-HIV_2G12; anti-HIV_4E10; anti-HIV_VRC01; anti-HIV_PG9; anti-HIV_VRC07; anti-HIV_3BNC117; anti-HIV_10-1074; anti-HIV_PGT121; anti-HIV_PGDM1400; anti-HIV_N6; anti-HIV_10E8; anti-HIV_12A12; anti-HIV_12A21; anti-HIV_35022; anti-HIV_3BC176; anti-HIV_3BNC55; anti-HIV_3BNC60; anti-HIV_447-52D; anti-HIV_5H/I1-BMV-D5; anti-HIV_8ANC195; anti-HIV_CAP256-VRC26.01; anti-HIV_CAP256-VRC26.02; anti-HIV_CAP256-VRC26.03; anti-HIV_CAP256-VRC26.04; anti-HIV_CAP256-VRC26.05; anti-HIV_CAP256-VRC26.06; anti-HIV_CAP256-VRC26.07; anti-HIV_CAP256-VRC26.08; anti-HIV_CAP256-VRC26.09; anti-HIV_CAP256-VRC26.10; anti-HIV_CAP256-VRC26.11; anti-HIV_CAP256-VRC26.12; anti-HIV_CAP256-VRC26.I1; anti-HIV_CAP256-VRC26.I2; anti-HIV_CAP256-VRC26.UCA; anti-HIV_CH01; anti-HIV_CH02; anti-HIV_CH03; anti-HIV_CH04; anti-HIV_CH103; anti-HIV_M66.6; anti-HIV_NIH45-46; anti-HIV_PG16; anti-HIV_PGT122; anti-HIV_PGT123; anti-HIV_PGT125; anti-HIV_PGT126; anti-HIV_PGT127; anti-HIV_PGT128; anti-HIV_PGT130; anti-HIV_PGT131; anti-HIV_PGT135; anti-HIV_PGT136; anti-HIV_PGT137; anti-HIV_PGT141; anti-HIV_PGT142; anti-HIV_PGT143; anti-HIV_PGT144; anti-HIV_PGT145; anti-HIV_PGT151; anti-HIV_PGT152; anti-HIV_VRC-CH30; anti-HIV_VRC-CH31; anti-HIV_VRC-CH32; anti-HIV_VRC-CH33; anti-HIV_VRC-CH34; anti-HIV_VRC-PG04; anti-HIV_VRC-PG04b; anti-HIV_VRC-PG20; anti-HIV_VRC02; anti-HIV_VRC03; anti-HIV_VRC23; anti-HIV_5CCK; anti-HIV_5AWN; anti-HIV_3QEG; anti-HIV_1N0X; anti-HIV_3QEH; anti-HIV_2B1H; anti-HIV_3TNM; anti-HIV_3UJJ; anti-HIV_3UJI; anti-HIV_2QSC; anti-HIV_3MLZ; anti-HIV_3MLX; anti-HIV_3MLW; anti-HIV_3MLV; anti-HIV_3MLU; anti-HIV_3MLT; anti-HIV_3GO1; anti-HIV_4XCY; anti-HIV_4YBL; anti-HIV_4R4N; anti-HIV_4R4B; anti-HIV_3JUY; anti-HIV_4KG5; anti-HIV-1; anti-HIV_V3; anti-HIV_CD4bs; anti-HIV_V2; anti-HIV_C38-VRC18.02; anti-HIV_44-VRC13.02; anti-HIV_45; anti-

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HIV_038-099169; anti-HIV_038-075067; anti-HIV_038-072368; anti-HIV_038-068503; anti-HIV_038-068016; anti-HIV_038-063958; anti-HIV_038-033733; anti-HIV_038-030557; anti-HIV_038-024298; anti-HIV_038-011154; anti-HIV_5CIN; anti-HIV_5CIL; anti-HIV_5CIP; anti-HIV_4JKP; anti-HIV_3TNN; anti-HIV_3BQU; anti-HIV_IgG; anti-HIV_4P9M; anti-HIV_4P9H; anti-HIV_Ig; anti-HIV; anti-influenza; anti-influenza_Apo; anti-influenza-A; anti-OX40; or a fragment or variant thereof.

More preferably, the at least one coding sequence of the RNA according to the present invention encodes an antibody or a fragment or variant thereof comprising an amino acid sequence selected from the group consisting of amino acid sequences according to SEQ ID NOs: 1-7642, 61212-61214, 61236-61238, 61245-61247, 61269-61271, 61279-61281, 61303-61305, 61312, 61320, 61324, 61332, 61338, 61346, 61349, 61357, 61362, 61370, 61373, 61381, 61384, 61385, 61400, 61401, 61418, 61426, 61429, 61437, 61440, 61441, 61456, 61457, 61469, 61470, 61475, 61476, 61481, 61482, 61487, 61488, 61493, 61494, 61499, 61500, 61515, 61516, 61521, 61522, 61537, 61538, 61543, 61544, 61559, 61560, 61565, 61573, 61576, 61584, 61587, 61588, 61603, 61606, 61609, 61612, 61618, 61619, 61634, 61635, 61639, 61640, 61644, 61645, 61660, 61661, 61667, 61675, 61678, 61686, 61689, 61697, 61700, 61708, 61711, 61719, 61722, and 61730; or a fragment or variant of any one of said amino acid sequences.

According to certain preferred embodiments of the present invention, the RNA is mono-, bi-, or multicistronic as defined herein. The coding sequences in a bi- or multicistronic RNA preferably encode distinct antibodies as defined herein or distinct fragments or variants thereof. In particular, an RNA according to the present invention preferably encodes a full-length (complete) antibody in a multicistronic manner, e.g. by encoding the heavy chain (or a fragment thereof, e.g. the heavy chain variable region) and the light chain (or a fragment thereof, e.g. the light chain variable region) of the same antibody in separate cistrons on one single RNA (molecule). Accordingly, the RNA according to the present invention is preferably bicistronic or multicistronic. However, it is also preferred that the RNA according to the present invention is monocistronic. For example, a full-length (complete) antibody may be encoded in one single cistron, e.g. if the heavy chain (or a fragment thereof, e.g. the heavy chain variable region) and the light chain (or a fragment thereof, e.g. the light chain variable region) are connected via a peptidic linker (linker sequence) as described below. A monocistronic RNA according to the present invention may also encode only a fragment of an antibody, in particular the heavy chain (or a fragment thereof, e.g. the heavy chain variable region) only, or the light chain (or a fragment thereof, e.g. the light chain variable region) only – with the corresponding the heavy chain (or a fragment thereof, e.g. the heavy chain variable region) or the light chain (or a fragment thereof, e.g. the light chain variable region) being encoded (preferably in a similar monocistronic manner) by another RNA (molecule). This

embodiment is in particular preferred in the context of a combination of RNA's according to the present invention as described herein.

Preferably, the coding sequences encoding two or more antibodies or fragments thereof may be separated in the bi- or multicistronic RNA by at least one IRES (internal ribosomal entry site) sequence, as defined below. Thus, the term "encoding two or more antibodies or fragments thereof" may mean, without being limited thereto, that the bi- or even multicistronic RNA, may encode e.g. at least two, three, four, five, six or more (preferably different) antibodies or fragments thereof of the antibodies or their fragments within the definitions provided herein. More preferably, without being limited thereto, the bi- or even multicistronic mRNA, may encode, for example, at least two, three, four, five, six or more (preferably different) antibodies as defined herein or their fragments or variants as defined herein. In this context, a so-called IRES (internal ribosomal entry site) sequence as defined above can function as a sole ribosome binding site, but it can also serve to provide a bi- or even multicistronic mRNA as defined above, which encodes several antibodies, which are to be translated by the ribosomes independently of one another. Examples of IRES sequences, which can be used according to the invention, are those from picornaviruses (e.g. FMDV), pestiviruses (CFFV), polioviruses (PV), encephalomyocarditis viruses (ECMV), foot and mouth disease viruses (FMDV), hepatitis C viruses (HCV), classical swine fever viruses (CSFV), mouse leukoma virus (MLV), simian immunodeficiency viruses (SIV) or cricket paralysis viruses (CrPV).

According to a further embodiment the at least one coding sequence of the RNA according to the invention may encode at least two, three, four, five, six, seven, eight and more antibodies (or fragments or variants thereof) as defined herein linked with or without an amino acid linker sequence, wherein said linker sequence can comprise rigid linkers, flexible linkers, cleavable linkers (e.g., self-cleaving peptides) or a combination thereof. Therein, the antibodies may be identical or different or a combination thereof. Particular antibody combinations can be encoded by said mRNA encoding at least two antibodies as explained herein (also referred to herein as 'multi-antibody-constructs/mRNA'). In this way the RNA according to the present invention may, for example, encode the heavy chain and the corresponding light chain of an antibody (such that one RNA molecule is sufficient to encode the complete antibody including heavy and light chain) or the heavy chain variable region and the light chain variable region of an antibody (fragment).

Preferably, the at least one coding sequence of the RNA according to the invention comprises at least two, three, four, five, six, seven, eight and more nucleic acid sequences having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more

preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any one of said nucleic acid sequences.

Preferably, the RNA comprising at least one coding sequence as defined herein typically comprises a length of about 50 to about 20000, or 100 to about 20000 nucleotides, preferably of about 250 to about 20000 nucleotides, more preferably of about 500 to about 10000, even more preferably of about 500 to about 5000.

The RNA according to the invention may further be single stranded or double stranded. When provided as a double stranded RNA, the RNA according to the invention preferably comprises a sense and a corresponding antisense strand.

In a preferred embodiment, the RNA comprising at least one coding sequence as defined herein is an mRNA, a viral RNA or a replicon RNA.

According to a further embodiment, the RNA, preferably an mRNA, according to the invention is a modified RNA, preferably a modified RNA as described herein. In this context, a modification as defined herein preferably leads to a stabilization of the RNA according to the invention. More preferably, the invention thus provides a stabilized RNA comprising at least one coding sequence as defined herein.

According to one embodiment, the RNA of the present invention may thus be provided as a "stabilized mRNA", that is to say as an RNA that is essentially resistant to in vivo degradation (e.g. by an exo- or endo-nuclease). Such stabilization can be effected, for example, by a modified phosphate backbone of the RNA of the present invention. A backbone modification in connection with the present invention is a modification in which phosphates of the backbone of the nucleotides contained in the RNA are chemically modified. Nucleotides that may be preferably used in this connection contain e.g. a phosphorothioate-modified phosphate backbone, preferably at least one of the phosphate oxygens contained in the phosphate backbone being replaced by a sulfur atom. Stabilized RNAs may further include, for example: non-ionic phosphate analogues, such as, for example, alkyl and aryl phosphonates, in which the charged phosphonate oxygen is replaced by an alkyl or aryl group, or phosphodiesters and alkylphosphotriesters, in which the charged oxygen residue is present in alkylated form. Such backbone modifications typically include, without implying any limitation, modifications from the group consisting of methylphosphonates, phosphoramidates and phosphorothioates (e.g. cytidine-5'-O-(1-thiophosphate)).

In the following, specific modifications are described, which are preferably capable of "stabilizing" the RNA as defined herein.

Chemical modifications:
The term "RNA modification" as used herein may refer to chemical modifications comprising backbone modifications as well as sugar modifications or base modifications.

In this context, a modified RNA as defined herein may contain nucleotide analogues/modifications, e.g. backbone modifications, sugar modifications or base modifications. A backbone modification in connection with the present invention is a modification, in which phosphates of the backbone of the nucleotides contained in an RNA as defined herein are chemically modified. A sugar modification in connection with the present invention is a chemical modification of the sugar of the nucleotides of the RNA as defined herein. Furthermore, a base modification in connection with the present invention is a chemical modification of the base moiety of the nucleotides of the RNA. In this context, nucleotide analogues or modifications are preferably selected from nucleotide analogues, which are applicable for transcription and/or translation.

Sugar Modifications:
The modified nucleosides and nucleotides, which may be incorporated into a modified RNA as described herein, can be modified in the sugar moiety. For example, the 2' hydroxyl group (OH)

can be modified or replaced with a number of different "oxy" or "deoxy" substituents. Examples of "oxy" -2' hydroxyl group modifications include, but are not limited to, alkoxy or aryloxy (-OR, e.g., R = H, alkyl, cycloalkyl, aryl, aralkyl, heteroaryl or sugar); polyethyleneglycols (PEG), -$O(CH_2CH_2O)nCH_2CH_2OR$; "locked" nucleic acids (LNA) in which the 2' hydroxyl is connected, e.g., by a methylene bridge, to the 4' carbon of the same ribose sugar; and amino groups (-O-amino, wherein the amino group, e.g., NRR, can be alkylamino, dialkylamino, heterocyclyl, arylamino, diarylamino, heteroarylamino, or diheteroaryl amino, ethylene diamine, polyamino) or aminoalkoxy.

"Deoxy" modifications include hydrogen, amino (e.g. NH_2; alkylamino, dialkylamino, heterocyclyl, arylamino, diaryl amino, heteroaryl amino, diheteroaryl amino, or amino acid); or the amino group can be attached to the sugar through a linker, wherein the linker comprises one or more of the atoms C, N, and O.

The sugar group can also contain one or more carbons that possess the opposite stereochemical configuration than that of the corresponding carbon in ribose. Thus, a modified RNA can include nucleotides containing, for instance, arabinose as the sugar.

Backbone Modifications:
The phosphate backbone may further be modified in the modified nucleosides and nucleotides, which may be incorporated into a modified RNA as described herein. The phosphate groups of the backbone can be modified by replacing one or more of the oxygen atoms with a different substituent. Further, the modified nucleosides and nucleotides can include the full replacement of an unmodified phosphate moiety with a modified phosphate as described herein. Examples of modified phosphate groups include, but are not limited to, phosphorothioate, phosphoroselenates, borano phosphates, borano phosphate esters, hydrogen phosphonates, phosphoroamidates, alkyl or aryl phosphonates and phosphotriesters. Phosphorodithioates have both non-linking oxygens replaced by sulfur. The phosphate linker can also be modified by the replacement of a linking oxygen with nitrogen (bridged phosphoroamidates), sulfur (bridged phosphorothioates) and carbon (bridged methylene-phosphonates).

Base Modifications:
The modified nucleosides and nucleotides, which may be incorporated into a modified RNA as described herein can further be modified in the nucleobase moiety. Examples of nucleobases found in RNA include, but are not limited to, adenine, guanine, cytosine and uracil. For example, the nucleosides and nucleotides described herein can be chemically modified on the major groove

face. In some embodiments, the major groove chemical modifications can include an amino group, a thiol group, an alkyl group, or a halo group.

In particularly preferred embodiments of the present invention, the nucleotide analogues/modifications are selected from base modifications, which are preferably selected from 2-amino-6-chloropurineriboside-5'-triphosphate, 2-Aminopurine-riboside-5'-triphosphate; 2-aminoadenosine-5'-triphosphate, 2'-Amino-2'-deoxycytidine-triphosphate, 2-thiocytidine-5'-triphosphate, 2-thiouridine-5'-triphosphate, 2'-Fluorothymidine-5'-triphosphate, 2'-O-Methyl-inosine-5'-triphosphate 4-thiouridine-5'-triphosphate, 5-aminoallylcytidine-5'-triphosphate, 5-aminoallyluridine-5'-triphosphate, 5-bromocytidine-5'-triphosphate, 5-bromouridine-5'-triphosphate, 5-Bromo-2'-deoxycytidine-5'-triphosphate, 5-Bromo-2'-deoxyuridine-5'-triphosphate, 5-iodocytidine-5'-triphosphate, 5-Iodo-2'-deoxycytidine-5'-triphosphate, 5-iodouridine-5'-triphosphate, 5-Iodo-2'-deoxyuridine-5'-triphosphate, 5-methylcytidine-5'-triphosphate, 5-methyluridine-5'-triphosphate, 5-Propynyl-2'-deoxycytidine-5'-triphosphate, 5-Propynyl-2'-deoxyuridine-5'-triphosphate, 6-azacytidine-5'-triphosphate, 6-azauridine-5'-triphosphate, 6-chloropurineriboside-5'-triphosphate, 7-deazaadenosine-5'-triphosphate, 7-deazaguanosine-5'-triphosphate, 8-azaadenosine-5'-triphosphate, 8-azidoadenosine-5'-triphosphate, benzimidazole-riboside-5'-triphosphate, N1-methyladenosine-5'-triphosphate, N1-methylguanosine-5'-triphosphate, N6-methyladenosine-5'-triphosphate, O6-methylguanosine-5'-triphosphate, pseudouridine-5'-triphosphate, or puromycin-5'-triphosphate, xanthosine-5'-triphosphate. Particular preference is given to nucleotides for base modifications selected from the group of base-modified nucleotides consisting of 5-methylcytidine-5'-triphosphate, 7-deazaguanosine-5'-triphosphate, 5-bromocytidine-5'-triphosphate, and pseudouridine-5'-triphosphate.

In some embodiments, modified nucleosides include pyridin-4-one ribonucleoside, 5-aza-uridine, 2-thio-5-aza-uridine, 2-thiouridine, 4-thio-pseudouridine, 2-thio-pseudouridine, 5-hydroxyuridine, 3-methyluridine, 5-carboxymethyl-uridine, 1-carboxymethyl-pseudouridine, 5-propynyl-uridine, 1-propynyl-pseudouridine, 5-taurinomethyluridine, 1-taurinomethyl-pseudouridine, 5-taurinomethyl-2-thio-uridine, 1-taurinomethyl-4-thio-uridine, 5-methyl-uridine, 1-methyl-pseudouridine, 4-thio-1-methyl-pseudouridine, 2-thio-1-methyl-pseudouridine, 1-methyl-1-deaza-pseudouridine, 2-thio-1-methyl-1-deaza-pseudouridine, dihydrouridine, dihydropseudouridine, 2-thio-dihydrouridine, 2-thio-dihydropseudouridine, 2-methoxyuridine, 2-methoxy-4-thio-uridine, 4-methoxy-pseudouridine, and 4-methoxy-2-thio-pseudouridine.

In some embodiments, modified nucleosides include 5-aza-cytidine, pseudoisocytidine, 3-methyl-cytidine, N4-acetylcytidine, 5-formylcytidine, N4-methylcytidine, 5-hydroxymethylcytidine, 1-

methyl-pseudoisocytidine, pyrrolo-cytidine, pyrrolo-pseudoisocytidine, 2-thio-cytidine, 2-thio-5-methyl-cytidine, 4-thio-pseudoisocytidine, 4-thio-1-methyl-pseudoisocytidine, 4-thio-1-methyl- 1-deaza-pseudoisocytidine, 1-methyl-1-deaza-pseudoisocytidine, zebularine, 5-aza-zebularine, 5-methyl-zebularine, 5-aza-2-thio-zebularine, 2-thio-zebularine, 2-methoxy-cytidine, 2-methoxy-5-methyl-cytidine, 4-methoxy-pseudoisocytidine, and 4-methoxy-1-methyl-pseudoisocytidine .

In other embodiments, modified nucleosides include 2-aminopurine, 2, 6-diaminopurine, 7-deaza-adenine, 7-deaza-8-aza-adenine, 7-deaza-2-aminopurine, 7-deaza-8-aza-2-aminopurine, 7-deaza-2,6-diaminopurine, 7-deaza-8-aza-2,6-diaminopurine, 1-methyladenosine, N6-methyladenosine, N6-isopentenyladenosine, N6-(cis-hydroxyisopentenyl)adenosine, 2-methylthio-N6-(cis-hydroxyisopentenyl) adenosine, N6-glycinylcarbamoyladenosine, N6-threonylcarbamoyladenosine, 2-methylthio-N6-threonyl carbamoyladenosine, N6,N6-dimethyladenosine, 7-methyladenine, 2-methylthio-adenine, and 2-methoxy-adenine.

In other embodiments, modified nucleosides include inosine, 1-methyl-inosine, wyosine, wybutosine, 7-deaza-guanosine, 7-deaza-8-aza-guanosine, 6-thio-guanosine, 6-thio-7-deaza-guanosine, 6-thio-7-deaza-8-aza-guanosine, 7-methyl-guanosine, 6-thio-7-methyl-guanosine, 7-methylinosine, 6-methoxy-guanosine, 1-methylguanosine, N2-methylguanosine, N2,N2-dimethylguanosine, 8-oxo-guanosine, 7-methyl-8-oxo-guanosine, 1-methyl-6-thio-guanosine, N2-methyl-6-thio-guanosine, and N2,N2-dimethyl-6-thio-guanosine.

In some embodiments, the nucleotide can be modified on the major groove face and can include replacing hydrogen on C-5 of uracil with a methyl group or a halo group. In specific embodiments, a modified nucleoside is 5'-O-(1-thiophosphate)-adenosine, 5'-O-(1-thiophosphate)-cytidine, 5'-O-(1-thiophosphate)-guanosine, 5'-O-(1-thiophosphate)-uridine or 5'-O-(1-thiophosphate)-pseudouridine.

In further specific embodiments, a modified RNA may comprise nucleoside modifications selected from 6-aza-cytidine, 2-thio-cytidine, α-thio-cytidine, Pseudo-iso-cytidine, 5-aminoallyl-uridine, 5-iodo-uridine, N1-methyl-pseudouridine, 5,6-dihydrouridine, α-thio-uridine, 4-thio-uridine, 6-aza-uridine, 5-hydroxy-uridine, deoxy-thymidine, 5-methyl-uridine, Pyrrolo-cytidine, inosine, α-thio-guanosine, 6-methyl-guanosine, 5-methyl-cytdine, 8-oxo-guanosine, 7-deaza-guanosine, N1-methyl-adenosine, 2-amino-6-Chloro-purine, N6-methyl-2-amino-purine, Pseudo-iso-cytidine, 6-Chloro-purine, N6-methyl-adenosine, α-thio-adenosine, 8-azido-adenosine, 7-deaza-adenosine.

Lipid modification:

According to a further embodiment, a modified RNA as defined herein can contain a lipid modification. Such a lipid-modified RNA typically comprises an RNA as defined herein. Such a lipid-modified RNA as defined herein typically further comprises at least one linker covalently linked with that RNA, and at least one lipid covalently linked with the respective linker. Alternatively, the lipid-modified RNA comprises at least one RNA as defined herein and at least one (bifunctional) lipid covalently linked (without a linker) with that RNA. According to a third alternative, the lipid-modified RNA comprises an RNA molecule as defined herein, at least one linker covalently linked with that RNA, and at least one lipid covalently linked with the respective linker, and also at least one (bifunctional) lipid covalently linked (without a linker) with that RNA. In this context, it is particularly preferred that the lipid modification is present at the terminal ends of a linear RNA sequence.

G/C content modification:
According to another embodiment, the RNA of the present invention, preferably an mRNA, may be modified, and thus stabilized, by modifying the guanosine/cytosine (G/C) content of the RNA, preferably of the at least one coding sequence of the RNA of the present invention.

In a particularly preferred embodiment of the present invention, the G/C content of the coding region of the RNA of the present invention is modified, particularly increased, compared to the G/C content of the coding region of the respective wild-type RNA, i.e. the unmodified RNA. The amino acid sequence encoded by the RNA is preferably not modified as compared to the amino acid sequence encoded by the respective wild-type RNA. This modification of the RNA of the present invention is based on the fact that the sequence of any RNA region to be translated is important for efficient translation of that RNA. Thus, the composition of the RNA and the sequence of various nucleotides are important. In particular, sequences having an increased G (guanosine)/C (cytosine) content are more stable than sequences having an increased A (adenosine)/U (uracil) content. According to the invention, the codons of the RNA are therefore varied compared to the respective wild-type RNA, while retaining the translated amino acid sequence, such that they include an increased amount of G/C nucleotides. In respect to the fact that several codons code for one and the same amino acid (so-called degeneration of the genetic code), the most favourable codons for the stability can be determined (so-called alternative codon usage). Depending on the amino acid to be encoded by the RNA, there are various possibilities for modification of the RNA sequence, compared to its wild-type sequence. In the case of amino acids, which are encoded by codons, which contain exclusively G or C nucleotides, no modification of the codon is necessary. Thus, the codons for Pro (CCC or CCG), Arg (CGC or CGG), Ala (GCC or GCG) and Gly (GGC or GGG) require no modification, since no A or U is present. In contrast, codons which contain A and/or U nucleotides can be modified by substitution

of other codons, which code for the same amino acids but contain no A and/or U. Examples of these are: the codons for Pro can be modified from CCU or CCA to CCC or CCG; the codons for Arg can be modified from CGU or CGA or AGA or AGG to CGC or CGG; the codons for Ala can be modified from GCU or GCA to GCC or GCG; the codons for Gly can be modified from GGU or GGA to GGC or GGG. In other cases, although A or U nucleotides cannot be eliminated from the codons, it is however possible to decrease the A and U content by using codons which contain a lower content of A and/or U nucleotides. Examples of these are: the codons for Phe can be modified from UUU to UUC; the codons for Leu can be modified from UUA, UUG, CUU or CUA to CUC or CUG; the codons for Ser can be modified from UCU or UCA or AGU to UCC, UCG or AGC; the codon for Tyr can be modified from UAU to UAC; the codon for Cys can be modified from UGU to UGC; the codon for His can be modified from CAU to CAC; the codon for Gln can be modified from CAA to CAG; the codons for Ile can be modified from AUU or AUA to AUC; the codons for Thr can be modified from ACU or ACA to ACC or ACG; the codon for Asn can be modified from AAU to AAC; the codon for Lys can be modified from AAA to AAG; the codons for Val can be modified from GUU or GUA to GUC or GUG; the codon for Asp can be modified from GAU to GAC; the codon for Glu can be modified from GAA to GAG; the stop codon UAA can be modified to UAG or UGA. In the case of the codons for Met (AUG) and Trp (UGG), on the other hand, there is no possibility of sequence modification. The substitutions listed above can be used either individually or in all possible combinations to increase the G/C content of the at least one mRNA of the composition of the present invention compared to its particular wild-type mRNA (i.e. the original sequence). Thus, for example, all codons for Thr occurring in the wild-type sequence can be modified to ACC (or ACG). Preferably, however, for example, combinations of the above substitution possibilities are used:

substitution of all codons coding for Thr in the original sequence (wild-type mRNA) to ACC (or ACG) and

substitution of all codons originally coding for Ser to UCC (or UCG or AGC); substitution of all codons coding for Ile in the original sequence to AUC and

substitution of all codons originally coding for Lys to AAG and

substitution of all codons originally coding for Tyr to UAC; substitution of all codons coding for Val in the original sequence to GUC (or GUG) and

substitution of all codons originally coding for Glu to GAG and

substitution of all codons originally coding for Ala to GCC (or GCG) and

substitution of all codons originally coding for Arg to CGC (or CGG); substitution of all codons coding for Val in the original sequence to GUC (or GUG) and

substitution of all codons originally coding for Glu to GAG and

substitution of all codons originally coding for Ala to GCC (or GCG) and

substitution of all codons originally coding for Gly to GGC (or GGG) and

substitution of all codons originally coding for Asn to AAC; substitution of all codons coding for Val in the original sequence to GUC (or GUG) and
substitution of all codons originally coding for Phe to UUC and
substitution of all codons originally coding for Cys to UGC and
substitution of all codons originally coding for Leu to CUG (or CUC) and
substitution of all codons originally coding for Gln to CAG and
substitution of all codons originally coding for Pro to CCC (or CCG); etc.

Preferably, the G/C content of the coding region of the RNA of the present invention is increased by at least 7%, more preferably by at least 15%, particularly preferably by at least 20%, compared to the G/C content of the coding region of the wild-type RNA, which codes for an antibody as defined herein or a fragment or variant thereof. According to a specific embodiment at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, more preferably at least 70%, even more preferably at least 80% and most preferably at least 90%, 95% or even 100% of the substitutable codons in the region coding for an antibody as defined herein or a fragment or variant thereof or the whole sequence of the wild type RNA sequence are substituted, thereby increasing the GC/content of said sequence. In this context, it is particularly preferable to increase the G/C content of the RNA of the present invention, preferably of the at least one coding region of the RNA according to the invention, to the maximum (i.e. 100% of the substitutable codons) as compared to the wild-type sequence. According to the invention, a further preferred modification of the RNA of the present invention is based on the finding that the translation efficiency is also determined by a different frequency in the occurrence of tRNAs in cells. Thus, if so-called "rare codons" are present in the RNA of the present invention to an increased extent, the corresponding modified RNA sequence is translated to a significantly poorer degree than in the case where codons coding for relatively "frequent" tRNAs are present. According to the invention, in the modified RNA of the present invention, the region which codes for an antibody as defined herein or a fragment or variant thereof is modified compared to the corresponding region of the wild-type RNA such that at least one codon of the wild-type sequence, which codes for a tRNA which is relatively rare in the cell, is exchanged for a codon, which codes for a tRNA which is relatively frequent in the cell and carries the same amino acid as the relatively rare tRNA. By this modification, the sequences of the RNA of the present invention is modified such that codons for which frequently occurring tRNAs are available are inserted. In other words, according to the invention, by this modification all codons of the wild-type sequence, which code for a tRNA which is relatively rare in the cell, can in each case be exchanged for a codon, which codes for a tRNA which is relatively frequent in the cell and which, in each case, carries the same amino acid as the relatively rare tRNA. Which tRNAs occur relatively frequently in the cell and which, in contrast, occur relatively rarely is known to a person skilled in the art; cf. e.g. Akashi, Curr. Opin. Genet. Dev. 2001, 11(6): 660-666. The

codons, which use for the particular amino acid the tRNA which occurs the most frequently, e.g. the Gly codon, which uses the tRNA, which occurs the most frequently in the (human) cell, are particularly preferred. According to the invention, it is particularly preferable to link the sequential G/C content which is increased, in particular maximized, in the modified RNA of the present invention, with the "frequent" codons without modifying the amino acid sequence of the protein encoded by the coding region of the RNA. This preferred embodiment allows provision of a particularly efficiently translated and stabilized (modified) RNA of the present invention. The determination of a modified RNA of the present invention as described above (increased G/C content; exchange of tRNAs) can be carried out using the computer program explained in WO 02/098443 – the disclosure content of which is included in its full scope in the present invention. Using this computer program, the nucleotide sequence of any desired RNA can be modified with the aid of the genetic code or the degenerative nature thereof such that a maximum G/C content results, in combination with the use of codons which code for tRNAs occurring as frequently as possible in the cell, the amino acid sequence coded by the modified RNA preferably not being modified compared to the non-modified sequence. Alternatively, it is also possible to modify only the G/C content or only the codon usage compared to the original sequence. The source code in Visual Basic 6.0 (development environment used: Microsoft Visual Studio Enterprise 6.0 with Servicepack 3) is also described in WO 02/098443. In a further preferred embodiment of the present invention, the A/U content in the environment of the ribosome binding site of the RNA of the present invention is increased compared to the A/U content in the environment of the ribosome binding site of its respective wild-type mRNA. This modification (an increased A/U content around the ribosome binding site) increases the efficiency of ribosome binding to the RNA. An effective binding of the ribosomes to the ribosome binding site (Kozak sequence: SEQ ID NO: 61159 (DNA) or SEQ ID NO:61160 (RNA), respectively; the AUG forms the start codon) in turn has the effect of an efficient translation of the RNA. According to a further embodiment of the present invention, the RNA of the present invention may be modified with respect to potentially destabilizing sequence elements. Particularly, the coding region and/or the 5' and/or 3' untranslated region of this RNA may be modified compared to the respective wild-type RNA such that it contains no destabilizing sequence elements, the encoded amino acid sequence of the modified RNA preferably not being modified compared to its respective wild-type RNA. It is known that, for example in sequences of eukaryotic RNAs, destabilizing sequence elements (DSE) occur, to which signal proteins bind and regulate enzymatic degradation of RNA in vivo. For further stabilization of the modified RNA, optionally in the region which encodes an antibody as defined herein or a fragment or variant thereof, one or more such modifications compared to the corresponding region of the wild-type RNA can therefore be carried out, so that no or substantially no destabilizing sequence elements are contained there. According to the invention, DSE present in the untranslated regions (3'- and/or 5'-UTR) can also be eliminated from the RNA of the present

invention by such modifications. Such destabilizing sequences are e.g. AU-rich sequences (AURES), which occur in 3'-UTR sections of numerous unstable RNAs (Caput et al., Proc. Natl. Acad. Sci. USA 1986, 83: 1670 to 1674). The RNA of the present invention is therefore preferably modified compared to the respective wild-type RNA such that the RNA of the present invention contains no such destabilizing sequences. This also applies to those sequence motifs which are recognized by possible endonucleases, e.g. the sequence GAACAAG, which is contained in the 3'-UTR segment of the gene encoding the transferrin receptor (Binder et al., EMBO J. 1994, 13: 1969 to 1980). These sequence motifs are also preferably removed in the RNA of the present invention.

GC optimized sequences:

In a preferred embodiment, the present invention provides an RNA comprising at least one coding sequence, wherein the coding sequence comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 7643-15284, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61217, 61239-61242, 61248-61250, 61272-61275, 61282-61284, 61306-61309, 61313, 61321, 61325, 61333, 61336, 61339, 61347, 61350, 61358, 61360, 61363, 61371, 61374, 61382, 61386, 61387, 61402-61404, 61416, 61419, 61427, 61430, 61438, 61442, 61443, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501, 61502, 61517-61519, 61523, 61524, 61539-61541, 61545, 61546, 61561-61563, 61566, 61574, 61577, 61585, 61589, 61590, 61604, 61607, 61610, 61613, 61615, 61620, 61621, 61636, 61637, 61641, 61642, 61646, 61647, 61662-61664, 61668, 61676, 61679, 61687, 61690, 61698, 61701, 61709, 61712, 61720, 61723, 61731, and 61733; or a fragment or variant of any one of said nucleic acid sequences.

It is also preferred that the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NO: 7643-15284, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61217, 61239-61242, 61248-61250, 61272-61275, 61282-61284, 61306-61309, 61313, 61321, 61325, 61333, 61336, 61339, 61347, 61350, 61358, 61360, 61363, 61371, 61374, 61382, 61386, 61387, 61402-61404, 61416, 61419, 61427, 61430, 61438, 61442, 61443, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497,

61501, 61502, 61517-61519, 61523, 61524, 61539-61541, 61545, 61546, 61561-61563, 61566, 61574, 61577, 61585, 61589, 61590, 61604, 61607, 61610, 61613, 61615, 61620, 61621, 61636, 61637, 61641, 61642, 61646, 61647, 61662-61664, 61668, 61676, 61679, 61687, 61690, 61698, 61701, 61709, 61712, 61720, 61723, 61731, and 61733; or a fragment or variant of any one of said nucleic acid sequences.

It is also preferred that the RNA comprises at least one coding sequence, wherein the coding sequence comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 38211-45852, 61227-1229, 61260-61262, 61294-61296, 61317, 61329, 61343, 61354, 61367, 61378, 61394, 61395, 61423, 61434, 61450, 61451, 61509, 61510, 61531, 61532, 61553, 61554, 61570, 61581, 61597, 61598, 61628, 61629, 61654, 61655, 61672, 61683, 61694, 61705, 61716, and 61727; or a fragment or variant of any one of said nucleic acid sequences.

Preferably, the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NO: 38211-45852, 61227-1229, 61260-61262, 61294-61296, 61317, 61329, 61343, 61354, 61367, 61378, 61394, 61395, 61423, 61434, 61450, 61451, 61509, 61510, 61531, 61532, 61553, 61554, 61570, 61581, 61597, 61598, 61628, 61629, 61654, 61655, 61672, 61683, 61694, 61705, 61716, and 61727; or a fragment or variant of any one of said nucleic acid sequences.

It is also preferred that the RNA comprises at least one coding sequence, wherein the coding sequence comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 45853-53494, 61230-61232, 61263-61265, 61297-61299, 61318, 61330, 61344, 61355, 61368, 61379, 61396, 61397, 61424, 61435, 61452, 61453, 61511, 61512, 61533, 61534, 61555, 61556, 61571, 61582, 61599, 61600, 61630, 61631, 61656, 61657, 61673, 61684, 61695, 61706, 61717, 61728; or a fragment or variant of any one of said nucleic acid sequences.

Preferably, the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NO:

45853-53494, 61230-61232, 61263-61265, 61297-61299, 61318, 61330, 61344, 61355, 61368, 61379, 61396, 61397, 61424, 61435, 61452, 61453, 61511, 61512, 61533, 61534, 61555, 61556, 61571, 61582, 61599, 61600, 61630, 61631, 61656, 61657, 61673, 61684, 61695, 61706, 61717, 61728; or a fragment or variant of any one of said nucleic acid sequences.

It is also preferred that the RNA comprises at least one coding sequence, wherein the coding sequence comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 53495-61136, 61233-61235, 61266-61268, 61300-61302, 61319, 61331, 61345, 61356, 61369, 61380, 61398, 61399, 61425, 61436, 61454, 61455, 61513, 61514, 61535, 61536, 61557, 61558, 61572, 61583, 61601, 61602, 61632, 61633, 61658, 61659, 61674, 61685, 61696, 61707, 61718, and 61729; or a fragment or variant of any one of said nucleic acid sequences.

Preferably, the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 53495-61136, 61233-61235, 61266-61268, 61300-61302, 61319, 61331, 61345, 61356, 61369, 61380, 61398, 61399, 61425, 61436, 61454, 61455, 61513, 61514, 61535, 61536, 61557, 61558, 61572, 61583, 61601, 61602, 61632, 61633, 61658, 61659, 61674, 61685, 61696, 61707, 61718, and 61729; or a fragment or variant of any one of said nucleic acid sequences.

Sequences adapted to human codon usage:

According to the invention, a further preferred modification of the RNA of the present invention is based on the finding that codons encoding the same amino acid typically occur at different frequencies. According to the invention, in the modified RNA of the present invention, the coding sequence (coding region) as defined herein is preferably modified compared to the corresponding region of the respective wild-type RNA such that the frequency of the codons encoding the same amino acid corresponds to the naturally occurring frequency of that codon according to the human codon usage as e.g. shown in Table 10.

For example, in the case of the amino acid alanine (Ala) present in an amino acid sequence encoded by the at least one coding sequence of the RNA according to the invention, the wild type coding sequence is preferably adapted in a way that the codon “GCC” is used with a frequency

of 0.40, the codon "GCT" is used with a frequency of 0.28, the codon "GCA" is used with a frequency of 0.22 and the codon "GCG" is used with a frequency of 0.10 etc. (see Table 10).

Table 10: Human codon usage table

Aminoacid	codon	fraction	/1000
Ala	GCG	0.10	7.4
Ala	GCA	0.22	15.8
Ala	GCT	0.28	18.5
Ala	GCC*	0.40	27.7
Cys	TGT	0.42	10.6
Cys	TGC*	0.58	12.6
Asp	GAT	0.44	21.8
Asp	GAC*	0.56	25.1
Glu	GAG*	0.59	39.6
Glu	GAA	0.41	29.0
Phe	TTT	0.43	17.6
Phe	TTC*	0.57	20.3
Gly	GGG	0.23	16.5
Gly	GGA	0.26	16.5
Gly	GGT	0.18	10.8
Gly	GGC*	0.33	22.2
His	CAT	0.41	10.9
His	CAC*	0.59	15.1
Ile	ATA	0.14	7.5
Ile	ATT	0.35	16.0
Ile	ATC*	0.52	20.8
Lys	AAG*	0.60	31.9
Lys	AAA	0.40	24.4
Leu	TTG	0.12	12.9
Leu	TTA	0.06	7.7
Leu	CTG*	0.43	39.6
Leu	CTA	0.07	7.2
Leu	CTT	0.12	13.2
Leu	CTC	0.20	19.6

Aminoacid	codon	fraction	/1000
Pro	CCG	0.11	6.9
Pro	CCA	0.27	16.9
Pro	CCT	0.29	17.5
Pro	CCC*	0.33	19.8
Gln	CAG*	0.73	34.2
Gln	CAA	0.27	12.3
Arg	AGG	0.22	12.0
Arg	AGA*	0.21	12.1
Arg	CGG	0.19	11.4
Arg	CGA	0.10	6.2
Arg	CGT	0.09	4.5
Arg	CGC	0.19	10.4
Ser	AGT	0.14	12.1
Ser	AGC*	0.25	19.5
Ser	TCG	0.06	4.4
Ser	TCA	0.15	12.2
Ser	TCT	0.18	15.2
Ser	TCC	0.23	17.7
Thr	ACG	0.12	6.1
Thr	ACA	0.27	15.1
Thr	ACT	0.23	13.1
Thr	ACC*	0.38	18.9
Val	GTG*	0.48	28.1
Val	GTA	0.10	7.1
Val	GTT	0.17	11.0
Val	GTC	0.25	14.5
Trp	TGG*	1	13.2
Tyr	TAT	0.42	12.2
Tyr	TAC*	0.58	15.3

Met	ATG*	1	22.0
Asn	AAT	0.44	17.0
Asn	AAC*	0.56	19.1

Stop	TGA*	0.61	1.6
Stop	TAG	0.17	0.8
Stop	TAA	0.22	1.0

*: most frequent codon

In a preferred embodiment, the present invention provides an RNA comprising at least one coding sequence, wherein the coding sequence comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 22927-30568, 61221-61223, 61254-61256, 61288-61290, 61315, 61327, 61341, 61352, 61365, 61376, 61390, 61391, 61421, 61432, 61446, 61447, 61505, 61506, 61527, 61528, 61549, 61550, 61568, 61579, 61593, 61594, 61624, 61625, 61650, 61651, 61670, 61681, 61692, 61703, 61714, and 61725; or a fragment or variant of any one of said nucleic acid sequences.

According to a further embodiment, the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NO: 22927-30568, 61221-61223, 61254-61256, 61288-61290, 61315, 61327, 61341, 61352, 61365, 61376, 61390, 61391, 61421, 61432, 61446, 61447, 61505, 61506, 61527, 61528, 61549, 61550, 61568, 61579, 61593, 61594, 61624, 61625, 61650, 61651, 61670, 61681, 61692, 61703, 61714, and 61725; or a fragment or variant of any one of said nucleic acid sequences.

Codon-optimized sequences:

As described above it is preferred according to the invention, that all codons of the wild-type sequence which code for a tRNA, which is relatively rare in the cell, are exchanged for a codon which codes for a tRNA, which is relatively frequent in the cell and which, in each case, carries the same amino acid as the relatively rare tRNA. Therefore it is particularly preferred that the most frequent codons are used for each encoded amino acid (see Table 2, most frequent codons are marked with asterisks). Such an optimization procedure increases the codon adaptation index (CAI) and ultimately maximises the CAI. In the context of the invention, sequences with increased or maximized CAI are typically referred to as "codon-optimized" sequences and/or CAI increased and/or maximized sequences. According to a preferred embodiment, the RNA of the present

invention comprises at least one coding sequence, wherein the coding sequence is codon-optimized as described herein. More preferably, the codon adaptation index (CAI) of the at least one coding sequence is at least 0.5, at least 0.8, at least 0.9 or at least 0.95. Most preferably, the codon adaptation index (CAI) of the at least one coding sequence is 1.

For example, in the case of the amino acid alanine (Ala) present in the amino acid sequence encoded by the at least one coding sequence of the RNA according to the invention, the wild type coding sequence is adapted in a way that the most frequent human codon "GCC" is always used for said amino acid, or for the amino acid Cysteine (Cys), the wild type sequence is adapted in a way that the most frequent human codon "TGC" is always used for said amino acid etc.

In a preferred embodiment, the present invention provides an RNA comprising at least one coding sequence, wherein the coding sequence comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 30569-38210, 61224-61226, 61257-61259, 61291-61293, 61316, 61328, 61342, 61353, 61366, 61377, 61392, 61393, 61422, 61433, 61448, 61449, 61507, 61508, 61529, 61530, 61551, 61552, 61569, 61580, 61595, 61596, 61626, 61627, 61652, 61653, 61671, 61682, 61693, 61704, 61715, and 61726; or a fragment or variant of any one of said nucleic acid sequences.

According to a further embodiment, the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NO: 30569-38210, 61224-61226, 61257-61259, 61291-61293, 61316, 61328, 61342, 61353, 61366, 61377, 61392, 61393, 61422, 61433, 61448, 61449, 61507, 61508, 61529, 61530, 61551, 61552, 61569, 61580, 61595, 61596, 61626, 61627, 61652, 61653, 61671, 61682, 61693, 61704, 61715, and 61726; or a fragment or variant of any one of said nucleic acid sequences.

C-optimized sequences:

According to another embodiment, the RNA of the composition of the present invention may be modified by modifying, preferably increasing, the cytosine (C) content of the RNA, preferably of the coding region of the aRNA.

In a particularly preferred embodiment of the present invention, the C content of the coding region of the RNA of the present invention is modified, preferably increased, compared to the C content of the coding region of the respective wild-type RNA, i.e. the unmodified RNA. The amino acid sequence encoded by the at least one coding sequence of the RNA of the present invention is preferably not modified as compared to the amino acid sequence encoded by the respective wild-type mRNA.

In a preferred embodiment of the present invention, the modified RNA is modified such that at least 10%, 20%, 30%, 40%, 50%, 60%, 70% or 80%, or at least 90% of the theoretically possible maximum cytosine-content or even a maximum cytosine-content is achieved.

In further preferred embodiments, at least 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90% or even 100% of the codons of the target RNA wild type sequence, which are "cytosine content optimizable" are replaced by codons having a higher cytosine-content than the ones present in the wild type sequence.

In a further preferred embodiment, some of the codons of the wild type coding sequence may additionally be modified such that a codon for a relatively rare tRNA in the cell is exchanged by a codon for a relatively frequent tRNA in the cell, provided that the substituted codon for a relatively frequent tRNA carries the same amino acid as the relatively rare tRNA of the original wild type codon. Preferably, all of the codons for a relatively rare tRNA are replaced by a codon for a relatively frequent tRNA in the cell, except codons encoding amino acids, which are exclusively encoded by codons not containing any cytosine, or except for glutamine (Gln), which is encoded by two codons each containing the same number of cytosines.

In a further preferred embodiment of the present invention, the modified target RNA is modified such that at least 80%, or at least 90% of the theoretically possible maximum cytosine-content or even a maximum cytosine-content is achieved by means of codons, which code for relatively frequent tRNAs in the cell, wherein the amino acid sequence remains unchanged.

Due to the naturally occurring degeneracy of the genetic code, more than one codon may encode a particular amino acid. Accordingly, 18 out of 20 naturally occurring amino acids are encoded by more than one codon (with Tryp and Met being an exception), e.g. by 2 codons (e.g. Cys, Asp, Glu), by three codons (e.g. Ile), by 4 codons (e.g. Al, Gly, Pro) or by 6 codons (e.g. Leu, Arg, Ser). However, not all codons encoding the same amino acid are utilized with the same frequency

under in vivo conditions. Depending on each single organism, a typical codon usage profile is established.

The term 'cytosine content-optimizable codon' as used within the context of the present invention refers to codons, which exhibit a lower content of cytosines than other codons encoding the same amino acid. Accordingly, any wild type codon, which may be replaced by another codon encoding the same amino acid and exhibiting a higher number of cytosines within that codon, is considered to be cytosine-optimizable (C-optimizable). Any such substitution of a C-optimizable wild type codon by the specific C-optimized codon within a wild type coding region increases its overall C-content and reflects a C-enriched modified mRNA sequence. According to a preferred embodiment, the RNA of the present invention, preferably the at least one coding sequence of the RNA of the present invention comprises or consists of a C-maximized RNA sequence containing C-optimized codons for all potentially C-optimizable codons. Accordingly, 100% or all of the theoretically replaceable C-optimizable codons are preferably replaced by C-optimized codons over the entire length of the coding region.

In this context, cytosine-content optimizable codons are codons, which contain a lower number of cytosines than other codons coding for the same amino acid.
Any of the codons GCG, GCA, GCU codes for the amino acid Ala, which may be exchanged by the codon GCC encoding the same amino acid, and/or
the codon UGU that codes for Cys may be exchanged by the codon UGC encoding the same amino acid, and/or
the codon GAU which codes for Asp may be exchanged by the codon GAC encoding the same amino acid, and/or
the codon that UUU that codes for Phe may be exchanged for the codon UUC encoding the same amino acid, and/or
any of the codons GGG, GGA, GGU that code Gly may be exchanged by the codon GGC encoding the same amino acid, and/or
the codon CAU that codes for His may be exchanged by the codon CAC encoding the same amino acid, and/or
any of the codons AUA, AUU that code for Ile may be exchanged by the codon AUC, and/or
any of the codons UUG, UUA, CUG, CUA, CUU coding for Leu may be exchanged by the codon CUC encoding the same amino acid, and/or
the codon AAU that codes for Asn may be exchanged by the codon AAC encoding the same amino acid, and/or
any of the codons CCG, CCA, CCU coding for Pro may be exchanged by the codon CCC encoding the same amino acid, and/or

any of the codons AGG, AGA, CGG, CGA, CGU coding for Arg may be exchanged by the codon CGC encoding the same amino acid, and/or
any of the codons AGU, AGC, UCG, UCA, UCU coding for Ser may be exchanged by the codon UCC encoding the same amino acid, and/or
any of the codons ACG, ACA, ACU coding for Thr may be exchanged by the codon ACC encoding the same amino acid, and/or
any of the codons GUG, GUA, GUU coding for Val may be exchanged by the codon GUC encoding the same amino acid, and/or
the codon UAU coding for Tyr may be exchanged by the codon UAC encoding the same amino acid.

In any of the above instances, the number of cytosines is increased by 1 per exchanged codon. Exchange of all non C-optimized codons (corresponding to C-optimizable codons) of the coding region results in a C-maximized coding sequence. In the context of the invention, at least 70%, preferably at least 80%, more preferably at least 90%, of the non C-optimized codons within the at least one coding region of the RNA according to the invention are replaced by C-optimized codons.

It may be preferred that for some amino acids the percentage of C-optimizable codons replaced by C-optimized codons is less than 70%, while for other amino acids the percentage of replaced codons is higher than 70% to meet the overall percentage of C-optimization of at least 70% of all C-optimizable wild type codons of the coding region.

Preferably, in a C-optimized RNA of the invention, at least 50% of the C-optimizable wild type codons for any given amino acid are replaced by C-optimized codons, e.g. any modified C-enriched RNA preferably contains at least 50% C-optimized codons at C-optimizable wild type codon positions encoding any one of the above mentioned amino acids Ala, Cys, Asp, Phe, Gly, His, Ile, Leu, Asn, Pro, Arg, Ser, Thr, Val and Tyr, preferably at least 60%.

In this context codons encoding amino acids, which are not cytosine content-optimizable and which are, however, encoded by at least two codons, may be used without any further selection process. However, the codon of the wild type sequence that codes for a relatively rare tRNA in the cell, e.g. a human cell, may be exchanged for a codon that codes for a relatively frequent tRNA in the cell, wherein both code for the same amino acid. Accordingly, the relatively rare codon GAA coding for Glu may be exchanged by the relative frequent codon GAG coding for the same amino acid, and/or

the relatively rare codon AAA coding for Lys may be exchanged by the relative frequent codon AAG coding for the same amino acid, and/or
the relatively rare codon CAA coding for Gln may be exchanged for the relative frequent codon CAG encoding the same amino acid.

In this context, the amino acids Met (AUG) and Trp (UGG), which are encoded by only one codon each, remain unchanged. Stop codons are not cytosine-content optimized, however, the relatively rare stop codons amber, ochre (UAA, UAG) may be exchanged by the relatively frequent stop codon opal (UGA).

The single substitutions listed above may be used individually as well as in all possible combinations in order to optimize the cytosine-content of the modified RNA compared to the wild type mRNA sequence.

Accordingly, the at least one coding sequence as defined herein may be changed compared to the coding region of the respective wild type RNA in such a way that an amino acid encoded by at least two or more codons, of which one comprises one additional cytosine, such a codon may be exchanged by the C-optimized codon comprising one additional cytosine, wherein the amino acid is preferably unaltered compared to the wild type sequence.

In a preferred embodiment, the present invention provides an RNA comprising at least one coding sequence, wherein the coding sequence comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 15285-22926, 61218-61220, 61251-61253, 61285-61287, 61314, 61326, 61340, 61351, 61364, 61375, 61388, 61389, 61420, 61431, 61444, 61445, 61503, 61504, 61525, 61526, 61547, 61548, 61567, 61578, 61591, 61592, 61622, 61623, 61648, 61649, 61669, 61680, 61691, 61702, 61713, and 61724; or a fragment or variant of any one of said nucleic acid sequences.

According to a further embodiment, the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NO: 15285-22926, 61218-61220, 61251-61253, 61285-61287, 61314, 61326, 61340, 61351, 61364, 61375, 61388, 61389, 61420, 61431, 61444, 61445, 61503, 61504, 61525, 61526, 61547, 61548, 61567, 61578, 61591, 61592, 61622, 61623, 61648, 61649, 61669,

61680, 61691, 61702, 61713, and 61724; or a fragment or variant of any one of said nucleic acid sequences.

According to a particularly preferred embodiment, the invention provides an RNA, preferably an mRNA, comprising at least one coding sequence as defined herein, wherein the G/C content of the at least one coding sequence of the RNA is increased compared to the G/C content of the corresponding coding sequence of the corresponding wild-type RNA, and/or
wherein the C content of the at least one coding sequence of the RNA is increased compared to the C content of the corresponding coding sequence of the corresponding wild-type RNA, and/or
wherein the codons in the at least one coding sequence of the RNA are adapted to human codon usage, wherein the codon adaptation index (CAI) is preferably increased or maximised in the at least one coding sequence of the RNA,
and wherein the amino acid sequence encoded by the RNA is preferably not being modified compared to the amino acid sequence encoded by the corresponding wild-type RNA.

Accordingly, the nucleic acid sequence, which is comprised by the at least one coding sequence of the inventive RNA, is preferably selected from the group consisting of SEQ ID NO: 7643-61136, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any one of said nucleic acid sequences.

It is also preferred that the at least one coding sequence of the RNA according to the invention comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%,

20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NO: 7643-61136, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any one of said nucleic acid sequences.

According to another preferred embodiment of the invention, a modified RNA as defined herein, can be modified by the addition of a so-called '5' cap' structure, which preferably stabilizes the RNA as described herein. A 5'-cap is an entity, typically a modified nucleotide entity, which generally "caps" the 5'-end of a mature mRNA. A 5'-cap may typically be formed by a modified nucleotide, particularly by a derivative of a guanine nucleotide. Preferably, the 5'-cap is linked to the 5'-terminus via a 5'-5'-triphosphate linkage. A 5'-cap may be methylated, e.g. m7GpppN, wherein N is the terminal 5' nucleotide of the nucleic acid carrying the 5'-cap, typically the 5'-end of an mRNA. m7GpppN is the 5'-cap structure, which naturally occurs in mRNA transcribed by polymerase II and is therefore preferably not considered as modification comprised in a modified mRNA in this context. Accordingly, a modified RNA of the present invention may comprise a m7GpppN as 5'-cap, but additionally the modified RNA typically comprises at least one further modification as defined herein.

Further examples of 5'cap structures include glyceryl, inverted deoxy abasic residue (moiety), 4',5' methylene nucleotide, 1-(beta-D-erythrofuranosyl) nucleotide, 4'-thio nucleotide, carbocyclic

nucleotide, 1,5-anhydrohexitol nucleotide, L-nucleotides, alpha-nucleotide, modified base nucleotide, threo-pentofuranosyl nucleotide, acyclic 3',4'-seco nucleotide, acyclic 3,4-dihydroxybutyl nucleotide, acyclic 3,5 dihydroxypentyl nucleotide, 3'-3'-inverted nucleotide moiety, 3'-3'-inverted abasic moiety, 3'-2'-inverted nucleotide moiety, 3'-2'-inverted abasic moiety, 1,4-butanediol phosphate, 3'-phosphoramidate, hexylphosphate, aminohexyl phosphate, 3'-phosphate, 3'phosphorothioate, phosphorodithioate, or bridging or non-bridging methylphosphonate moiety. These modified 5'-cap structures are regarded as at least one modification in this context.

Particularly preferred modified 5'-cap structures are cap1 (methylation of the ribose of the adjacent nucleotide of m7G), cap2 (additional methylation of the ribose of the 2nd nucleotide downstream of the m7G), cap3 (additional methylation of the ribose of the 3rd nucleotide downstream of the m7G), cap4 (methylation of the ribose of the 4th nucleotide downstream of the m7G), ARCA (anti-reverse cap analogue, modified ARCA (e.g. phosphothioate modified ARCA), inosine, N1-methyl-guanosine, 2'-fluoro-guanosine, 7-deaza-guanosine, 8-oxo-guanosine, 2-amino-guanosine, LNA-guanosine, and 2-azido-guanosine. Accordingly, the RNA according to the invention preferably comprises a 5'-cap structure.

In a preferred embodiment, the RNA according to the invention comprises at least one 5'- or 3'-UTR element. In this context, an UTR element comprises or consists of a nucleic acid sequence, which is derived from the 5'- or 3'-UTR of any naturally occurring gene or which is derived from a fragment, a homolog or a variant of the 5'- or 3'-UTR of a gene. Preferably, the 5'- or 3'-UTR element used according to the present invention is heterologous to the at least one coding sequence of the RNA of the invention. Even if 5'- or 3'-UTR elements derived from naturally occurring genes are preferred, also synthetically engineered UTR elements may be used in the context of the present invention.

The term '3'UTR element' typically refers to a nucleic acid sequence, which comprises or consists of a nucleic acid sequence that is derived from a 3'UTR or from a variant of a 3'UTR. A 3'UTR element in the sense of the present invention may represent the 3'UTR of an RNA, preferably an mRNA. Thus, in the sense of the present invention, preferably, a 3'UTR element may be the 3'UTR of an RNA, preferably of an mRNA, or it may be the transcription template for a 3'UTR of an RNA. Thus, a 3'UTR element preferably is a nucleic acid sequence which corresponds to the 3'UTR of an RNA, preferably to the 3'UTR of an mRNA, such as an mRNA obtained by transcription of a genetically engineered vector construct. Preferably, the 3'UTR element fulfils the function of a 3'UTR or encodes a sequence which fulfils the function of a 3'UTR.

According to a preferred embodiment, the RNA, preferably an mRNA, according to the invention comprises a 5'-cap structure and/or at least one 3'-untranslated region element (3'-UTR element), preferably as defined herein. More preferably, the RNA further comprises a 5'-UTR element as defined herein.

According to a further preferred embodiment, the RNA of the present invention may contain a poly-A tail on the 3' terminus of typically about 10 to 200 adenosine nucleotides, preferably about 10 to 100 adenosine nucleotides, more preferably about 40 to 80 adenosine nucleotides or even more preferably about 50 to 70 adenosine nucleotides.

Preferably, the poly(A) sequence in the RNA of the present invention is derived from a DNA template by RNA in vitro transcription. Alternatively, the poly(A) sequence may also be obtained in vitro by common methods of chemical-synthesis without being necessarily transcribed from a DNA-progenitor. Moreover, poly(A) sequences, or poly(A) tails may be generated by enzymatic polyadenylation of the RNA according to the present invention using commercially available polyadenylation kits and corresponding protocols known in the art.

Alternatively, the RNA as described herein optionally comprises a polyadenylation signal, which is defined herein as a signal, which conveys polyadenylation to a (transcribed) RNA by specific protein factors (e.g. cleavage and polyadenylation specificity factor (CPSF), cleavage stimulation factor (CstF), cleavage factors I and II (CF I and CF II), poly(A) polymerase (PAP)). In this context, a consensus polyadenylation signal is preferred comprising the NN(U/T)ANA consensus sequence. In a particularly preferred aspect, the polyadenylation signal comprises one of the following sequences: AA(U/T)AAA or A(U/T)(U/T)AAA (wherein uridine is usually present in RNA and thymidine is usually present in DNA).

According to a further preferred embodiment, the RNA of the present invention may contain a poly(C) tail on the 3' terminus of typically about 10 to 200 cytosine nucleotides, preferably about 10 to 100 cytosine nucleotides, more preferably about 20 to 70 cytosine nucleotides or even more preferably about 20 to 60 or even 10 to 40 cytosine nucleotides.

In a further preferred embodiment, the RNA according to the invention further comprises at least one 3'UTR element. Preferably, the at least one 3'UTR element comprises or consists of a nucleic acid sequence derived from the 3'UTR of a chordate gene, preferably a vertebrate gene, more preferably a mammalian gene, most preferably a human gene, or from a variant of the 3'UTR of a chordate gene, preferably a vertebrate gene, more preferably a mammalian gene, most preferably a human gene.

Preferably, the RNA of the present invention comprises a 3'UTR element, which may be derivable from a gene that relates to an mRNA with an enhanced half-life (that provides a stable mRNA), for example a 3'UTR element as defined and described below. Preferably, the 3'-UTR element is a nucleic acid sequence derived from a 3'-UTR of a gene, which preferably encodes a stable mRNA, or from a homolog, a fragment or a variant of said gene

In a particularly preferred embodiment, the 3'UTR element comprises or consists of a nucleic acid sequence, which is derived from a 3'UTR of a gene selected from the group consisting of an albumin gene, an α-globin gene, a β-globin gene, a tyrosine hydroxylase gene, a lipoxygenase gene, and a collagen alpha gene, such as a collagen alpha 1(I) gene, or from a variant of a 3'UTR of a gene selected from the group consisting of an albumin gene, an α-globin gene, a β-globin gene, a tyrosine hydroxylase gene, a lipoxygenase gene, and a collagen alpha gene, such as a collagen alpha 1(I) gene according to SEQ ID NOs: 1369-1390 of the patent application WO2013/143700, whose disclosure is incorporated herein by reference, or from a homolog, a fragment or a variant thereof. In a particularly preferred embodiment, the 3'UTR element comprises or consists of a nucleic acid sequence which is derived from a 3'UTR of an albumin gene, preferably a vertebrate albumin gene, more preferably a mammalian albumin gene, most preferably a human albumin gene according to SEQ ID NO: 61151 or the corresponding RNA sequence SEQ ID NO: 61152.

In this context it is particularly preferred that the RNA according to the invention comprises a 3'-UTR element comprising a corresponding RNA sequence derived from the nucleic acids according to SEQ ID NOs: 1369-1390 of the patent application WO2013/143700 or a fragment, homolog or variant thereof.

Most preferably the 3'-UTR element comprises the nucleic acid sequence derived from a fragment of the human albumin gene according to SEQ ID NOs: 61153 or 61155.

In this context, it is particularly preferred that the 3'-UTR element of the RNA according to the present invention comprises or consists of a corresponding RNA sequence of the nucleic acid sequence according to SEQ ID NO: 61153 or 61155 as shown in SEQ ID NOs: 61154 or 61156.

In another particularly preferred embodiment, the 3'UTR element comprises or consists of a nucleic acid sequence which is derived from a 3'UTR of an α-globin gene, preferably a vertebrate α-or β-globin gene, more preferably a mammalian α-or β-globin gene, most preferably a human

α-or β-globin gene according to SEQ ID NOs: 61143, 61145 or 61147 or the corresponding RNA sequences SEQ ID NOs: 61144, 61146 or 61148.

For example, the 3'UTR element may comprise or consist of the center, α-complex-binding portion of the 3'UTR of an α-globin gene, such as of a human α-globin gene, or a homolog, a fragment, or a variant of an α-globin gene, preferably according to SEQ ID NO: 61149:

Center, α-complex-binding portion of the 3'UTR of an α-globin gene (also named herein as "muag") GCCCGATGGGCCTCCCAACGGGCCCTCCTCCCCTCCTTGCACCG (SEQ ID NO: 61149 corresponding to SEQ ID NO: 1393 of the patent application WO2013/143700).

In this context it is particularly preferred that the 3'-UTR element of the RNA according to the invention comprises or consists of a corresponding RNA sequence of the nucleic acid sequence according to SEQ ID NO: 61149 as shown in SEQ ID NO: 61150, or a homolog, a fragment or variant thereof.

The term 'a nucleic acid sequence which is derived from the 3'UTR of a [...] gene' preferably refers to a nucleic acid sequence which is based on the 3'UTR sequence of a [...] gene or on a part thereof, such as on the 3'UTR of an albumin gene, an α-globin gene, a β-globin gene, a tyrosine hydroxylase gene, a lipoxygenase gene, or a collagen alpha gene, such as a collagen alpha 1(I) gene, preferably of an albumin gene or on a part thereof. This term includes sequences corresponding to the entire 3'UTR sequence, i.e. the full length 3'UTR sequence of a gene, and sequences corresponding to a fragment of the 3'UTR sequence of a gene, such as an albumin gene, α-globin gene, β-globin gene, tyrosine hydroxylase gene, lipoxygenase gene, or collagen alpha gene, such as a collagen alpha 1(I) gene, preferably of an albumin gene.

The term 'a nucleic acid sequence which is derived from a variant of the 3'UTR of a [...] gene' preferably refers to a nucleic acid sequence, which is based on a variant of the 3'UTR sequence of a gene, such as on a variant of the 3'UTR of an albumin gene, an α-globin gene, a β-globin gene, a tyrosine hydroxylase gene, a lipoxygenase gene, or a collagen alpha gene, such as a collagen alpha 1(I) gene, or on a part thereof as described above. This term includes sequences corresponding to the entire sequence of the variant of the 3'UTR of a gene, i.e. the full length variant 3'UTR sequence of a gene, and sequences corresponding to a fragment of the variant 3'UTR sequence of a gene. A fragment in this context preferably consists of a continuous stretch of nucleotides corresponding to a continuous stretch of nucleotides in the full-length variant 3'UTR, which represents at least 20%, preferably at least 30%, more preferably at least 40%,

more preferably at least 50%, even more preferably at least 60%, even more preferably at least 70%, even more preferably at least 80%, and most preferably at least 90% of the full-length variant 3'UTR. Such a fragment of a variant, in the sense of the present invention, is preferably a functional fragment of a variant as described herein.

In a particularly preferred embodiment, the at least one mRNA of the inventive composition comprises at least one 5'-untranslated region element (5'UTR element). Preferably, the at least one 5'UTR element comprises or consists of a nucleic acid sequence, which is derived from the 5'UTR of a TOP gene or which is derived from a fragment, homolog or variant of the 5'UTR of a TOP gene.

It is particularly preferred that the 5'UTR element does not comprise a TOP-motif or a 5'TOP, as defined above.

In some embodiments, the nucleic acid sequence of the 5'UTR element, which is derived from a 5'UTR of a TOP gene, terminates at its 3'-end with a nucleotide located at position 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10 upstream of the start codon (e.g. A(U/T)G) of the gene or mRNA it is derived from. Thus, the 5'UTR element does not comprise any part of the protein coding region. Thus, preferably, the only protein coding part of the at least one mRNA of the inventive composition is provided by the coding region.

The nucleic acid sequence derived from the 5'UTR of a TOP gene is preferably derived from a eukaryotic TOP gene, preferably a plant or animal TOP gene, more preferably a chordate TOP gene, even more preferably a vertebrate TOP gene, most preferably a mammalian TOP gene, such as a human TOP gene.

For example, the 5'UTR element is prefereably selected from 5'-UTR elements comprising or consisting of a nucleic acid sequence, which is derived from a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1-1363, SEQ ID NO: 1395, SEQ ID NO: 1421 and SEQ ID NO: 1422 of the patent application WO2013/143700, whose disclosure is incorporated herein by reference, from the homologs of SEQ ID NOs: 1-1363, SEQ ID NO: 1395, SEQ ID NO: 1421 and SEQ ID NO: 1422 of the patent application WO2013/143700, from a variant thereof, or preferably from a corresponding RNA sequence. The term "homologs of SEQ ID NOs: 1-1363, SEQ ID NO: 1395, SEQ ID NO: 1421 and SEQ ID NO: 1422 of the patent application WO2013/143700" refers to sequences of other species than homo sapiens, which are homologous to the sequences according to SEQ ID NOs: 1-1363, SEQ ID NO: 1395, SEQ ID NO: 1421 and SEQ ID NO: 1422 of the patent application WO2013/143700.

In a preferred embodiment, the 5'UTR element of the RNA according to the invention comprises or consists of a nucleic acid sequence, which is derived from a nucleic acid sequence extending from nucleotide position 5 (i.e. the nucleotide that is located at position 5 in the sequence) to the nucleotide position immediately 5' to the start codon (located at the 3' end of the sequences), e.g. the nucleotide position immediately 5' to the ATG sequence, of a nucleic acid sequence selected from SEQ ID NOs: 1-1363, SEQ ID NO: 1395, SEQ ID NO: 1421 and SEQ ID NO: 1422 of the patent application WO2013/143700, from the homologs of SEQ ID NOs:1-1363, SEQ ID NO: 1395, SEQ ID NO: 1421 and SEQ ID NO: 1422 of the patent application WO2013/143700 from a variant thereof, or a corresponding RNA sequence. It is particularly preferred that the 5' UTR element is derived from a nucleic acid sequence extending from the nucleotide position immediately 3' to the 5'TOP to the nucleotide position immediately 5' to the start codon (located at the 3' end of the sequences), e.g. the nucleotide position immediately 5' to the ATG sequence, of a nucleic acid sequence selected from SEQ ID NOs:1-1363, SEQ ID NO: 1395, SEQ ID NO: 1421 and SEQ ID NO: 1422 of the patent application WO2013/143700, from the homologs of SEQ ID NOs:1-1363, SEQ ID NO: 1395, SEQ ID NO: 1421 and SEQ ID NO: 1422 of the patent application WO2013/143700, from a variant thereof, or a corresponding RNA sequence.

In a particularly preferred embodiment, the 5'UTR element comprises or consists of a nucleic acid sequence, which is derived from a 5'UTR of a TOP gene encoding a ribosomal protein or from a variant of a 5'UTR of a TOP gene encoding a ribosomal protein. For example, the 5'UTR element comprises or consists of a nucleic acid sequence, which is derived from a 5'UTR of a nucleic acid sequence according to any of SEQ ID NOs: 67, 170, 193, 244, 259, 554, 650, 675, 700, 721, 913, 1016, 1063, 1120, 1138, and 1284-1360 of the patent application WO2013/143700, a corresponding RNA sequence, a homolog thereof, or a variant thereof as described herein, preferably lacking the 5'TOP motif. As described above, the sequence extending from position 5 to the nucleotide immediately 5' to the ATG (which is located at the 3'end of the sequences) corresponds to the 5'UTR of said sequences.

Preferably, the 5'UTR element comprises or consists of a nucleic acid sequence, which is derived from a 5'UTR of a TOP gene encoding a ribosomal Large protein (RPL) or from a homolog or variant of a 5'UTR of a TOP gene encoding a ribosomal Large protein (RPL). For example, the 5'UTR element comprises or consists of a nucleic acid sequence, which is derived from a 5'UTR of a nucleic acid sequence according to any of SEQ ID NOs: 67, 259, 1284-1318, 1344, 1346, 1348-1354, 1357, 1358, 1421 and 1422of the patent application WO2013/143700, a corresponding RNA sequence, a homolog thereof, or a variant thereof as described herein, preferably lacking the 5'TOP motif.

In a particularly preferred embodiment, the 5'UTR element comprises or consists of a nucleic acid sequence which is derived from the 5'UTR of a ribosomal protein Large 32 gene, preferably from a vertebrate ribosomal protein Large 32 (L32) gene, more preferably from a mammalian ribosomal protein Large 32 (L32) gene, most preferably from a human ribosomal protein Large 32 (L32) gene, or from a variant of the 5'UTR of a ribosomal protein Large 32 gene, preferably from a vertebrate ribosomal protein Large 32 (L32) gene, more preferably from a mammalian ribosomal protein Large 32 (L32) gene, most preferably from a human ribosomal protein Large 32 (L32) gene, wherein preferably the 5'UTR element does not comprise the 5'TOP of said gene.

Accordingly, in a particularly preferred embodiment, the 5'UTR element comprises or consists of a nucleic acid sequence, which has an identity of at least about 40%, preferably of at least about 50%, preferably of at least about 60%, preferably of at least about 70%, more preferably of at least about 80%, more preferably of at least about 90%, even more preferably of at least about 95%, even more preferably of at least about 99% to the nucleic acid sequence according to SEQ ID NO: 61137 (5'-UTR of human ribosomal protein Large 32 lacking the 5' terminal oligopyrimidine tract: GGCGCTGCCTACGGAGGTGGCAGCCATCTCCTTCTCGGCATC; corresponding to SEQ ID NO: 1368 of the patent application WO2013/143700) or preferably to a corresponding RNA sequence (such as SEQ ID NO: 61138), or wherein the at least one 5'UTR element comprises or consists of a fragment of a nucleic acid sequence which has an identity of at least about 40%, preferably of at least about 50%, preferably of at least about 60%, preferably of at least about 70%, more preferably of at least about 80%, more preferably of at least about 90%, even more preferably of at least about 95%, even more preferably of at least about 99% to the nucleic acid sequence according to SEQ ID NO: 61137 or more preferably to a corresponding RNA sequence (SEQ ID NO: 61138), wherein, preferably, the fragment is as described above, i.e. being a continuous stretch of nucleotides representing at least 20% etc. of the full-length 5'UTR. Preferably, the fragment exhibits a length of at least about 20 nucleotides or more, preferably of at least about 30 nucleotides or more, more preferably of at least about 40 nucleotides or more. Preferably, the fragment is a functional fragment as described herein.

In some embodiments, the RNA according to the invention comprises a 5'UTR element, which comprises or consists of a nucleic acid sequence, which is derived from the 5'UTR of a vertebrate TOP gene, such as a mammalian, e.g. a human TOP gene, selected from RPSA, RPS2, RPS3, RPS3A, RPS4, RPS5, RPS6, RPS7, RPS8, RPS9, RPS10, RPS11, RPS12, RPS13, RPS14, RPS15, RPS15A, RPS16, RPS17, RPS18, RPS19, RPS20, RPS21, RPS23, RPS24, RPS25, RPS26, RPS27, RPS27A, RPS28, RPS29, RPS30, RPL3, RPL4, RPL5, RPL6, RPL7, RPL7A, RPL8, RPL9, RPL10, RPL10A, RPL11, RPL12, RPL13, RPL13A, RPL14, RPL15, RPL17,

RPL18, RPL18A, RPL19, RPL21, RPL22, RPL23, RPL23A, RPL24, RPL26, RPL27, RPL27A, RPL28, RPL29, RPL30, RPL31, RPL32, RPL34, RPL35, RPL35A, RPL36, RPL36A, RPL37, RPL37A, RPL38, RPL39, RPL40, RPL41, RPLP0, RPLP1, RPLP2, RPLP3, RPLP0, RPLP1, RPLP2, EEF1A1, EEF1B2, EEF1D, EEF1G, EEF2, EIF3E, EIF3F, EIF3H, EIF2S3, EIF3C, EIF3K, EIF3EIP, EIF4A2, PABPC1, HNRNPA1, TPT1, TUBB1, UBA52, NPM1, ATP5G2, GNB2L1, NME2, UQCRB, or from a homolog or variant thereof, wherein preferably the 5'UTR element does not comprise a TOP-motif or the 5'TOP of said genes, and wherein optionally the 5'UTR element starts at its 5'-end with a nucleotide located at position 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10 downstream of the 5'terminal oligopyrimidine tract (TOP) and wherein further optionally the 5'UTR element which is derived from a 5'UTR of a TOP gene terminates at its 3'-end with a nucleotide located at position 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10 upstream of the start codon (A(U/T)G) of the gene it is derived from.

In further particularly preferred embodiments, the 5'UTR element comprises or consists of a nucleic acid sequence, which is derived from the 5'UTR of a ribosomal protein Large 32 gene (RPL32), a ribosomal protein Large 35 gene (RPL35), a ribosomal protein Large 21 gene (RPL21), an ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit 1, cardiac muscle (ATP5A1) gene, an hydroxysteroid (17-beta) dehydrogenase 4 gene (HSD17B4), an androgen-induced 1 gene (AIG1), cytochrome c oxidase subunit VIc gene (COX6C), or a N-acylsphingosine amidohydrolase (acid ceramidase) 1 gene (ASAH1) or from a variant thereof, preferably from a vertebrate ribosomal protein Large 32 gene (RPL32), a vertebrate ribosomal protein Large 35 gene (RPL35), a vertebrate ribosomal protein Large 21 gene (RPL21), a vertebrate ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit 1, cardiac muscle (ATP5A1) gene, a vertebrate hydroxysteroid (17-beta) dehydrogenase 4 gene (HSD17B4), a vertebrate androgen-induced 1 gene (AIG1), a vertebrate cytochrome c oxidase subunit VIc gene (COX6C), or a vertebrate N-acylsphingosine amidohydrolase (acid ceramidase) 1 gene (ASAH1) or from a variant thereof, more preferably from a mammalian ribosomal protein Large 32 gene (RPL32), a ribosomal protein Large 35 gene (RPL35), a ribosomal protein Large 21 gene (RPL21), a mammalian ATP synthase, H+ transporting, mitochondrial F1 complex, alpha subunit 1, cardiac muscle (ATP5A1) gene, a mammalian hydroxysteroid (17-beta) dehydrogenase 4 gene (HSD17B4), a mammalian androgen-induced 1 gene (AIG1), a mammalian cyto-chrome c oxidase subunit VIc gene (COX6C), or a mammalian N-acylsphingosine ami-dohydrolase (acid ceramidase) 1 gene (ASAH1) or from a variant thereof, most preferably from a human ribosomal protein Large 32 gene (RPL32), a human ribosomal protein Large 35 gene (RPL35), a human ribosomal protein Large 21 gene (RPL21), a human ATP syn-thase, H+ transporting, mitochondrial F1 complex, alpha subunit 1, cardiac muscle (ATP5A1) gene, a human hydroxysteroid (17-beta) dehydrogenase 4 gene (HSD17B4), a human

androgen-induced 1 gene (AIG1), a human cytochrome c oxidase subunit VIc gene (COX6C), or a human N-acylsphingosine amidohydrolase (acid ceramidase) 1 gene (ASAH1) or from a variant thereof, wherein preferably the 5'UTR element does not comprise the 5'TOP of said gene.

Accordingly, in a particularly preferred embodiment, the 5'UTR element comprises or consists of a nucleic acid sequence, which has an identity of at least about 40%, preferably of at least about 50%, preferably of at least about 60%, preferably of at least about 70%, more preferably of at least about 80%, more preferably of at least about 90%, even more preferably of at least about 95%, even more preferably of at least about 99% to the nucleic acid sequence according to SEQ ID NO: 1368, or SEQ ID NOs: 1412-1420 of the patent application WO2013/143700, or a corresponding RNA sequence, or wherein the at least one 5'UTR element comprises or consists of a fragment of a nucleic acid sequence which has an identity of at least about 40%, preferably of at least about 50%, preferably of at least about 60%, preferably of at least about 70%, more preferably of at least about 80%, more preferably of at least about 90%, even more preferably of at least about 95%, even more preferably of at least about 99% to the nucleic acid sequence according to SEQ ID NO: 1368, or SEQ ID NOs: 1412-1420 of the patent application WO2013/143700, wherein, preferably, the fragment is as described above, i.e. being a continuous stretch of nucleotides representing at least 20% etc. of the full-length 5'UTR. Preferably, the fragment exhibits a length of at least about 20 nucleotides or more, preferably of at least about 30 nucleotides or more, more preferably of at least about 40 nucleotides or more. Preferably, the fragment is a functional fragment as described herein.

Accordingly, in a particularly preferred embodiment, the 5'UTR element comprises or consists of a nucleic acid sequence, which has an identity of at least about 40%, preferably of at least about 50%, preferably of at least about 60%, preferably of at least about 70%, more preferably of at least about 80%, more preferably of at least about 90%, even more preferably of at least about 95%, even more preferably of at least about 99% to the nucleic acid sequence according to SEQ ID NO: 61139 or 61140 (5'-UTR of ATP5A1 lacking the 5' terminal oligopyrimidine tract: GCGGCTCGGCCATTTTGTCCCAGTCAGTCCGGAGGCTGCGGCTGCAGAAGTACCGCCTG CGGAGTAACTGCAAAG; corresponding to SEQ ID NO: 1414 of the patent application WO2013/143700) or preferably to a corresponding RNA sequence, or wherein the at least one 5'UTR element comprises or consists of a fragment of a nucleic acid sequence which has an identity of at least about 40%, preferably of at least about 50%, preferably of at least about 60%, preferably of at least about 70%, more preferably of at least about 80%, more preferably of at least about 90%, even more preferably of at least about 95%, even more preferably of at least about 99% to the nucleic acid sequence according to SEQ ID NO: 61139or more preferably to a corresponding RNA sequence (SEQ ID NO: 61140), wherein, preferably, the fragment is as

described above, i.e. being a continuous stretch of nucleotides representing at least 20% etc. of the full-length 5'UTR. Preferably, the fragment exhibits a length of at least about 20 nucleotides or more, preferably of at least about 30 nucleotides or more, more preferably of at least about 40 nucleotides or more. Preferably, the fragment is a functional fragment as described herein.

As described above, the 5'UTR element preferably comprises or consists of a nucleic acid sequence, which is derived from the 5'UTR of a hydroxysteroid (17-beta) dehydrogenase 4 gene (gene *HSD17B4*, which encodes peroxisomal multifunctional enzyme type 2, first identified as 17-beta-estradiol dehydrogenase). More preferably, such a 5'UTR element lacks the 5' terminal oligopyrimidine tract.

Accordingly, in a particularly preferred embodiment, the 5'UTR element comprises or consists of a nucleic acid sequence, which has an identity of at least about 40%, preferably of at least about 50%, preferably of at least about 60%, preferably of at least about 70%, more preferably of at least about 80%, more preferably of at least about 90%, even more preferably of at least about 95%, even more preferably of at least about 99% to the nucleic acid sequence according to SEQ ID NO: 61141 (5'-UTR of HSD17B4 lacking the 5' terminal oligopyrimidine tract) or preferably to a corresponding RNA sequence (such as SEQ ID NO: 61142), or wherein the at least one 5'UTR element comprises or consists of a fragment of a nucleic acid sequence which has an identity of at least about 40%, preferably of at least about 50%, preferably of at least about 60%, preferably of at least about 70%, more preferably of at least about 80%, more preferably of at least about 90%, even more preferably of at least about 95%, even more preferably of at least about 99% to the nucleic acid sequence according to SEQ ID NO: 61141 or more preferably to a corresponding RNA sequence (SEQ ID NO: 61142), wherein, preferably, the fragment is as described above, i.e. being a continuous stretch of nucleotides representing at least 20% etc. of the full-length 5'UTR. Preferably, the fragment exhibits a length of at least about 20 nucleotides or more, preferably of at least about 30 nucleotides or more, more preferably of at least about 40 nucleotides or more. Preferably, the fragment is a functional fragment as described herein.

Preferably, the at least one 5'UTR element and the at least one 3'UTR element act synergistically to increase protein production from the at least one mRNA of the inventive composition as described above.

In a particularly preferred embodiment, the RNA according to the invention comprises a histone stem-loop sequence/structure. Such histone stem-loop sequences are preferably selected from histone stem-loop sequences as disclosed in WO 2012/019780, the disclosure of which is incorporated herewith by reference.

A histone stem-loop sequence, suitable to be used within the present invention, is preferably selected from at least one of the following formulae (I) or (II):

formula (I) (stem-loop sequence without stem bordering elements):

$$\underbrace{[N_{0-2}GN_{3-5}]}_{\text{stem1}}\ \underbrace{[N_{0-4}(U/T)N_{0-4}]}_{\text{loop}}\ \underbrace{[N_{3-5}CN_{0-2}]}_{\text{stem2}}$$

formula (II) (stem-loop sequence with stem bordering elements):

$$\underbrace{N_{1-6}}_{\text{stem1}}\ \underbrace{[N_{0-2}GN_{3-5}]}_{\text{stem1}}\ \underbrace{[N_{0-4}(U/T)N_{0-4}]}_{\text{loop}}\ \underbrace{[N_{3-5}CN_{0-2}]}_{\text{stem2}}\ \underbrace{N_{1-6}}_{\text{stem2}}$$

bordering element bordering element

wherein:

stem1 or stem2 bordering elements N_{1-6}	is a consecutive sequence of 1 to 6, preferably of 2 to 6, more preferably of 2 to 5, even more preferably of 3 to 5, most preferably of 4 to 5 or 5 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C, or a nucleotide analogue thereof;
stem1 $[N_{0-2}GN_{3-5}]$	is reverse complementary or partially reverse complementary with element stem2, and is a consecutive sequence between of 5 to 7 nucleotides; wherein N_{0-2} is a consecutive sequence of 0 to 2, preferably of 0 to 1, more preferably of 1 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C or a nucleotide analogue thereof; wherein N_{3-5} is a consecutive sequence of 3 to 5, preferably of 4 to 5, more preferably of 4 N, wherein

	each N is independently from another selected from a nucleotide selected from A, U, T, G and C or a nucleotide analogue thereof, and wherein G is guanosine or an analogue thereof, and may be optionally replaced by a cytidine or an analogue thereof, provided that its complementary nucleotide cytidine in stem2 is replaced by guanosine;
loop sequence [N_{0-4}(U/T)N_{0-4}]	is located between elements stem1 and stem2, and is a consecutive sequence of 3 to 5 nucleotides, more preferably of 4 nucleotides; wherein each N_{0-4} is independent from another a consecutive sequence of 0 to 4, preferably of 1 to 3, more preferably of 1 to 2 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C or a nucleotide analogue thereof; and wherein U/T represents uridine, or optionally thymidine;
stem2 [N_{3-5}CN_{0-2}]	is reverse complementary or partially reverse complementary with element stem1, and is a consecutive sequence between of 5 to 7 nucleotides; wherein N_{3-5} is a consecutive sequence of 3 to 5, preferably of 4 to 5, more preferably of 4 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C or a nucleotide analogue thereof; wherein N_{0-2} is a consecutive sequence of 0 to 2, preferably of 0 to 1, more preferably of 1 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G or C or a nucleotide analogue thereof; and

wherein C is cytidine or an analogue thereof, and may be optionally replaced by a guanosine or an analogue thereof provided that its complementary nucleoside guanosine in stem1 is replaced by cytidine;

wherein

stem1 and stem2 are capable of base pairing with each other forming a reverse complementary sequence, wherein base pairing may occur between stem1 and stem2, e.g. by Watson-Crick base pairing of nucleotides A and U/T or G and C or by non-Watson-Crick base pairing e.g. wobble base pairing, reverse Watson-Crick base pairing, Hoogsteen base pairing, reverse Hoogsteen base pairing or are capable of base pairing with each other forming a partially reverse complementary sequence, wherein an incomplete base pairing may occur between stem1 and stem2, on the basis that one ore more bases in one stem do not have a complementary base in the reverse complementary sequence of the other stem.

According to a further preferred embodiment, the RNA according to the invention may comprise at least one histone stem-loop sequence according to at least one of the following specific formulae (Ia) or (IIa):

formula (Ia) (stem-loop sequence without stem bordering elements):

$$\underbrace{[N_{0-1}GN_{3-5}]}_{\text{stem1}}\ \underbrace{[N_{1-3}(U/T)N_{0-2}]}_{\text{loop}}\ \underbrace{[N_{3-5}CN_{0-1}]}_{\text{stem2}}$$

formula (IIa) (stem-loop sequence with stem bordering elements):

$$\underbrace{N_{2-5}}_{\text{stem1}}\ \underbrace{[N_{0-1}GN_{3-5}]}_{\text{stem1}}\ \underbrace{[N_{1-3}(U/T)N_{0-2}]}_{\text{loop}}\ \underbrace{[N_{3-5}CN_{0-1}]}_{\text{stem2}}\ \underbrace{N_{2-5}}_{\text{stem2}}$$

bordering element bordering element

wherein:

N, C, G, T and U are as defined above.

According to a further more particularly preferred embodiment, the RNA according to the invention may comprise at least one histone stem-loop sequence according to at least one of the following specific formulae (Ib) or (IIb):

formula (Ib) (stem-loop sequence without stem bordering elements):

$$\underbrace{[N_1GN_4]}_{\text{stem1}}\ \underbrace{[N_2(U/T)N_1]}_{\text{loop}}\ \underbrace{[N_4CN_1]}_{\text{stem2}}$$

formula (IIb) (stem-loop sequence with stem bordering elements):

$$\underbrace{N_{4\text{-}5}}_{\text{stem1}}\ \underbrace{[N_1GN_4]}_{\text{stem1}}\ \underbrace{[N_2(U/T)N_1]}_{\text{loop}}\ \underbrace{[N_4CN_1]}_{\text{stem2}}\ \underbrace{N_{4\text{-}5}}_{\text{stem2}}$$

bordering element bordering element

wherein:

N, C, G, T and U are as defined above.

A particular preferred histone stem-loop sequence is the sequence CAAAGGCTCTTTTCAGAGCCACCA (according to SEQ ID NO: 61157) or more preferably the corresponding RNA sequence CAAAGGCUCUUUUCAGAGCCACCA (according to SEQ ID NO: 61158).

According to another particularly preferred embodiment, the RNA according to the invention may additionally or alternatively encode a secretory signal peptide. Such signal peptides are sequences, which typically exhibit a length of about 15 to 30 amino acids and are preferably located at the N-terminus of the encoded peptide, without being limited thereto. Signal peptides as defined herein preferably allow the transport of the antibody or the fragment thereof as encoded by the at least one mRNA of the composition into a defined cellular compartiment, preferably the cell surface, the endoplasmic reticulum (ER) or the endosomal-lysosomal compartiment. Examples of secretory signal peptide sequences as defined herein include, without being limited thereto, signal sequences of classical or non-classical MHC-molecules (e.g. signal sequences of MHC I and II molecules, e.g. of the MHC class I molecule HLA-A*0201), signal

sequences of cytokines or immunoglobulines as defined herein, signal sequences of the invariant chain of immunoglobulines or antibodies as defined herein, signal sequences of Lamp1, Tapasin, Erp57, Calretikulin, Calnexin, and further membrane associated proteins or of proteins associated with the endoplasmic reticulum (ER) or the endosomal-lysosomal compartiment. Most preferably, signal sequences of MHC class I molecule HLA-A*0201 may be used according to the present invention. For example, a signal peptide derived from HLA-A is preferably used in order to promote secretion of the encoded antibody as defined herein or a fragment or variant thereof. More preferably, an HLA-A signal peptide is fused to an encoded antibody as defined herein or to a fragment or variant thereof:

Any of the above modifications may be applied to the RNA of the present invention, and further to any RNA as used in the context of the present invention and may be, if suitable or necessary, be combined with each other in any combination, provided, these combinations of modifications do not interfere with each other in the respective at least one mRNA. A person skilled in the art will be able to take his choice accordingly.

The RNA, preferably an mRNA, according to the invention, which comprises at least one coding sequence as defined herein, may preferably comprise a 5' UTR and/or a 3' UTR preferably containing at least one histone stem-loop. Where, in addition to the antibody as defined herein or a fragment or variant thereof, a further peptide or protein is encoded by the at least one coding sequence of the RNA according to the invention, the encoded peptide or protein is preferably no histone protein, no reporter protein and/or no marker or selection protein, as defined herein. The 3' UTR of the RNA according to the invention preferably comprises also a poly(A) and/or a poly(C) sequence as defined herein. The single elements of the 3' UTR may occur therein in any order from 5' to 3' along the sequence of the RNA of the present invention. In addition, further elements as described herein, may also be contained, such as a stabilizing sequence as defined herein (e.g. derived from the UTR of a globin gene), IRES sequences, etc. Each of the elements may also be repeated in the RNA according to the invention at least once (particularly in di- or multicistronic constructs), preferably twice or more. As an example, the single elements may be present in the RNA according to the invention in the following order:

5' – coding region – histone stem-loop – poly(A)/(C) sequence – 3'; or
5' – coding region – poly(A)/(C) sequence – histone stem-loop – 3'; or
5' – coding region – histone stem-loop – polyadenylation signal – 3'; or
5' – coding region – polyadenylation signal– histone stem-loop – 3'; or
5' – coding region – histone stem-loop – histone stem-loop – poly(A)/(C) sequence – 3'; or
5' – coding region – histone stem-loop – histone stem-loop – polyadenylation signal– 3'; or

5' – coding region – stabilizing sequence – poly(A)/(C) sequence – histone stem-loop – 3'; or 5' – coding region – stabilizing sequence – poly(A)/(C) sequence – poly(A)/(C) sequence – histone stem-loop – 3'; etc.

According to a further embodiment, the RNA, preferably an mRNA, of the present invention preferably comprises at least one of the following structural elements: a 5'- and/or 3'- untranslated region element (UTR element), particularly a 5'-UTR element, which preferably comprises or consists of a nucleic acid sequence which is derived from the 5'-UTR of a TOP gene or from a fragment, homolog or a variant thereof, or a 5'- and/or 3'-UTR element which may preferably be derivable from a gene that provides a stable mRNA or from a homolog, fragment or variant thereof; a histone-stem-loop structure, preferably a histone-stem-loop in its 3' untranslated region; a 5'-cap structure; a poly-A tail; or a poly(C) sequence.

According to some embodiments, it is particularly preferred that – if, in addition to an antibody as defined herein or a fragment or variant thereof, a further peptide or protein is encoded by the at least one coding sequence as defined herein – the encoded peptide or protein is preferably no histone protein, no reporter protein (e.g. Luciferase, GFP, EGFP, β-Galactosidase, particularly EGFP) and/or no marker or selection protein (e.g. alpha-Globin, Galactokinase and Xanthine:Guanine phosphoribosyl transferase (GPT)). In a preferred embodiment, the RNA according to the invention does not comprise a reporter gene or a marker gene. Preferably, the RNA according to the invention does not encode, for instance, luciferase; green fluorescent protein (GFP) and its variants (such as eGFP, RFP or BFP); α-globin; hypoxanthine-guanine phosphoribosyltransferase (HGPRT); β-galactosidase; galactokinase; alkaline phosphatase; secreted embryonic alkaline phosphatase (SEAP)) or a resistance gene (such as a resistance gene against neomycin, puromycin, hygromycin and zeocin). In a preferred embodiment, the RNA according to the invention does not encode luciferase. In another embodiment, the RNA according to the invention does not encode GFP or a variant thereof.

According to a preferred embodiment, the RNA according to the present invention comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,
b) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464,

61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

c) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

d) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

e) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

More preferably, the RNA according to the invention comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,

b) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461,

61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

c) a 3'-UTR element comprising a nucleic acid sequence, which is derived from an α-globin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof,

d) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

e) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

f) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

In a further embodiment, the RNA according to the invention comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,

b) a 5'-UTR element, which preferably comprises or consists of a nucleic acid sequence, which is derived from the 5'-UTR of a TOP gene, preferably comprising an RNA sequence corresponding to the nucleic acid sequence according to SEQ ID NO: 61138, or a homolog, a fragment or a variant thereof,

c) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486,

61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

d) a 3'-UTR element comprising a nucleic acid sequence, which is preferably derived from an α-globin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof; and/or
a 3'-UTR element comprising a nucleic acid sequence, which is derived from an albumin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61154, or a homolog, a fragment or a variant thereof or the RNA sequence according to SEQ ID NO: 61156, or a homolog, a fragment or a variant thereof,

e) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

f) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

g) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

Moreover, it is also preferred that the RNA according to the invention comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,

b) a 5'-UTR element, which preferably comprises or consists of a nucleic acid sequence, which is derived from the 5'-UTR of a TOP gene, preferably comprising an RNA sequence corresponding to the nucleic acid sequence according to SEQ ID NO: 61142, or a homolog, a fragment or a variant thereof,

c) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311,

61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

d) a 3'-UTR element comprising a nucleic acid sequence, which is preferably derived from an α-globin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof; and/or
a 3'-UTR element comprising a nucleic acid sequence, which is derived from an albumin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61154, or a homolog, a fragment or a variant thereof or the RNA sequence according to SEQ ID NO: 61156, or a homolog, a fragment or a variant thereof,

e) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

f) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

g) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

Preferably, the RNA according to the present invention additionally codes a tag for purification chosen from the group consisting of a hexahistidine tag (HIS tag, polyhistidine tag), a streptavidin tag (Strep tag), an SBP tag (streptavidin-binding tag) or a GST (glutathione S-transferase) tag, or codes for a tag for purification via an antibody epitope chosen from the group consisting of antibody-binding tags, a Myc tag, a Swa11 epitope, a FLAG tag or an HA tag.

It is also preferred that the RNA according to the present invention additionally (in addition to the antibody or fragment or variant thereof) encodes a signal peptide and/or a localization sequence, in particular a secretion sequence. Such signal peptides are (signal) sequences which conventionally comprise a length of from 15 to 30 amino acids and are preferably localized on the N-terminus of the coded antibody. Signal peptides typically render possible transport of a protein or peptide fused therewith (here e.g. an antibody) to or into a defined cell compartment, preferably the cell surface, the endoplasmic reticulum or the endosomal-lysosomal compartment. Examples of signal sequences which can be used according to the invention are e.g. signal sequences of conventional and non-conventional MHC molecules, cytokines, immunoglobulins, the invariant chain, Lamp1, tapasin, Erp57, calreticulin and calnexin, and all further membrane-located,

endosomally-lysosomally or endoplasmic reticulum-associated proteins. The signal peptide of the human MHC class I molecule HLA-A*0201 is preferably used.

Sequences which render possible transport of a protein or peptide fused therewith (here e.g. an antibody) to or into a defined cell compartment, preferably the cell surface, the nucleus, the nucleus region, the plasma membrane, the cytosol, the endoplasmic reticulum, the organelles, the mitochondria, the Golgi apparatus or the endosomal-lysosomal compartment, also include, without being limited thereto, so-called routing signals, sorting signals, retention signals or salvage signals and membrane topology-stop transfer signals (cf. Pugsley, A. P., Protein Targeting, Academic Press, Inc. (1989)) at the level of the RNA according to the invention. In this connection, localization sequences include nucleic acid sequences which encode e.g. signals, i.e. amino acid sequences, such as, for example, KDEL (SEQ ID NO: 61176) (Munro, *et al.*, Cell 48:899-907 (1987)) DDEL (SEQ ID NO: 61177), DEEL (SEQ ID NO: 61178), QEDL (SEQ ID NO: 61179) and RDEL (SEQ ID NO: 61180) (Hangejorden, *et al.*, J. Biol. Chem. 266:6015 (1991)) for the endoplasmic reticulum; PKKKRKV (SEQ ID NO: 61181) (Lanford, *et al.* Cell 46:575 (1986)) PQKKIKS (SEQ ID NO: 61182) (Stanton, L. W., *et al.*, Proc. Natl. Acad. Sci USA 83:1772 (1986); QPKKP (SEQ ID NO: 61183) (Harlow, *et al.*, Mol. Cell Biol. 5:1605 1985), and RKKR (SEQ ID NO: 61184) for the nucleus; and RKKRRQRRRAHQ (SEQ ID NO: 61185) (Seomi, *et al.*, J. Virology 64:1803 (1990)), RQARRNRRRRWRERQR (SEQ ID NO: 61186) (Kubota, *et al.*, Biochem. and Biophy, Res. Comm. 162:963 (1989)), and MPLTRRRPAASQALAPPTP (SEQ ID NO: 61187) (Siomi, *et al.*, Cell 55:197 (1988)) for the nucleus region; MDDQRDLISNNEQLP (SEQ ID NO: 61188) (Bakke, *et al.*, Cell 63:707-716 (1990)) for the endosomal compartment (see, for example, Letourneur, *et al.*, Cell 69:1183 (1992) for the targeting of liposomes). Myristoylation sequences can furthermore be used in order to lead the expressed protein or peptide (here e.g. an antibody) to the plasma membrane, or to certain various sub-cell compartments, such as the nucleus region, the organelles, the mitochondria and the Golgi apparatus. Corresponding amino acid sequences which are coded by a corresponding codon sequence of the RNA according to the invention are given below. The sequence MLFNLRXXLNNAAFRHGHNFMVRNFRCGQPLX (SEQ ID NO: 61189) can be used to lead the antibody to the mitochondrial matrix (Pugsley, supra). See Tang, *et al.*, J. Bio. Chem. 207:10122, in respect of the localization of proteins (antibodies) to the Golgi apparatus; for the localization of proteins to the plasma membrane: GCVCSSNP (SEQ ID NO: 61190), GQTVTTPL (SEQ ID NO: 61191), GQELSQHE (SEQ ID NO: 61192), GNSPSYNP (SEQ ID NO: 61193), GVSGSKGQ (SEQ ID NO: 61194), GQTITTPL (SEQ ID NO: 61195), GQTLTTPL (SEQ ID NO: 61196), GQIFSRSA (SEQ ID NO: 61197), GQIHGLSP (SEQ ID NO: 61198), GARASVLS (SEQ ID NO: 61199), and GCTLSAEE (SEQ ID NO: 61200); to the endoplasmic reticulum GQNLSTSN (SEQ ID NO: 61201); to the nucleus GAALTILV (SEQ ID NO: 61202) and GAALTLLG (SEQ ID NO: 61203); to the endoplasmic reticulum and to the

cytoplasm GAQVSSQK (SEQ ID NO: 61204) and GAQLSRNT (SEQ ID NO: 61205); to the Golgi apparatus, to the nucleus, to the cytoplasm and to the cytoskeleton: GNAAAAKK (SEQ ID NO: 61206); to the cytoplasm and to the cytoskeleton GNEASYPL (SEQ ID NO: 61207); and to the plasma membrane and to the cytoskeleton GSSKSKPK (SEQ ID NO: 61208). Such sequences as described above are preferably used for RNAs which code for intrabodies, i.e antibodies which are retained in the cell and are not secreted. Thus, the localization sequence is preferably chosen from one of the sequences according to SEQ ID NO: 61176 to 61208.

It is also preferred that the RNA according to the present invention comprises a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NOs: 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, 61734.

The RNA according to the present invention may be prepared using any method known in the art, including synthetic methods such as e.g. solid phase RNA synthesis, as well as *in vitro* methods, such as RNA *in vitro* transcription reactions.

Combination of at least two distinct RNA's

In a further aspect the present invention provides a combination of at least two distinct RNA's as described above, preferably for use in medicine. As used herein, the term "RNA's" refers in particular to "RNA species" (with one RNA species typically referring to one or more identical RNA molecules). Accordingly, the terms "RNA's" and "RNA species" may be used interchangeably. The term "distinct" refers in particular to the coding sequence of the RNA. In other words, the at least two distinct RNA's differ in particular in their coding sequences. Accordingly, the at least two distinct RNA's may relate to (encode) the same or different antibodies. For example, the at least two distinct RNA's may encode two distinct antibodies or fragments or variants thereof as described herein.

However, it is preferred that the at least two distinct RNA's encode different fragments of the same antibody. In other words, an antibody (or a fragment or variant thereof as described herein) may

be encoded (i) by one single RNA as described above or (ii) by at least two distinct RNA's, wherein each of the distinct RNA's preferably encodes a distinct fragment of the antibody. More preferably, one RNA of the at least two distinct RNA's encodes a heavy chain variable region of an antibody or a fragment thereof and another RNA of the at least two distinct RNA's encodes the corresponding light chain variable region of the antibody or the fragment thereof. Even more preferably, one RNA of the at least two distinct RNA's encodes a heavy chain of an antibody and another RNA of the at least two distinct RNA's encodes the corresponding light chain of the antibody. Thereby, the term "corresponding" means that heavy and light chain (or heavy chain variable region and light chain variable region) are from the same antibody (or from the same fragment or variant thereof). Accordingly, it is preferred that (i) the RNA according to the present invention as described above or (ii) the combination of the at least two distinct RNA's according to the present invention as a whole encodes a functional antibody (or a functional fragment or variant thereof) as described herein. In other words, an antibody (or a fragment or variant thereof), which is expressed by use of (i) the RNA according to the present invention as described above or (ii) the combination of the at least two distinct RNA's according to the present invention as a whole, is preferably a functional antibody (or a functional fragment or variant thereof) as described herein.

Preferably, in such a combination of at least two distinct RNA's the RNA encoding the complete heavy chain, the heavy chain variable region, or a fragment thereof, and the RNA encoding the complete light chain, the light chain variable region, or a fragment thereof comprise identical 3'UTR elements and/or identical 5'UTR elements. Preferred 3'UTR elements, 5'UTR elements and other structural features are the same as described above for the RNA according to the present invention.

Particularly preferably, in a combination for use according to the present invention the distinct RNA's, in particular the RNA encoding the complete heavy chain, the heavy chain variable region, or a fragment thereof, and the RNA encoding the complete light chain, the light chain variable region, or a fragment thereof may comprise, preferably in 5' to 3' direction, the following elements:

a) an identical 5'-CAP structure, preferably m7GpppN;
b) an identical 5'-UTR element, which preferably comprises or consists of a nucleic acid sequence, which is derived from the 5'-UTR of a TOP gene, preferably comprising an RNA sequence corresponding to the nucleic acid sequence according to SEQ ID NO: 61138, or a homolog, a fragment or a variant thereof;
c) at least one coding sequence, which is distinct for the at least two distinct RNA's comprised by the combination for use according to the present invention;

d) an identical 3'-UTR element comprising a nucleic acid sequence, which is preferably derived from an α-globin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof; and/or
an identical 3'-UTR element comprising a nucleic acid sequence, which is preferably derived from an albumin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61154, or a homolog, a fragment or a variant thereof or the RNA sequence according to SEQ ID NO: 61156, or a homolog, a fragment or a variant thereof;
e) an identical poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides;
f) an identical poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides; and/or
g) an identical histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

Most preferably, in a combination for use according to the present invention the distinct RNA's, in particular the RNA encoding the complete heavy chain, the heavy chain variable region, or a fragment thereof, and the RNA encoding the complete light chain, the light chain variable region, or a fragment thereof may comprise, preferably in 5' to 3' direction, the following elements:

a) an identical 5'-CAP structure, preferably m7GpppN;
b) an identical 5'-UTR element, which preferably comprises or consists of a nucleic acid sequence, which is derived from the 5'-UTR of a TOP gene, preferably comprising an RNA sequence corresponding to the nucleic acid sequence according to SEQ ID NO: 61142, or a homolog, a fragment or a variant thereof;
c) at least one coding sequence, which is distinct for the at least two distinct RNA's comprised by the combination for use according to the present invention;
d) an identical 3'-UTR element comprising a nucleic acid sequence, which is preferably derived from an α-globin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof; and/or
an identical 3'-UTR element comprising a nucleic acid sequence, which is preferably derived from an albumin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61154, or a homolog, a fragment or a variant thereof or the RNA sequence according to SEQ ID NO: 61156, or a homolog, a fragment or a variant thereof;
e) an identical poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides;
f) an identical poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides; and/or

g) an identical histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

Thereby, an optimal stoichiometric ratio of the amino acid sequences encoded by the at least two RNA's can be achieved, which in turn results in optimal antibody formation.

In the combination of the at least to distinct RNA's as described herein for use according to the present invention, the at least to distinct RNA's as described herein may be administered separately or in the same composition.

In the combination of the at least to distinct RNA's as described herein for use according to the present invention, the at least to distinct RNA's as described herein are preferably administered at about the same time.

"At about the same time", as used herein, means in particular simultaneous administration or that directly after administration of one RNA the other RNA is administered. The skilled person understands that "directly after" includes the time necessary to prepare the second administration – in particular the time necessary for exposing and disinfecting the location for the second administration as well as appropriate preparation of the "administration device" (e.g., syringe, pump, etc.). The term "simultaneous administration" as used herein also includes if the periods of administration of the at least two distinct RNA's overlap or if, for example, one RNA is administered over a longer period of time, such as 30 min, 1 h, 2 h or even more, e.g. by infusion, and the other RNA is administered at some time during such a long period.

Alternatively, the at least two RNA's may be administered consecutively. However, it is preferred that the at least two distinct RNA's are administered at the same day with the time between administration of the first RNA and administration of the second RNA being preferably no more than 6 hours, more preferably no more than 3 hours, even more preferably no more than 2 hours and most preferably no more than 1 h.

Preferably, the at least two distinct RNA's are administered in a therapeutically effective amount. A "therapeutically effective amount", as used herein, is the amount which is sufficient for the alleviation of the symptoms of the disease or condition being treated and/or for prophylaxis of the symptoms of the disease or condition being prevented. In other words, a "therapeutically effective amount" means an amount of the at least two distinct RNA's that is sufficient to significantly induce a positive modification of a disease or disorder, i.e. an amount of the at least two distinct RNA's, that elicits the biological or medicinal response in a tissue, system, animal or human that is being

sought. The term also includes the amount of the at least two distinct RNA's sufficient to reduce the progression of the disease, e.g., to notably reduce or inhibit the tumor growth or infection and thereby elicit the response being sought, in particular such response could be an immune response involving the antibodies or antibody fragments encoded by the RNA according to the invention. At the same time, however, a "therapeutically effective amount" is preferably small enough to avoid serious side-effects, that is to say to permit a sensible relationship between advantage and risk. The determination of these limits typically lies within the scope of sensible medical judgment. A "therapeutically effective amount" of the at least two distinct RNA's will furthermore vary in connection with the particular condition to be treated and also with the age and physical condition of the patient to be treated, the body weight, general health, sex, diet, time of administration, rate of excretion, drug combination, the activity of the at least two distinct RNA's, the severity of the condition, the duration of the treatment, the nature of the accompanying therapy, of the particular pharmaceutically acceptable carrier used, and similar factors, within the knowledge and experience of the accompanying doctor.

In the combination of the at least to distinct RNA's as described herein for use according to the present invention, the at least to distinct RNA's as described herein may be administered via the same or different routes of administration. Preferably, the at least two distinct RNA's are administered via the same route of administration. Preferred routes of administration are described below, in the context of the (pharmaceutical) composition. Those preferred routes of administration apply accordingly for the combination for use according to the present invention.

In the combination of the at least to distinct RNA's as described herein for use according to the present invention, the at least to distinct RNA's as described herein may be provided in the same or in distinct compositions. Preferably, the at least to distinct RNA's as described herein are provided in the same composition. Compositions comprising the RNA according to the present invention are described in detail in the following.

The combination of at least two distinct RNA's is preferably used for the treatment (prevention and/or therapy) of a variety of diseases as described below (in the context of the use of the RNA and the composition according to the invention and in the context of the treatment method) in more detail. Those details and preferred embodiments apply accordingly for the combination for use according to the present invention.

Composition comprising the RNA according to the present invention

In a further aspect, the present invention provides a composition comprising the RNA comprising at least one coding sequence as described herein and a pharmaceutically acceptable carrier. The composition according to the invention is preferably provided as a pharmaceutical composition or as a (passive) vaccine. As used herein, the term "passive vaccine" refers to a vaccine for use in passive immunization.

According to a preferred embodiment, the (pharmaceutical) composition or the (passive) vaccine according to the invention comprises the RNA of the present invention, wherein the at least one coding sequence of the RNA comprises or consists of a nucleic acid sequence encoding an antibody, or a fragment or variant of an antibody, wherein the antibody preferably comprises or consists of an amino acid sequence selected from the group consisting of SEQ ID NO: 1-7642, 61212-61214, 61236-61238, 61245-61247, 61269-61271, 61279-61281, 61303-61305, 61312, 61320, 61324, 61332, 61338, 61346, 61349, 61357, 61362, 61370, 61373, 61381, 61384, 61385, 61400, 61401, 61418, 61426, 61429, 61437, 61440, 61441, 61456, 61457, 61469, 61470, 61475, 61476, 61481, 61482, 61487, 61488, 61493, 61494, 61499, 61500, 61515, 61516, 61521, 61522, 61537, 61538, 61543, 61544, 61559, 61560, 61565, 61573, 61576, 61584, 61587, 61588, 61603, 61606, 61609, 61612, 61618, 61619, 61634, 61635, 61639, 61640, 61644, 61645, 61660, 61661, 61667, 61675, 61678, 61686, 61689, 61697, 61700, 61708, 61711, 61719, 61722, and 61730; or a fragment or variant of any one of said amino acid sequences.

Preferably, the (pharmaceutical) composition or the (passive) vaccine according to the invention comprises the RNA of the present invention, wherein the at least one coding sequence of the RNA comprises or consists of a nucleic acid sequence encoding an antibody, or a fragment or variant of an antibody, wherein the antibody preferably comprises or consists of an amino acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with an amino acid sequence selected from the group consisting of SEQ ID NO: 1-7642, 61212-61214, 61236-61238, 61245-61247, 61269-61271, 61279-61281, 61303-61305, 61312, 61320, 61324, 61332, 61338, 61346, 61349, 61357, 61362, 61370, 61373, 61381, 61384, 61385, 61400, 61401, 61418, 61426, 61429, 61437, 61440, 61441, 61456, 61457, 61469, 61470, 61475, 61476, 61481, 61482, 61487, 61488, 61493, 61494, 61499, 61500, 61515, 61516, 61521, 61522, 61537, 61538, 61543, 61544, 61559, 61560, 61565, 61573, 61576, 61584, 61587, 61588, 61603, 61606, 61609, 61612, 61618, 61619, 61634, 61635, 61639, 61640, 61644, 61645, 61660, 61661, 61667, 61675,

61678, 61686, 61689, 61697, 61700, 61708, 61711, 61719, 61722, and 61730; or a fragment or variant of any one of said amino acid sequences.

More preferably, the (pharmaceutical) composition or the (passive) vaccine according to the invention comprises the RNA of the present invention, wherein the at least one coding sequence of the RNA comprises or consists of a nucleic acid sequence encoding an antibody, or a fragment or variant of an antibody, wherein the antibody preferably comprises or consists of an amino acid sequence having a sequence identity of at least 80% with an amino acid sequence selected from the group consisting of SEQ ID NO: 1-7642, 61212-61214, 61236-61238, 61245-61247, 61269-61271, 61279-61281, 61303-61305, 61312, 61320, 61324, 61332, 61338, 61346, 61349, 61357, 61362, 61370, 61373, 61381, 61384, 61385, 61400, 61401, 61418, 61426, 61429, 61437, 61440, 61441, 61456, 61457, 61469, 61470, 61475, 61476, 61481, 61482, 61487, 61488, 61493, 61494, 61499, 61500, 61515, 61516, 61521, 61522, 61537, 61538, 61543, 61544, 61559, 61560, 61565, 61573, 61576, 61584, 61587, 61588, 61603, 61606, 61609, 61612, 61618, 61619, 61634, 61635, 61639, 61640, 61644, 61645, 61660, 61661, 61667, 61675, 61678, 61686, 61689, 61697, 61700, 61708, 61711, 61719, 61722, and 61730; or a fragment or variant of any one of said amino acid sequences.

In preferred embodiments, the (pharmaceutical) composition or the (passive) vaccine according to the invention comprises the RNA of the present invention, wherein the at least one coding sequence of the RNA comprises or consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688,

61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any of said nucleic acid sequences.

According to another embodiment, the (pharmaceutical) composition or the (passive) vaccine according to the invention comprises the RNA of the present invention, wherein the at least one coding sequence of the RNA comprises or consists of a nucleic acid sequence having a sequence identity of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%, preferably of at least 70%, more preferably of at least 80%, even more preferably at least 85%, even more preferably of at least 90% and most preferably of at least 95% or even 97%, with a nucleic acid sequence selected from the group consisting of SEQ ID NO: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any one of said nucleic acid sequences.

According to a particularly preferred embodiment, the (pharmaceutical) composition or the (passive) vaccine according to the invention comprises the RNA of the present invention, wherein the at least one coding sequence of the RNA comprises or consists of a nucleic acid sequence having a sequence identity of at least 80% with a nucleic acid sequence selected from the group consisting of SEQ ID NO: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-

61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any one of said nucleic acid sequences.

In the context of the present invention, the RNA comprised by the (pharmaceutical) composition or the (passive) vaccine may encode one or more of the antibodies defined herein or a fragment or variant thereof.

The (pharmaceutical) composition or (passive) vaccine according to the invention may thus comprise the RNA of the present invention, wherein the RNA encodes one specific antibody of the antibodies defined herein or a fragment or a variant thereof. In that embodiment, the (pharmaceutical) composition or (passive) vaccine preferably comprises the RNA according to the invention comprising the at least one coding sequence as described herein encoding the antibody or a fragment or variant thereof.

Alternatively, the (pharmaceutical) composition or (passive) vaccine of the present invention may comprise at least one RNA according to the invention, wherein the at least one RNA encodes at least two, three, four, five, six, seven, eight, nine, ten, eleven or twelve distinct antibodies as defined herein or a fragment or variant thereof. Preferably, the (pharmaceutical) composition or the (passive) vaccine comprises several classes of the RNA according to the invention, wherein each RNA species encodes one of the antibodies or a fragment or variant thereof. In another embodiment, the RNA comprised in the (pharmaceutical) composition or (passive) vaccine is a bi- or multicistronic RNA as defined herein, which encodes the at least two, three, four, five, six, seven, eight, nine, ten, eleven or twelve distinct antibodies or fragments or variants thereof. Mixtures between these embodiments are also envisaged, such as compositions comprising more than one RNA species, wherein at least one RNA species may be monocistronic, while at least one other RNA species may be bi- or multicistronic.

The RNA according to the present invention as described above, in particular the RNA comprised in the (pharmaceutical) composition or the (passive) vaccine according to the present invention, may thus comprise any combination of the nucleic acid sequences as defined herein.

In a particularly preferred embodiment, the composition according to the present invention comprises at least two distinct RNA's according to the present inventions. Thereby, the details of the at least two distinct RNA's according to the present inventions as described above, in the context of the combination for use according to the present invention, apply accordingly for the at least two distinct RNA's comprised in the composition according to the present invention. Accordingly, it is preferred that one RNA of the at least two distinct RNA's encodes a heavy chain variable region of an antibody or a fragment thereof and another RNA of the at least two distinct RNA's encodes the corresponding light chain variable region of the antibody or the fragment thereof. More preferably, one RNA of the at least two distinct RNA's encodes a heavy chain of an antibody and another RNA of the at least two distinct RNA's encodes the corresponding light chain of the antibody. It is also preferred that the RNA encoding the heavy chain variable region or a fragment thereof and the RNA encoding the light chain variable region or a fragment thereof comprise identical 5'UTR elements and/or identical 3'UTR elements and/or identical further elements as described above, in the context of the combination for use according to the present invention.

In a preferred embodiment of the composition according to the invention, the RNA is complexed with one or more cationic or polycationic compounds, preferably with cationic or polycationic polymers, cationic or polycationic peptides or proteins, e.g. protamine, cationic or polycationic polysaccharides and/or cationic or polycationic lipids.

According to a preferred embodiment, the RNA of the composition according to the present invention may be complexed with lipids to form one or more liposomes, lipoplexes, or lipid nanoparticles. Therefore, in one embodiment, the inventive composition comprises liposomes, lipoplexes, and/or lipid nanoparticles comprising the at least one mRNA.

Lipid-based formulations have been increasingly recognized as one of the most promising delivery systems for RNA due to their biocompatibility and their ease of large-scale production. Cationic lipids have been widely studied as synthetic materials for delivery of RNA. After mixing together, nucleic acids are condensed by cationic lipids to form lipid/nucleic acid complexes known as lipoplexes. These lipid complexes are able to protect genetic material from the action of nucleases and deliver it into cells by interacting with the negatively charged cell membrane.

Lipoplexes can be prepared by directly mixing positively charged lipids at physiological pH with negatively charged nucleic acids.

Conventional liposomes consist of a lipid bilayer that can be composed of cationic, anionic, or neutral (phospho)lipids and cholesterol, which encloses an aqueous core. Both the lipid bilayer and the aqueous space can incorporate hydrophobic or hydrophilic compounds, respectively. Liposome characteristics and behaviour in vivo can be modified by addition of a hydrophilic polymer coating, e.g. polyethylene glycol (PEG), to the liposome surface to confer steric stabilization. Furthermore, liposomes can be used for specific targeting by attaching ligands (e.g., antibodies, peptides, and carbohydrates) to its surface or to the terminal end of the attached PEG chains (Front Pharmacol. 2015 Dec 1;6:286).

Liposomes are colloidal lipid-based and surfactant-based delivery systems composed of a phospholipid bilayer surrounding an aqueous compartment. They may present as spherical vesicles and can range in size from 20 nm to a few microns. Cationic lipid-based liposomes are able to complex with negatively charged nucleic acids via electrostatic interactions, resulting in complexes that offer biocompatibility, low toxicity, and the possibility of the large-scale production required for in vivo clinical applications. Liposomes can fuse with the plasma membrane for uptake; once inside the cell, the liposomes are processed via the endocytic pathway and the genetic material is then released from the endosome/carrier into the cytoplasm. Liposomes have long been perceived as drug delivery vehicles because of their superior biocompatibility, given that liposomes are basically analogs of biological membranes, and can be prepared from both natural and synthetic phospholipids (Int J Nanomedicine. 2014; 9: 1833–1843).

Cationic liposomes have been traditionally the most commonly used non-viral delivery systems for oligonucleotides, including plasmid DNA, antisense oligos, and siRNA/small hairpin RNA-shRNA). Cationic lipids, such as DOTAP, (1,2-dioleoyl-3-trimethylammonium-propane) and DOTMA (N-[1-(2,3-dioleoyloxy)propyl]-N,N,N-trimethyl-ammonium methyl sulfate) can form complexes or lipoplexes with negatively charged nucleic acids to form nanoparticles by electrostatic interaction, providing high in vitro transfection efficiency . Furthermore, neutral lipid-based nanoliposomes for RNA delivery as e.g. neutral 1,2-dioleoyl-sn-glycero-3-phosphatidylcholine (DOPC)-based nanoliposomes were developed. (Adv Drug Deliv Rev. 2014 Feb; 66: 110–116.).

Therefore, in one embodiment the RNA of the composition according to the present invention is complexed with cationic lipids and/or neutral lipids and thereby forms liposomes, lipid nanoparticles, lipoplexes or neutral lipid-based nanoliposomes.

In a preferred embodiment, the composition according to the invention comprises the RNA according to the invention that is formulated together with a cationic or polycationic compound and/or with a polymeric carrier. Accordingly, in a further embodiment of the invention, it is preferred that the RNA as defined herein or any other nucleic acid comprised in the inventive (pharmaceutical) composition or (passive) vaccine is associated with or complexed with a cationic or polycationic compound or a polymeric carrier, optionally in a weight ratio selected from a range of about 6:1 (w/w) to about 0.25:1 (w/w), more preferably from about 5:1 (w/w) to about 0.5:1 (w/w), even more preferably of about 4:1 (w/w) to about 1:1 (w/w) or of about 3:1 (w/w) to about 1:1 (w/w), and most preferably a ratio of about 3:1 (w/w) to about 2:1 (w/w) of mRNA or nucleic acid to cationic or polycationic compound and/or with a polymeric carrier; or optionally in a nitrogen/phosphate (N/P) ratio of mRNA or nucleic acid to cationic or polycationic compound and/or polymeric carrier in the range of about 0.1-10, preferably in a range of about 0.3-4 or 0.3-1, and most preferably in a range of about 0.5-1 or 0.7-1, and even most preferably in a range of about 0.3-0.9 or 0.5-0.9. More preferably, the N/P ratio of the at least one mRNA to the one or more polycations is in the range of about 0.1 to 10, including a range of about 0.3 to 4, of about 0.5 to 2, of about 0.7 to 2 and of about 0.7 to 1.5.

Therein, the RNA as defined herein or any other nucleic acid comprised in the (pharmaceutical) composition or (passive) vaccine according to the invention can also be associated with a vehicle, transfection or complexation agent for increasing the transfection efficiency and/or the immunostimulatory properties of the RNA according to the invention or of optionally comprised further included nucleic acids.

Cationic or polycationic compounds, being particularly preferred agents in this context include protamine, nucleoline, spermine or spermidine, or other cationic peptides or proteins, such as poly-L-lysine (PLL), poly-arginine, basic polypeptides, cell penetrating peptides (CPPs), including HIV-binding peptides, HIV-1 Tat (HIV), Tat-derived peptides, Penetratin, VP22 derived or analog peptides, HSV VP22 (Herpes simplex), MAP, KALA or protein transduction domains (PTDs), PpT620, prolin-rich peptides, arginine-rich peptides, lysine-rich peptides, MPG-peptide(s), Pep-1, L-oligomers, Calcitonin peptide(s), Antennapedia-derived peptides (particularly from *Drosophila antennapedia*), pAntp, pIsl, FGF, Lactoferrin, Transportan, Buforin-2, Bac715-24, SynB, SynB(1), pVEC, hCT-derived peptides, SAP, or histones. More preferably, the RNA according to the invention is complexed with one or more polycations, preferably with protamine or oligofectamine, most preferably with protamine. In this context protamine is particularly preferred.

Additionally, preferred cationic or polycationic proteins or peptides may be selected from the following proteins or peptides having the following total formula (III):

$$(Arg)_l;(Lys)_m;(His)_n;(Orn)_o;(Xaa)_x, \quad \text{(formula (III))}$$

wherein l + m + n +o + x = 8-15, and l, m, n or o independently of each other may be any number selected from 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 or 15, provided that the overall content of Arg, Lys, His and Orn represents at least 50% of all amino acids of the oligopeptide; and Xaa may be any amino acid selected from native (= naturally occurring) or non-native amino acids except of Arg, Lys, His or Orn; and x may be any number selected from 0, 1, 2, 3 or 4, provided, that the overall content of Xaa does not exceed 50% of all amino acids of the oligopeptide. Particularly preferred cationic peptides in this context are e.g. Arg_7, Arg_8, Arg_9, H_3R_9, R_9H_3, $H_3R_9H_3$, $YSSR_9SSY$, $(RKH)_4$, $Y(RKH)_2R$, etc. In this context the disclosure of WO 2009/030481 is incorporated herewith by reference.

Further preferred cationic or polycationic compounds, which can be used as transfection or complexation agent may include cationic polysaccharides, for example chitosan, polybrene, cationic polymers, e.g. polyethyleneimine (PEI), cationic lipids, e.g. DOTMA: [1-(2,3-sioleyloxy)propyl)]-N,N,N-trimethylammonium chloride, DMRIE, di-C14-amidine, DOTIM, SAINT, DC-Chol, BGTC, CTAP, DOPC, DODAP, DOPE: Dioleyl phosphatidylethanol-amine, DOSPA, DODAB, DOIC, DMEPC, DOGS: Dioctadecylamidoglicylspermin, DIMRI: Dimyristo-oxypropyl dimethyl hydroxyethyl ammonium bromide, DOTAP: dioleoyloxy-3-(trimethylammonio)propane, DC-6-14: O,O-ditetradecanoyl-N-(α-trimethylammonioacetyl)diethanolamine chloride, CLIP1: rac-[(2,3-dioctadecyloxypropyl)(2-hydroxyethyl)]-dimethylammonium chloride, CLIP6: rac-[2(2,3-dihexadecyloxypropyl-oxymethyloxy)ethyl]trimethylammonium, CLIP9: rac-[2(2,3-dihexadecyloxypropyl-oxysuccinyloxy)ethyl]-trimethylammonium, oligofectamine, or cationic or polycationic polymers, e.g. modified polyaminoacids, such as β-aminoacid-polymers or reversed polyamides, etc., modified polyethylenes, such as PVP (poly(N-ethyl-4-vinylpyridinium bromide)), etc., modified acrylates, such as pDMAEMA (poly(dimethylaminoethyl methylacrylate)), etc., modified amidoamines such as pAMAM (poly(amidoamine)), etc., modified polybetaaminoester (PBAE), such as diamine end modified 1,4 butanediol diacrylate-co-5-amino-1-pentanol polymers, etc., dendrimers, such as polypropylamine dendrimers or pAMAM based dendrimers, etc., polyimine(s), such as PEI: poly(ethyleneimine), poly(propyleneimine), etc., polyallylamine, sugar backbone based polymers, such as cyclodextrin based polymers, dextran based polymers, chitosan, etc., silan backbone based polymers, such as PMOXA-PDMS copolymers, etc., blockpolymers consisting of a combination of one or more cationic blocks (e.g. selected from a

cationic polymer as mentioned above) and of one or more hydrophilic or hydrophobic blocks (e.g. polyethyleneglycole); etc.

According to a preferred embodiment, the composition of the present invention comprises the RNA as defined herein and a polymeric carrier. A polymeric carrier used according to the invention might be a polymeric carrier formed by disulfide-crosslinked cationic components. The disulfide-crosslinked cationic components may be the same or different from each other. The polymeric carrier can also contain further components. It is also particularly preferred that the polymeric carrier used according to the present invention comprises mixtures of cationic peptides, proteins or polymers and optionally further components as defined herein, which are crosslinked by disulfide bonds as described herein. In this context, the disclosure of WO 2012/013326 is incorporated herewith by reference.

In this context, the cationic components, which form basis for the polymeric carrier by disulfide-crosslinkage, are typically selected from any suitable cationic or polycationic peptide, protein or polymer suitable for this purpose, particular any cationic or polycationic peptide, protein or polymer capable of complexing the RNA as defined herein or a further nucleic acid comprised in the composition, and thereby preferably condensing the RNA or the nucleic acid. The cationic or polycationic peptide, protein or polymer, is preferably a linear molecule, however, branched cationic or polycationic peptides, proteins or polymers may also be used.

Every disulfide-crosslinking cationic or polycationic protein, peptide or polymer of the polymeric carrier, which may be used to complex the RNA according to the invention or any further nucleic acid comprised in the (pharmaceutical) composition or (passive) vaccine of the present invention contains at least one –SH moiety, most preferably at least one cysteine residue or any further chemical group exhibiting an –SH moiety, capable of forming a disulfide linkage upon condensation with at least one further cationic or polycationic protein, peptide or polymer as cationic component of the polymeric carrier as mentioned herein.

As defined above, the polymeric carrier, which may be used to complex the RNA of the present invention or any further nucleic acid comprised in the (pharmaceutical) composition or (passive) vaccine according to the invention may be formed by disulfide-crosslinked cationic (or polycationic) components. Preferably, such cationic or polycationic peptides or proteins or polymers of the polymeric carrier, which comprise or are additionally modified to comprise at least one –SH moiety, are selected from, proteins, peptides and polymers as defined herein for complexation agent.

In a further particular embodiment, the polymeric carrier which may be used to complex the RNA as defined herein or any further nucleic acid comprised in the (pharmaceutical) composition or (passive) vaccine according to the invention may be selected from a polymeric carrier molecule according to generic formula (IV):

$$L\text{-}P^1\text{-}S\text{-}[S\text{-}P^2\text{-}S]_n\text{-}S\text{-}P^3\text{-}L \qquad \text{formula (IV)}$$

wherein,

P^1 and P^3 are different or identical to each other and represent a linear or branched hydrophilic polymer chain, each P^1 and P^3 exhibiting at least one –SH-moiety, capable to form a disulfide linkage upon condensation with component P^2, or alternatively with (AA), $(AA)_x$, or $[(AA)_x]_z$ if such components are used as a linker between P^1 and P^2 or P^3 and P^2) and/or with further components (e.g. (AA), $(AA)_x$, $[(AA)_x]_z$ or L), the linear or branched hydrophilic polymer chain selected independent from each other from polyethylene glycol (PEG), poly-*N*-(2-hydroxypropyl)methacrylamide, poly-2-(methacryloyloxy)ethyl phosphorylcholines, poly(hydroxyalkyl L-asparagine), poly(2-(methacryloyloxy)ethyl phosphorylcholine), hydroxyethylstarch or poly(hydroxyalkyl L-glutamine), wherein the hydrophilic polymer chain exhibits a molecular weight of about 1 kDa to about 100 kDa, preferably of about 2 kDa to about 25 kDa; or more preferably of about 2 kDa to about 10 kDa, e.g. about 5 kDa to about 25 kDa or 5 kDa to about 10 kDa;

P^2 is a cationic or polycationic peptide or protein, e.g. as defined above for the polymeric carrier formed by disulfide-crosslinked cationic components, and preferably having a length of about 3 to about 100 amino acids, more preferably having a length of about 3 to about 50 amino acids, even more preferably having a length of about 3 to about 25 amino acids, e.g. a length of about 3 to 10, 5 to 15, 10 to 20 or 15 to 25 amino acids, more preferably a length of about 5 to about 20 and even more preferably a length of about 10 to about 20; or

is a cationic or polycationic polymer, e.g. as defined above for the polymeric carrier formed by disulfide-crosslinked cationic components, typically having a molecular weight of about 0.5 kDa to about 30 kDa, including a molecular weight of about 1 kDa to about 20 kDa, even more preferably of about 1.5 kDa to about 10 kDa, or having a molecular weight of about 0.5 kDa to about 100 kDa, including a molecular weight of about 10 kDa to about 50 kDa, even more preferably of about 10 kDa to about 30 kDa; each P^2 exhibiting at least two –SH-moieties, capable to form a disulfide linkage upon condensation with further components P^2 or component(s) P^1 and/or P^3 or alternatively with further components (e.g. (AA), $(AA)_x$, or $[(AA)_x]_z$);

-S-S- is a (reversible) disulfide bond (the brackets are omitted for better readability), wherein S preferably represents sulphur or a –SH carrying moiety, which has formed a (reversible) disulfide bond. The (reversible) disulfide bond is preferably formed by condensation of –SH-moieties of either components P^1 and P^2, P^2 and P^2, or P^2 and P^3, or optionally of further components as defined herein (e.g. L, (AA), $(AA)_x$, $[(AA)_x]_z$, etc); The –SH-moiety may be part of the structure of these components or added by a modification as defined below;

L is an optional ligand, which may be present or not, and may be selected independent from the other from RGD, Transferrin, Folate, a signal peptide or signal sequence, a localization signal or sequence, a nuclear localization signal or sequence (NLS), an antibody, a cell penetrating peptide, (e.g. TAT or KALA), a ligand of a receptor (e.g. cytokines, hormones, growth factors etc), small molecules (e.g. carbohydrates like mannose or galactose or synthetic ligands), small molecule agonists, inhibitors or antagonists of receptors (e.g. RGD peptidomimetic analogues), or any further protein as defined herein, etc.;

n is an integer, typically selected from a range of about 1 to 50, preferably from a range of about 1, 2 or 3 to 30, more preferably from a range of about 1, 2, 3, 4, or 5 to 25, or a range of about 1, 2, 3, 4, or 5 to 20, or a range of about 1, 2, 3, 4, or 5 to 15, or a range of about 1, 2, 3, 4, or 5 to 10, including e.g. a range of about 4 to 9, 4 to 10, 3 to 20, 4 to 20, 5 to 20, or 10 to 20, or a range of about 3 to 15, 4 to 15, 5 to 15, or 10 to 15, or a range of about 6 to 11 or 7 to 10. Most preferably, n is in a range of about 1, 2, 3, 4, or 5 to 10, more preferably in a range of about 1, 2, 3, or 4 to 9, in a range of about 1, 2, 3, or 4 to 8, or in a range of about 1, 2, or 3 to 7.

In this context, the disclosure of WO 2011/026641 is incorporated herewith by reference. Each of hydrophilic polymers P^1 and P^3 typically exhibits at least one –SH-moiety, wherein the at least one –SH-moiety is capable to form a disulfide linkage upon reaction with component P^2 or with component (AA) or $(AA)_x$, if used as linker between P^1 and P^2 or P^3 and P^2 as defined below and optionally with a further component, e.g. L and/or (AA) or $(AA)_x$, e.g. if two or more –SH-moieties are contained. The following subformulae "P^1-S-S-P^2" and "P^2-S-S-P^3" within generic formula (IV) above (the brackets are omitted for better readability), wherein any of S, P^1 and P^3 are as defined herein, typically represent a situation, wherein one–SH-moiety of hydrophilic polymers P^1 and P^3 was condensed with one –SH-moiety of component P^2 of generic formula (IV) above, wherein both sulphurs of these –SH-moieties form a disulfide bond –S-S- as defined herein in formula (IV). These –SH-moieties are typically provided by each of the hydrophilic polymers P^1 and P^3, e.g. via an internal cysteine or any further (modified) amino acid or compound which carries a –SH moiety. Accordingly, the subformulae "P^1-S-S-P^2" and "P^2-S-S-P^3" may also be written as "P^1-

Cys-Cys-P^2" and "P^2-Cys-Cys-P^3", if the –SH- moiety is provided by a cysteine, wherein the term Cys-Cys represents two cysteines coupled via a disulfide bond, not via a peptide bond. In this case, the term "-S-S-" in these formulae may also be written as "-S-Cys", as "-Cys-S" or as "-Cys-Cys-". In this context, the term "-Cys-Cys-" does not represent a peptide bond but a linkage of two cysteines via their –SH-moieties to form a disulfide bond. Accordingly, the term "-Cys-Cys-" also may be understood generally as "-(Cys-S)-(S-Cys)-", wherein in this specific case S indicates the sulphur of the –SH-moiety of cysteine. Likewise, the terms "-S-Cys" and "-Cys-S" indicate a disulfide bond between a –SH containing moiety and a cysteine, which may also be written as "-S-(S-Cys)" and "-(Cys-S)-S". Alternatively, the hydrophilic polymers P^1 and P^3 may be modified with a –SH moiety, preferably via a chemical reaction with a compound carrying a –SH moiety, such that each of the hydrophilic polymers P^1 and P^3 carries at least one such –SH moiety. Such a compound carrying a –SH moiety may be e.g. an (additional) cysteine or any further (modified) amino acid, which carries a –SH moiety. Such a compound may also be any non-amino compound or moiety, which contains or allows to introduce a –SH moiety into hydrophilic polymers P^1 and P^3 as defined herein. Such non-amino compounds may be attached to the hydrophilic polymers P^1 and P^3 of formula (IV) of the polymeric carrier according to the present invention via chemical reactions or binding of compounds, e.g. by binding of a 3-thio propionic acid or thioimolane, by amide formation (e.g. carboxylic acids, sulphonic acids, amines, etc), by Michael addition (e.g maleinimide moieties, α,β-unsatured carbonyls, etc), by click chemistry (e.g. azides or alkines), by alkene/alkine methatesis (e.g. alkenes or alkines), imine or hydrozone formation (aldehydes or ketons, hydrazins, hydroxylamins, amines), complexation reactions (avidin, biotin, protein G) or components which allow S_n-type substitution reactions (e.g halogenalkans, thiols, alcohols, amines, hydrazines, hydrazides, sulphonic acid esters, oxyphosphonium salts) or other chemical moieties which can be utilized in the attachment of further components. A particularly preferred PEG derivate in this context is alpha-Methoxy-omega-mercapto poly(ethylene glycol). In each case, the SH-moiety, e.g. of a cysteine or of any further (modified) amino acid or compound, may be present at the terminal ends or internally at any position of hydrophilic polymers P^1 and P^3. As defined herein, each of hydrophilic polymers P^1 and P^3 typically exhibits at least one –SH-moiety preferably at one terminal end, but may also contain two or even more –SH-moieties, which may be used to additionally attach further components as defined herein, preferably further functional peptides or proteins e.g. a ligand, an amino acid component (AA) or $(AA)_x$, antibodies, cell penetrating peptides or enhancer peptides (e.g. TAT, KALA), etc.

Preferably, the inventive composition comprises at least one RNA as defined herein, which is complexed with one or more polycations, and at least one free RNA, wherein the at least one complexed RNA is preferably identical to the at least one free RNA. In this context, it is particularly preferred that the composition of the present invention comprises the RNA according to the

invention that is complexed at least partially with a cationic or polycationic compound and/or a polymeric carrier, preferably cationic proteins or peptides. In this context, the disclosure of WO 2010/037539 and WO 2012/113513 is incorporated herewith by reference. Partially means that only a part of the RNA as defined herein is complexed in the composition according to the invention with a cationic compound and that the rest of the RNA as defined herein is (comprised in the inventive (pharmaceutical) composition or (passive) vaccine) in uncomplexed form ("free"). Preferably, the molar ratio of the complexed RNA to the free RNA is selected from a molar ratio of about 0.001:1 to about 1:0.001, including a ratio of about 1:1. More preferably the ratio of complexed RNA to free RNA (in the (pharmaceutical) composition or (passive) vaccine of the present invention) is selected from a range of about 5:1 (w/w) to about 1:10 (w/w), more preferably from a range of about 4:1 (w/w) to about 1:8 (w/w), even more preferably from a range of about 3:1 (w/w) to about 1:5 (w/w) or 1:3 (w/w), and most preferably the ratio of complexed mRNA to free mRNA in the inventive pharmaceutical composition or (passive) vaccine is selected from a ratio of about 1:1 (w/w).

The complexed RNA in the (pharmaceutical) composition or (passive) vaccine according to the present invention, is preferably prepared according to a first step by complexing the RNA according to the invention with a cationic or polycationic compound and/or with a polymeric carrier, preferably as defined herein, in a specific ratio to form a stable complex. In this context, it is highly preferable, that no free cationic or polycationic compound or polymeric carrier or only a negligibly small amount thereof remains in the component of the complexed RNA after complexing the RNA. Accordingly, the ratio of the RNA and the cationic or polycationic compound and/or the polymeric carrier in the component of the complexed RNA is typically selected in a range so that the RNA is entirely complexed and no free cationic or polycationic compound or polymeric carrier or only a negligibly small amount thereof remains in the composition.

Preferably the ratio of the RNA as defined herein to the cationic or polycationic compound and/or the polymeric carrier, preferably as defined herein, is selected from a range of about 6:1 (w/w) to about 0,25:1 (w/w), more preferably from about 5:1 (w/w) to about 0,5:1 (w/w), even more preferably of about 4:1 (w/w) to about 1:1 (w/w) or of about 3:1 (w/w) to about 1:1 (w/w), and most preferably a ratio of about 3:1 (w/w) to about 2:1 (w/w). Alternatively, the ratio of the RNA as defined herein to the cationic or polycationic compound and/or the polymeric carrier, preferably as defined herein, in the component of the complexed mRNA, may also be calculated on the basis of the nitrogen/phosphate ratio (N/P-ratio) of the entire complex. In the context of the present invention, an N/P-ratio is preferably in the range of about 0.1-10, preferably in a range of about 0.3-4 and most preferably in a range of about 0.5-2 or 0.7-2 regarding the ratio of RNA : cationic or polycationic compound and/or polymeric carrier, preferably as defined herein, in the complex,

and most preferably in a range of about 0.7-1,5, 0.5-1 or 0.7-1, and even most preferably in a range of about 0.3-0.9 or 0.5-0.9, preferably provided that the cationic or polycationic compound in the complex is a cationic or polycationic cationic or polycationic protein or peptide and/or the polymeric carrier as defined above. In this specific embodiment the complexed RNA as defined herein is also emcompassed in the term "adjuvant component".

In other embodiments, the composition according to the invention comprising the RNA as defined herein may be administered naked without being associated with any further vehicle, transfection or complexation agent.

It has to be understood and recognized, that according to the present invention, the inventive composition may comprise at least one naked RNA as defined herein, preferably an mRNA, and/or at least one formulated/complexed RNA as defined herein, preferably an mRNA, wherein every formulation and/or complexation as disclosed above may be used.

In a further aspect, the present invention provides a (passive) vaccine, which is based on the RNA according to the invention comprising at least one coding sequence as defined herein. The (passive) vaccine according to the invention is preferably a (pharmaceutical) composition as defined herein.

Accordingly, the (passive) vaccine according to the invention is based on the same components as the (pharmaceutical) composition described herein. Insofar, it may be referred to the description of the (pharmaceutical) composition as provided herein. In particular, in embodiments, where the (passive) vaccine comprises more than one RNA component (such as a plurality of RNAs according to the invention, wherein each encodes a distinct antibody or, preferably, distinct fragments of the same antibody), the (passive) vaccine may, however, be provided in physically separate form and may be administered by separate administration steps, for example as described above in the context of a combination for use according to the present invention. The (passive) vaccine according to the invention may correspond to the (pharmaceutical) composition as described herein, especially where the mRNA components are provided by one single composition. However, the inventive (passive) vaccine may also be provided physically separated. For instance, in embodiments, wherein the (passive) vaccine comprises more than one RNA (e.g. as described above in the context of a combination for use according to the present invention), these RNA's may be provided such that, for example, two, three, four, five or six separate compositions, which may contain at least one RNA species each (e.g. three distinct mRNA species), each encoding distinct antibodies or distinct fragments of the same antibody, are provided, which may or may not be combined. Also, the inventive (passive) vaccine may be a

combination of at least two distinct compositions, each composition comprising at least one mRNA encoding at least one of the antibodies as defined herein or encoding at least one fragment of an antibody. Alternatively, the (passive) vaccine may be provided as a combination of at least one mRNA, preferably at least two, three, four, five, six or more mRNAs, each encoding one of the antibodies defined herein or one fragment of the same antibody. The (passive) vaccine may be combined to provide one single composition prior to its use or it may be used such that more than one administration is required to administer the distinct mRNA species encoding any of the antibody combinations as defined herein or encoding any of the antibody fragment combinations as defined herein (such as, for example, heavy and light chain of the same antibody encoded by distinct mRNA's). If the (passive) vaccine contains at least one mRNA molecule, typically at least two mRNA molecules, encoding an antibody combination or an antibody fragment combination as defined herein, it may e.g. be administered by one single administration (combining all mRNA species), by at least two separate administrations. Accordingly; any combination of mono-, bi- or multicistronic mRNAs encoding the at least one antibody or any combination of antibodies or of antibody fragments as defined herein (and optionally further antibodies), provided as separate entities (containing one mRNA species) or as combined entity (containing more than one mRNA species), is understood as a (passive) vaccine according to the present invention. According to a preferred embodiment of the inventive (passive) vaccine, the at least one antibody or the fragment thereof, preferably a combination as defined herein of at least two, three, four, five, six or more antibodies or fragments thereof encoded by the inventive composition as a whole, is provided as an individual (monocistronic) mRNA, which is administered separately.

As with the (pharmaceutical) composition according to the present invention, the entities of the (passive) vaccine may be provided in liquid and or in dry (e.g. lyophilized) form. They may contain further components, in particular further components allowing for its pharmaceutical use. The (passive) vaccine or the (pharmaceutical) composition may, e.g., additionally contain a pharmaceutically acceptable carrier and/or further auxiliary substances and additives and/or adjuvants.

The (passive) vaccine or (pharmaceutical) composition typically comprises a safe and effective amount of the RNA according to the invention as defined herein, encoding an antibody or a fragment or variant thereof as defined herein or a combination of antibodies as defined herein. As used herein, "safe and effective amount" means an amount of the RNA that is sufficient to significantly induce a positive modification of a disease or disorder to be treated with the inventive composition. At the same time, however, a "safe and effective amount" is small enough to avoid serious side-effects, that is to say to permit a sensible relationship between advantage and risk. The determination of these limits typically lies within the scope of sensible medical judgment. In

relation to the (passive) vaccine or (pharmaceutical) composition of the present invention, the expression "safe and effective amount" preferably means an amount of the RNA (and thus of the encoded antibody or fragment thereof) that is suitable for treating a disease or disorder as described herein. Such a "safe and effective amount" of the RNA of the (pharmaceutical) composition or (passive) vaccine as defined herein may furthermore be selected in dependence of the type of RNA, e.g. monocistronic, bi- or even multicistronic RNA, since a bi- or even multicistronic RNA may lead to a significantly higher expression of the encoded antibody(s) than the use of an equal amount of a monocistronic RNA. A "safe and effective amount" of the RNA of the (pharmaceutical) composition or (passive) vaccine as defined above will furthermore vary in connection with the particular condition to be treated and also with the age and physical condition of the patient to be treated, the severity of the condition, the duration of the treatment, the nature of the accompanying therapy, of the particular pharmaceutically acceptable carrier used, and similar factors, within the knowledge and experience of the accompanying doctor. The (passive) vaccine or composition according to the invention can be used according to the invention for human and also for veterinary medical purposes, as a pharmaceutical composition or as a (passive) vaccine.

In a preferred embodiment, the RNA of the (pharmaceutical) composition, (passive) vaccine or kit of parts according to the invention is provided in lyophilized form. Preferably, the lyophilized RNA is reconstituted in a suitable buffer, advantageously based on an aqueous carrier, prior to administration, e.g. Ringer-Lactate solution, which is preferred, Ringer solution, a phosphate buffer solution. In a preferred embodiment, the (pharmaceutical) composition, the (passive) vaccine or the kit of parts according to the invention contains at least two, three, four, five, six or more RNAs, preferably mRNAs which are provided separately in lyophilized form (optionally together with at least one further additive) and which are preferably reconstituted separately in a suitable buffer (such as Ringer-Lactate solution) prior to their use so as to allow individual administration of each of the (monocistronic) RNAs.

The (passive) vaccine or (pharmaceutical) composition according to the invention may typically contain a pharmaceutically acceptable carrier. The expression "pharmaceutically acceptable carrier" as used herein preferably includes the liquid or non-liquid basis of the inventive (passive) vaccine. If the inventive (passive) vaccine is provided in liquid form, the carrier will be water, typically pyrogen-free water; isotonic saline or buffered (aqueous) solutions, e.g phosphate, citrate etc. buffered solutions. Particularly for injection of the inventive (passive) vaccine, water or preferably a buffer, more preferably an aqueous buffer, may be used, containing a sodium salt, preferably at least 50 mM of a sodium salt, a calcium salt, preferably at least 0,01 mM of a calcium salt, and optionally a potassium salt, preferably at least 3 mM of a potassium salt. According to a

preferred embodiment, the sodium, calcium and, optionally, potassium salts may occur in the form of their halogenides, e.g. chlorides, iodides, or bromides, in the form of their hydroxides, carbonates, hydrogen carbonates, or sulfates, etc. Without being limited thereto, examples of sodium salts include e.g. NaCl, NaI, NaBr, Na_2CO_3, $NaHCO_3$, Na_2SO_4, examples of the optional potassium salts include e.g. KCl, KI, KBr, K_2CO_3, $KHCO_3$, K_2SO_4, and examples of calcium salts include e.g. $CaCl_2$, CaI_2, $CaBr_2$, $CaCO_3$, $CaSO_4$, $Ca(OH)_2$. Furthermore, organic anions of the aforementioned cations may be contained in the buffer. According to a more preferred embodiment, the buffer suitable for injection purposes as defined above, may contain salts selected from sodium chloride (NaCl), calcium chloride ($CaCl_2$) and optionally potassium chloride (KCl), wherein further anions may be present additional to the chlorides. $CaCl_2$ can also be replaced by another salt like KCl. Typically, the salts in the injection buffer are present in a concentration of at least 50 mM sodium chloride (NaCl), at least 3 mM potassium chloride (KCl) and at least 0,01 mM calcium chloride ($CaCl_2$). The injection buffer may be hypertonic, isotonic or hypotonic with reference to the specific reference medium, i.e. the buffer may have a higher, identical or lower salt content with reference to the specific reference medium, wherein preferably such concentrations of the afore mentioned salts may be used, which do not lead to damage of cells due to osmosis or other concentration effects. Reference media are e.g. in “in vivo” methods occurring liquids such as blood, lymph, cytosolic liquids, or other body liquids, or e.g. liquids, which may be used as reference media in “in vitro” methods, such as common buffers or liquids. Such common buffers or liquids are known to a skilled person. Ringer-Lactate solution is particularly preferred as a liquid basis.

However, one or more compatible solid or liquid fillers or diluents or encapsulating compounds may be used as well, which are suitable for administration to a person. The term "compatible" as used herein means that the constituents of the inventive (passive) vaccine are capable of being mixed with the RNA according to the invention as defined herein, in such a manner that no interaction occurs, which would substantially reduce the pharmaceutical effectiveness of the inventive (passive) vaccine under typical use conditions. Pharmaceutically acceptable carriers, fillers and diluents must, of course, have sufficiently high purity and sufficiently low toxicity to make them suitable for administration to a person to be treated. Some examples of compounds which can be used as pharmaceutically acceptable carriers, fillers or constituents thereof are sugars, such as, for example, lactose, glucose, trehalose and sucrose; starches, such as, for example, corn starch or potato starch; dextrose; cellulose and its derivatives, such as, for example, sodium carboxymethylcellulose, ethylcellulose, cellulose acetate; powdered tragacanth; malt; gelatin; tallow; solid glidants, such as, for example, stearic acid, magnesium stearate; calcium sulfate; vegetable oils, such as, for example, groundnut oil, cottonseed oil, sesame oil,

olive oil, corn oil and oil from theobroma; polyols, such as, for example, polypropylene glycol, glycerol, sorbitol, mannitol and polyethylene glycol; alginic acid.

The choice of a pharmaceutically acceptable carrier is determined, in principle, by the manner, in which the pharmaceutical composition or (passive) vaccine according to the invention is administered. The composition or (passive) vaccine can be administered, for example, systemically or locally. Routes for systemic administration in general include, for example, transdermal, oral, parenteral routes, including subcutaneous, intravenous, intramuscular, intraarterial, intradermal and intraperitoneal injections and/or intranasal administration routes. Routes for local administration in general include, for example, topical administration routes but also intradermal, transdermal, subcutaneous, or intramuscular injections or intralesional, intracranial, intrapulmonal, intracardial, and sublingual injections. More preferably, composition or (passive) vaccines according to the present invention may be administered by an intradermal, subcutaneous, or intramuscular route, preferably by injection, which may be needle-free and/or needle injection. Compositions/vaccines are therefore preferably formulated in liquid or solid form. The suitable amount of the vaccine or composition according to the invention to be administered can be determined by routine experiments, e.g. by using animal models. Such models include, without implying any limitation, rabbit, sheep, mouse, rat, dog and non-human primate models. Preferred unit dose forms for injection include sterile solutions of water, physiological saline or mixtures thereof. The pH of such solutions should be adjusted to about 7.4. Suitable carriers for injection include hydrogels, devices for controlled or delayed release, polylactic acid and collagen matrices. Suitable pharmaceutically acceptable carriers for topical application include those which are suitable for use in lotions, creams, gels and the like. If the inventive composition or vaccine is to be administered perorally, tablets, capsules and the like are the preferred unit dose form. The pharmaceutically acceptable carriers for the preparation of unit dose forms which can be used for oral administration are well known in the prior art. The choice thereof will depend on secondary considerations such as taste, costs and storability, which are not critical for the purposes of the present invention, and can be made without difficulty by a person skilled in the art.

Further additives which may be included in the inventive vaccine or composition are emulsifiers, such as, for example, Tween; wetting agents, such as, for example, sodium lauryl sulfate; colouring agents; taste-imparting agents, pharmaceutical carriers; tablet-forming agents; stabilizers; antioxidants; preservatives.

Kit comprising the RNA according to the present invention

According to another aspect of the present invention, the present invention also provides a kit, in particular a kit of parts, comprising the RNA according to the present invention, the (pharmaceutical) composition, and/or the vaccine according to the invention, optionally a liquid vehicle for solubilising and optionally technical instructions with information on the administration and dosage of the RNA, the composition and/or the vaccine. The technical instructions may contain information about administration and dosage of the RNA, the composition and/or the vaccine. Such kits, preferably kits of parts, may be applied e.g. for any of the applications or uses as described herein, preferably for the use of the RNA according to the invention (for the preparation of an inventive medicament, preferably a vaccine), for the treatment (prophylaxis or therapy) of a disease or disorder as described herein. The kits may also be applied for the use of the RNA, the composition or the vaccine as defined herein (for the preparation of an inventive vaccine) for the treatment (prophylaxis or therapy) of a disease or disorder as described herein. Such kits may further be applied for the use of the RNA, the composition or the vaccine as defined herein (for the preparation of an inventive vaccine) for modulating, preferably for eliciting, e.g. to induce or enhance, an immune response in a mammal as defined above, and preferably for supporting treatment (prophylaxis or therapy) of a disease or disorder as described herein. Kits of parts, as a special form of kits, may contain one or more identical or different compositions and/or one or more identical or different vaccines as described herein in different parts of the kit. Kits of parts may also contain an (e.g. one) composition, an (e.g. one) vaccine and/or the RNA according to the invention in different parts of the kit, e.g. each part of the kit containing an RNA as defined herein, preferably encoding a distinct antibody or distinct fragments of the same antibody. Preferably, the kit or the kit of parts contains as a part a vehicle for solubilising the RNA according to the invention, the vehicle preferably being Ringer-lactate solution. Any of the above kits may be used in a treatment or prophylaxis as defined above.

In a further embodiment, the kit according to the present invention may additionally contain at least one further pharmaceutically active component, preferably a therapeutic compound suitable for treatment (prophylaxis or therapy) of a disease or disorder as described herein. Moreover, in another embodiment, the kit may additionally contain parts and/or devices necessary or suitable for the administration of the composition or the vaccine according to the invention, including needles, applicators, patches, injection-devices.

Preferably, the kit according to the present invention contains, in particular as a part, Ringer-Lactate solution. It is also preferred that the kit according to the present invention contains, in particular as a part, at least one modulator of an inhibitory and/or a stimulatory checkpoint

molecule, such as an inhibitor of an inhibitory checkpoint molecule, preferably CTLA4 inhibitors and PD-1 pathway inhibitors.

Moreover, in a particularly preferred embodiment, the kit according to the present invention contains, in particular as distinct parts, at least two distinct RNA's according to the present invention. Thereby, the details of the at least two distinct RNA's according to the present invention as described above, in the context of the combination for use according to the present invention, apply accordingly for the at least two distinct RNA's contained in the kit according to the present invention. Accordingly, it is preferred that one RNA of the at least two distinct RNA's encodes a heavy chain variable region of an antibody or a fragment thereof and another RNA of the at least two distinct RNA's encodes the corresponding light chain variable region of the antibody or the fragment thereof. More preferably, one RNA of the at least two distinct RNA's encodes a heavy chain of an antibody and another RNA of the at least two distinct RNA's encodes the corresponding light chain of the antibody. It is also preferred that the RNA encoding the heavy chain variable region or a fragment thereof and the RNA encoding the light chain variable region or a fragment thereof comprise identical 5'UTR elements and/or identical 3'UTR elements and/or identical further elements as described above, in the context of the combination for use according to the present invention.

Uses and methods according to the present invention

According to a further aspect of the present invention, the RNA, the combination of RNA's according to the present invention, the (pharmaceutical) composition, the (passive) vaccine or the kit according to the present invention may be used (for the preparation of a medicament) for the treatment (prophylaxis or therapy) of any disorder/disease, which can be treated by use of an antibody, in particular cancer, cardiovascular diseases, neurological diseases, infectious diseases, autoimmune diseases, virus diseases, monogenetic diseases and diseases or disorders related thereto. Preferably, the RNA, the combination of RNA's, the (pharmaceutical) composition, the (passive) vaccine or the kit according to the present invention may be used (for the preparation of a medicament) for the treatment (prophylaxis or therapy) of cancer or infectious diseases.

As used herein, the term "cancer" refers to the broad class of disorders and malignancies characterized by hyperproliferative cell growth, either *in vitro* (e.g., transformed cells) or *in vivo.* Conditions which can be treated or prevented by the compositions and methods of the invention include, e.g., a variety of neoplasms, including benign or malignant tumours, a variety of

hyperplasias, or the like. Compositions and methods of the invention can achieve the inhibition and/or reversion of undesired hyperproliferative cell growth involved in such conditions. Specific examples of cancers to be treated in the context of the present invention include Acute Lymphoblastic Leukemia, Adult; Acute Lymphoblastic Leukemia, Childhood; Acute Myeloid Leukemia, Adult; Adrenocortical Carcinoma; Adrenocortical Carcinoma, Childhood; AIDS-Related Lymphoma; AIDS-Related Malignancies; Anal Cancer; Astrocytoma, Childhood Cerebellar; Astrocytoma, Childhood Cerebral; Bile Duct Cancer, Extrahepatic; Bladder Cancer; Bladder Cancer, Childhood; Bone Cancer, Osteosarcoma/Malignant Fibrous Histiocytoma; Brain Stem Glioma, Childhood; Brain Tumor, Adult; Brain Tumor, Brain Stem Glioma, Childhood; Brain Tumor, Cerebellar Astrocytoma, Childhood; Brain Tumor, Cerebral Astrocytoma/Malignant Glioma, Childhood; Brain Tumor, Ependymoma, Childhood; Brain Tumor, Medulloblastoma, Childhood; Brain Tumor, Supratentorial Primitive Neuroectodermal Tumors, Childhood; Brain Tumor, Visual Pathway and Hypothalamic Glioma, Childhood; Brain Tumor, Childhood (Other); Breast Cancer; Breast Cancer and Pregnancy; Breast Cancer, Childhood; Breast Cancer, Male; Bronchial Adenomas/Carcinoids, Childhood: Carcinoid Tumor, Childhood; Carcinoid Tumor, Gastrointestinal; Carcinoma, Adrenocortical; Carcinoma, Islet Cell; Carcinoma of Unknown Primary; Central Nervous System Lymphoma, Primary; Cerebellar Astrocytoma, Childhood; Cerebral Astrocytoma/Malignant Glioma, Childhood; Cervical Cancer; Childhood Cancers; Chronic Lymphocytic Leukemia; Chronic Myelogenous Leukemia; Chronic Myeloproliferative Disorders; Clear Cell Sarcoma of Tendon Sheaths; Colon Cancer; Colorectal Cancer, Childhood; Cutaneous T-Cell Lymphoma; Endometrial Cancer; Ependymoma, Childhood; Epithelial Cancer, Ovarian; Esophageal Cancer; Esophageal Cancer, Childhood; Ewing's Family of Tumors; Extracranial Germ Cell Tumor, Childhood; Extragonadal Germ Cell Tumor; Extrahepatic Bile Duct Cancer; Eye Cancer, Intraocular Melanoma; Eye Cancer, Retinoblastoma; Gallbladder Cancer; Gastric (Stomach) Cancer; Gastric (Stomach) Cancer, Childhood; Gastrointestinal Carcinoid Tumor; Germ Cell Tumor, Extracranial, Childhood; Germ Cell Tumor, Extragonadal; Germ Cell Tumor, Ovarian; Gestational Trophoblastic Tumor; Glioma. Childhood Brain Stem; Glioma. Childhood Visual Pathway and Hypothalamic; Hairy Cell Leukemia; Head and Neck Cancer; Hepatocellular (Liver) Cancer, Adult (Primary); Hepatocellular (Liver) Cancer, Childhood (Primary); Hodgkin's Lymphoma, Adult; Hodgkin's Lymphoma, Childhood; Hodgkin's Lymphoma During Pregnancy; Hypopharyngeal Cancer; Hypothalamic and Visual Pathway Glioma, Childhood; Intraocular Melanoma; Islet Cell Carcinoma (Endocrine Pancreas); Kaposi's Sarcoma; Kidney Cancer; Laryngeal Cancer; Laryngeal Cancer, Childhood; Leukemia, Acute Lymphoblastic, Adult; Leukemia, Acute Lymphoblastic, Childhood; Leukemia, Acute Myeloid, Adult; Leukemia, Acute Myeloid, Childhood; Leukemia, Chronic Lymphocytic; Leukemia, Chronic Myelogenous; Leukemia, Hairy Cell; Lip and Oral Cavity Cancer; Liver Cancer, Adult (Primary); Liver Cancer, Childhood (Primary); Lung Cancer, Non-Small Cell; Lung Cancer, Small Cell;

Lymphoblastic Leukemia, Adult Acute; Lymphoblastic Leukemia, Childhood Acute; Lymphocytic Leukemia, Chronic; Lymphoma, AIDS— Related; Lymphoma, Central Nervous System (Primary); Lymphoma, Cutaneous T-Cell; Lymphoma, Hodgkin's, Adult; Lymphoma, Hodgkin's; Childhood; Lymphoma, Hodgkin's During Pregnancy; Lymphoma, Non-Hodgkin's, Adult; Lymphoma, Non-Hodgkin's, Childhood; Lymphoma, Non-Hodgkin's During Pregnancy; Lymphoma, Primary Central Nervous System; Macroglobulinemia, Waldenstrom's; Male Breast Cancer; Malignant Mesothelioma, Adult; Malignant Mesothelioma, Childhood; Malignant Thymoma; Medulloblastoma, Childhood; Melanoma; Melanoma, Intraocular; Merkel Cell Carcinoma; Mesothelioma, Malignant; Metastatic Squamous Neck Cancer with Occult Primary; Multiple Endocrine Neoplasia Syndrome, Childhood; Multiple Myeloma/Plasma Cell Neoplasm; Mycosis Fungoides; Myelodysplasia Syndromes; Myelogenous Leukemia, Chronic; Myeloid Leukemia, Childhood Acute; Myeloma, Multiple; Myeloproliferative Disorders, Chronic; Nasal Cavity and Paranasal Sinus Cancer; Nasopharyngeal Cancer; Nasopharyngeal Cancer, Childhood; Neuroblastoma; Neurofibroma; Non-Hodgkin's Lymphoma, Adult; Non- Hodgkin's Lymphoma, Childhood; Non-Hodgkin's Lymphoma During Pregnancy; Non- Small Cell Lung Cancer; Oral Cancer, Childhood; Oral Cavity and Lip Cancer; Oropharyngeal Cancer; Osteosarcoma/Malignant Fibrous Histiocytoma of Bone; Ovarian Cancer, Childhood; Ovarian Epithelial Cancer; Ovarian Germ Cell Tumor; Ovarian Low Malignant Potential Tumor; Pancreatic Cancer; Pancreatic Cancer, Childhood', Pancreatic Cancer, Islet Cell; Paranasal Sinus and Nasal Cavity Cancer; Parathyroid Cancer; Penile Cancer; Pheochromocytoma; Pineal and Supratentorial Primitive Neuroectodermal Tumors, Childhood; Pituitary Tumor; Plasma Cell Neoplasm/Multiple Myeloma; Pleuropulmonary Blastoma; Pregnancy and Breast Cancer; Pregnancy and Hodgkin's Lymphoma; Pregnancy and Non-Hodgkin's Lymphoma; Primary Central Nervous System Lymphoma; Primary Liver Cancer, Adult; Primary Liver Cancer, Childhood; Prostate Cancer; Rectal Cancer; Renal Cell (Kidney) Cancer; Renal Cell Cancer, Childhood; Renal Pelvis and Ureter, Transitional Cell Cancer; Retinoblastoma; Rhabdomyosarcoma, Childhood; Salivary Gland Cancer; Salivary Gland'Cancer, Childhood; Sarcoma, Ewing's Family of Tumors; Sarcoma, Kaposi's; Sarcoma (Osteosarcoma)/Malignant Fibrous Histiocytoma of Bone; Sarcoma, Rhabdomyosarcoma, Childhood; Sarcoma, Soft Tissue, Adult; Sarcoma, Soft Tissue, Childhood; Sezary Syndrome; Skin Cancer; Skin Cancer, Childhood; Skin Cancer (Melanoma); Skin Carcinoma, Merkel Cell; Small Cell Lung Cancer; Small Intestine Cancer; Soft Tissue Sarcoma, Adult; Soft Tissue Sarcoma, Childhood; Squamous Neck Cancer with Occult Primary, Metastatic; Stomach (Gastric) Cancer; Stomach (Gastric) Cancer, Childhood; Supratentorial Primitive Neuroectodermal Tumors, Childhood; T-Cell Lymphoma, Cutaneous; Testicular Cancer; Thymoma, Childhood; Thymoma, Malignant; Thyroid Cancer; Thyroid Cancer, Childhood; Transitional Cell Cancer of the Renal Pelvis and Ureter; Trophoblastic Tumor, Gestational; Unknown Primary Site, Cancer of, Childhood; Unusual

Cancers of Childhood; Ureter and Renal Pelvis, Transitional Cell Cancer; Urethral Cancer; Uterine Sarcoma; Vaginal Cancer; Visual Pathway and Hypothalamic Glioma, Childhood; Vulvar Cancer; Waldenstrom's Macro globulinemia; and Wilms' Tumor.

Infectious diseases are typically caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi. Infectious diseases can usually be spread, directly or indirectly, from one person to another. Infectious diseases to be treated in the context of the present invention preferably include viral, retroviral, bacterial or protozoological infectious diseases. Specific examples of infectious diseases to be treated in the context of the present invention include influenza, malaria, SARS, yellow fever, AIDS, Lyme borreliosis, leishmaniasis, anthrax, meningitis, viral infectious diseases, such as AIDS, condyloma acuminata, molluscum contagiosum, dengue fever, three-day fever, Ebola virus, colds, early summer meningoencephalitis (ESME), influenza, shingles, hepatitis, herpes simplex type I, herpes simplex type II, herpes zoster, influenza, Japanese encephalitis, Lassa fever, Marburg virus, measles, foot and mouth disease, mononucleosis, mumps, Norwalk virus infection, Pfeiffer's glandular fever, smallpox, polio (poliomyelitis), pseuodcroup, infectious erythema, rabies, warts, West Nile fever, chicken-pox, cytomegalovirus (CMV), bacterial infectious diseases, such as abortion (infectious, septic), prostatitis (prostate inflammation), anthrax, appendicitis (inflammation of the caecum), borreliosis, botulism, Campylobacter, Chlamydia trachomatis (inflammation of the urethra, conjunctiva), cholera, diphtheria, donavonosis, epiglottitis, louse-borne typhus, typhoid fever, gas gangrene, gonorrhoea, hare plague, Helicobacter pylori, whooping-cough, climatic bubo, osteomyelitis, legionnaires' disease, leprosy, listeriosis, pneumonia, meningitis, bacterial meningitis, anthrax, inflammation of the middle ear, Mycoplasma hominis, neonatal sepsis (chorioamnionitis), noma, paratyphoid fever, plague, Reiter's syndrome, Rocky Mountain spotted fever, Salmonella paratyphoid fever, Salmonella typhoid fever, scarlet fever, syphilis, tetanus, gonorrhoea, tsutsugamushi fever, tuberculosis, typhus, vaginitis (colpitis), soft chancre, and infectious diseases caused by parasites, protozoa or fungi, such as amoebic dysentery, bilharziosis, Chagas' disease, Echinococcus, fish tapeworm, ichthyotoxism (ciguatera), fox tapeworm, mycosis pedis, dog tapeworm, candiosis, ptyriasis, the itch (scabies), cutaneous leishmaniasis, lamblian dysentery (giadiasis), lice, malaria, onchocercosis (river blindness), fungal diseases, beef tapeworm, schistosomiasis, sleeping sickness, pork tapeworm, toxoplasmosis, trichomoniasis, trypanosomiasis (sleeping sickness), visceral leishmaniasis, nappy dermatitis, or infections caused by the dwarf tapeworm.

The term “cardiovascular disease” as used herein typically includes any disorders/diseases of the cardiovascular system. Specific examples of cardiovascular diseases include coronary heart disease, arteriosclerosis, apoplexy and hypertension. The term “neurological disease” as used

herein typically includes disorders/diseases of the nervous system. Specific examples of neurological diseases include Alzheimer's disease, amyotrophic lateral sclerosis, dystonia, epilepsy, multiple sclerosis and Parkinson's disease.

The term "autoimmune disease" as used herein typically refers to a pathological state rising from an abnormal immune response of the body to substances and tissues that are normally present in the body. Specific examples of autoimmune diseases include autoimmune type I diseases or autoimmune type II diseases or autoimmune type III diseases or autoimmune type IV diseases, such as, for example, multiple sclerosis (MS), rheumatoid arthritis, diabetes, diabetes type I (diabetes mellitus), systemic lupus erythematosus (SLE), chronic polyarthritis, Basedow's disease, autoimmune forms of chronic hepatitis, colitis ulcerosa, allergy type I diseases, allergy type II diseases, allergy type III diseases, allergy type IV diseases, fibromyalgia, hair loss, Bechterew's disease, Crohn's disease, myasthenia gravis, neurodermatitis, polymyalgia rheumatica, progressive systemic sclerosis (PSS), psoriasis, Reiter's syndrome, rheumatic arthritis, psoriasis or vasculitis.

It is particularly preferred that the RNA, the combination of RNA's according to the present invention, the (pharmaceutical) composition, the (passive) vaccine or the kit according to the present invention may be used (for the preparation of a medicament) for the treatment (prophylaxis or therapy) of any disorder/disease, which is related to the antibody, or the fragment thereof, encoded by the RNA. Particularly preferably, the antibody is any of the antibodies listed in Table 11 below. In this case, it is most preferred that the disease, disorder or condition to be treated and/or prevented is any disease, disorder or condition related to the antibody, in particular as described in Table 11 below.

Table 11: Antibodies, their targets and diseases, disorders or conditions related to the antibodies.

Antibody Name	Target	Related Disease, Disorder or Condition
AAB-003	Amyloid Beta Peptide; A beta P; Abeta; Beta Amyloid	Alzheimer's Disease
Abagovomab	Tumour Antigen; CA-125	Epithelial Ovarian Cancer; Ovarian Cancer
Abciximab	Integrin Alpha 2b; GPalpha IIb; Platelet Membrane Glycoprotein IIb; CD41; ITGA2B	Ischemia; Percutaneous Coronary Intervention; Unstable Angina Myocardial Infarction; Myocardial Ischemia; Percutaneous Coronary Intervention; Unstable Angina
Abituzumab	Integrin Alpha V; Vitronectin Receptor Subunit Alpha; CD51; ITGAV	Interstitial Lung Diseases (Diffuse Parenchymal Lung Disease) Advanced Malignancy; Metastatic Cancer; Solid Tumor;

Antibody Name	Target	Related Disease, Disorder or Condition
		Metastatic Colorectal Cancer; Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Ovarian Cancer; Cancer
Abrilumab	Integrin Alpha 4; CD49 Antigen Like Family Member D; VLA4 Subunit Alpha; CD49d; ITGA4; Integrin Beta 7; Gut Homing Receptor Beta Subunit; ITGB7; integrin α4β7	Crohn's Disease (Regional Enteritis); Ulcerative Colitis; Inflammatory Bowel Disease
Actoxumab	Clostridium difficile Toxin A; toxA; EC 3.4.22.	Clostridium difficile Infections (Clostridium difficile Associated Disease);Clostridium difficile Colitis
Adalimumab	Tumor Necrosis Factor; Cachectin; TNF Alpha; Tumor Necrosis Factor Ligand Superfamily Member 2; TNF a; TNF; TNFa; TNF-α	Intermediate Uveitis; Posterior Uveitis; Uveitis Crohn's Disease (Regional Enteritis); Ulcerative Colitis; Plaque Psoriasis (Psoriasis Vulgaris); Rheumatoid Arthritis; Ankylosing Spondylitis (Bekhterev's Disease); Polyarticular Juvenile Idiopathic Arthritis (PJIA); Crohn's Disease (Regional Enteritis); Psoriasis; Hidradenitis Suppurativa; Axial Spondyloarthritis; Polyarticular Juvenile Idiopathic Arthritis (PJIA); Psoriatic Arthritis; Behcet Disease; Ulcerative Colitis; Polyarticular Juvenile Idiopathic Arthritis (PJIA); Interstitial Cystitis (Painful Bladder Syndrome); Ankylosing Spondylitis (Bekhterev's Disease); Axial Spondyloarthritis Spondyloarthritis (Spondyloarthropathy); Autoimmune Disease; Hemolytic disease of the newborn
Adrecizumab	Adrenomedullin	Septic Shock
Aducanumab	Amyloid Beta Peptide; A beta P; Abeta; Beta Amyloid	Alzheimer's Disease
Afasevikumab	Interleukin 17; IL17; IL17A; IL17F	Autoimmune Disorders
Aflibercept	Placenta Growth Factor; Vascular Endothelial Growth Factor Related Protein; PGF; Vascular Endothelial Growth Factor A; Vascular Permeability Factor; VEGFA; Vascular Endothelial Growth Factor B; VEGF Related Factor; VEGFB	Age Related Macular Degeneration; Branch Retinal Vein Occlusion; Central Retinal Vein Occlusion; Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Choroidal Neovascularization; Myopia; Diabetic Macular Edema; Diabetic Retinopathy; Central Retinal Vein Occlusion; Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Diabetic Macular Edema; Branch Retinal Vein Occlusion; Central Retinal Vein Occlusion; Choroidal Neovascularization; Macular Edema;

Antibody Name	Target	Related Disease, Disorder or Condition
		Wet (Neovascular / Exudative) Macular Degeneration; Age Related Macular Degeneration; Central Retinal Vein Occlusion; Choroidal Neovascularization; Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Branch Retinal Vein Occlusion; Central Retinal Vein Occlusion; Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Branch Retinal Vein Occlusion; Central Retinal Vein Occlusion; Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Branch Retinal Vein Occlusion; Central Retinal Vein Occlusion; Choroidal Neovascularization; Macular Edema; Myopia; Wet (Neovascular / Exudative) Macular Degeneration; Choroidal Neovascularization; Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Age Related Macular Degeneration; Central Retinal Vein Occlusion; Choroidal Neovascularization; Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Neovascular Glaucoma; Non-Proliferative Diabetic Retinopathy (NPDR); Optic Neuropathy; Retinopathy; Corneal Neovascularization
Afutuzumab, Obinutuzumab	B Lymphocyte Antigen CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	Chronic Lymphocytic Leukemia (CLL); Follicular Lymphoma; Non-Hodgkin Lymphoma; Lupus Nephritis; Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Splenic Marginal Zone B-Cell Lymphoma; End-Stage Kidney Disease (End-Stage Renal Disease; ESRD); Graft Versus Host Disease (GVHD); Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Chronic Lymphocytic Leukemia (CLL) Waldenstrom Macroglobulinemia; Diffuse Large B-Cell Lymphoma;
Alacizumab, Alacizumab pegol	Vascular Endothelial Growth Factor Receptor 2; Fetal Liver Kinase 1; Kinase Insert Domain Receptor; Protein Tyrosine Kinase Receptor flk 1; VEGFR2; CD309; KDR; EC 2.7.10.1	Non-Small Cell Lung Cancer

Antibody Name	Target	Related Disease, Disorder or Condition
Alemtuzumab	CAMPATH 1 Antigen; CDw52; Cambridge Pathology 1 Antigen; Epididymal Secretory Protein E5; Human Epididymis Specific Protein 5; CD52	Progressive Relapsing Multiple Sclerosis (PRMS); Relapsing Remitting Multiple Sclerosis (RRMS); B-Cell Chronic Lymphocytic Leukemia; Peripheral T-Cell Lymphomas (PTCL); T-Cell Leukemia Graft Versus Host Disease (GVHD); B-Cell Chronic Lymphocytic Leukemia; Mycosis Fungoides; Sezary Syndrome Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Chronic Lymphocytic Leukemia (CLL); Multiple Sclerosis
Alirocumab	Proprotein Convertase Subtilisin/Kexin Type 9; Proprotein Convertase 9; Neural Apoptosis Regulated Convertase 1; Subtilisin/Kexin Like Protease PC9; PCSK9; EC 3.4.21.	Heterozygous familial hypercholesterolemia (heFH); Hypercholesterolemia; Mixed Dyslipidemia Familial Hypercholesterolemia (Type II Hyperlipoproteinemia); Hypercholesterolemia
ALX-0061, vobarilizumab	Interleukin 6 Receptor; IL6R	Rheumatoid Arthritis; Systemic Lupus Erythematosus
Amatuximab	Mesothelin; CAK1 Antigen; Pre Pro Megakaryocyte Potentiating Factor; MSLN	Malignant Pleural Mesothelioma; Non-Small Cell Lung Cancer; Ovarian Cancer; Pancreatic Cancer
Andecaliximab	MMP9; matrix metallopeptidase 9	Gastroesophageal Junction Adenocarcinoma; Gastric Adenocarcinoma
Anetumab, Anetumab ravtansine	Mesothelin; CAK1 Antigen; Pre Pro Megakaryocyte Potentiating Factor; MSLN	Lung Adenocarcinoma; Malignant Pleural Mesothelioma Advanced Malignancy; Solid Tumor Bile Duct Cancer (Cholangiocarcinoma); Breast Cancer; Colon Cancer; Endometrial Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Gastroesophageal (GE) Junction Carcinomas; Metastatic Pancreatic Cancer; Non-Small Cell Lung Cancer; Ovarian Cancer; Pancreatic Cancer; Peritoneal Cancer; Thymic Carcinoma; Uterine Cancer
Anifrolumab	Interferon Alpha/Beta Receptor 1; Cytokine Receptor Class II Member 1; Cytokine Receptor Family 2 Member 1; Type I Interferon Receptor 1; IFNAR1	Systemic Lupus; Erythematosus Systemic Sclerosis (Scleroderma)
Anrukinzumab, IMA-638	Interleukin 13; IL13	Asthma; Ulcerative Colitis

Antibody Name	Target	Related Disease, Disorder or Condition
Apolizumab	HLA-DR	Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Chronic Lymphocytic Leukemia (CLL); Non-Hodgkin Lymphoma; Hematological Cancers
Apomab	Death receptor 5; DR5/TNF-related apoptosis inducing ligand-receptor 2; TRAIL-R2.	Cancer
Aprutumab	FGFR2	low blood neutrophils; Neutropenia; Febrile Neutropenia; Chemotherapy Induced Neutropenia; Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia)
Aquaporumab	Aquaporin-4; AQP4	Acute and Chronic Management of Neuromyelitis Optica Spectrum Disorder
Arcitumomab	Carcinoembryonales Antigen; CEA	Diagnostic Imaging of Colorectal Cancers; Gastrointestinal Cancers (Diagnosis)
Ascrinvacumab	Serine/Threonine Protein Kinase Receptor R3; Activin Receptor Like Kinase 1; TGF B Superfamily Receptor Type 1; ALK1; ACVRL1; EC 2.7.11.30	Malignant Pleural Mesothelioma; Metastatic Colorectal Cancer; Transitional Cell Carcinoma (Urothelial Cell Carcinoma); Hepatocellular Carcinoma
Aselizumab	L-Selectin; CD62L	Chronic Lymphocytic Leukemia (CLL);; Chronic Obstructive Pulmonary Disease (COPD); Inflammatory Bowel Disease; Vaso-Occlusive Crisis Associated With Sickle Cell Disease
Atezolizumab	Programmed Cell Death 1 Ligand 1; PD L1; B7 Homolog 1; CD274	Metastatic Transitional (Urothelial) Tract Cancer; Non-Small Cell Lung Cancer; Transitional Cell Carcinoma (Urothelial Cell Carcinoma) Bladder Cancer; Transitional Cell Carcinoma (Urothelial Cell Carcinoma) Epithelial Ovarian Cancer; Fallopian Tube Cancer; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Melanoma; Muscle Invasive Bladder Cancer (MIBC); Non-Small Cell Lung Cancer; Peritoneal Cancer; Renal Cell Carcinoma; Small-Cell Lung Cancer; Squamous Non-Small Cell Lung Cancer Bladder Cancer; Breast Cancer; Muscle Invasive Bladder Cancer (MIBC); Non-Small Cell Lung Carcinoma; Renal Cell Carcinoma; Small-Cell Lung Cancer; Transitional Cell Cancer (Urothelial Cell Cancer) Cervical Cancer; Diffuse Large

Antibody Name	Target	Related Disease, Disorder or Condition
		B-Cell Lymphoma; Follicular Lymphoma; Metastatic Colorectal Cancer; Non Muscle Invasive Bladder Cancer (NMIBC) (Superficial Bladder Cancer); Non-Small Cell Lung Cancer; Soft Tissue Sarcoma; Solid Tumor; Uterine Cancer Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Adenocarcinoma Of The Gastroesophageal Junction; Breast Cancer; Chronic Lymphocytic Leukemia (CLL); Diffuse Large B-Cell Lymphoma; Esophageal Cancer; Follicular Lymphoma; Gastric Cancer; Hepatocellular Carcinoma; Malignant Pleural Mesothelioma; Merkel Cell Carcinoma; Metastatic Melanoma; Metastatic Pancreatic Cancer; Multiple Myeloma (Kahler Disease); Myelodysplastic Syndrome; Nasopharyngeal Cancer; Neuroendocrine Gastroenteropancreatic Tumors (GEP-NET); Refractory Acute Myeloid Leukemia; Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Acute Myeloid Leukemia; Relapsed Chronic Lymphocytic Leukemia (CLL)
Atinumab	Reticulon 4; Human NogoA; Neurite Outgrowth Inhibitor; Foocen; Neuroendocrine Specific Protein; Neuroendocrine Specific Protein C Homolog; RTN x; Reticulon 5; RTN4	Acute Spinal Cord Injury
Atlizumab, Tocilizumab	IL6 receptor	rheumatoid arthritis; Crohn's disease; multiple myeloma and the lymphoproliferative disorder giant lymph node hyperplasia (Castleman's disease).
Aurograb	Staphylococcus aureus	Methicillin-Resistant Staphylococcus aureus (MRSA) Infections
Avelumab	Programmed Cell Death 1 Ligand 1; PD L1; B7 Homolog 1; CD274	Merkel Cell Carcinoma; Metastatic Transitional (Urothelial) Tract Cancer; Bladder Cancer; Diffuse Large B-Cell Lymphoma; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Gastric Cancer; Gastroesophageal (GE) Junction Carcinomas; Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Renal Cell Carcinoma; Metastatic Transitional (Urothelial) Tract Cancer; Non-Small Cell Lung Cancer; Ovarian Cancer; Peritoneal Cancer Choriocarcinoma (Gestational Trophoblastic Neoplasia); Epithelial Ovarian Cancer; Fallopian Tube Cancer; Peritoneal Cancer; Thymic Carcinoma; Thymoma (Thymic

Antibody Name	Target	Related Disease, Disorder or Condition
		Epithelial Tumor) Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer Adrenocortical Carcinoma (Adrenal Cortex Cancer); Breast Cancer; Endometrial Cancer; Fallopian Tube Cancer; Glioblastoma Multiforme (GBM); Head and Neck Cancer Squamous Cell Carcinoma; Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Malignant Mesothelioma; Melanoma; Metastatic Cancer; Metastatic Colorectal Cancer; Nasopharyngeal Cancer; Osteosarcoma; Peritoneal Cancer; Renal Cell Carcinoma; Solid Tumor Leiomyosarcoma; Liposarcoma; Refractory Acute Myeloid Leukemia; Relapsed Acute Myeloid Leukemia
Azintuxizumab	SLAMF7	Multiple Myeloma (Kahler Disease); Refractory Multiple Myeloma; Relapsed Multiple Myeloma; B-Cell Chronic Lymphocytic Leukemia
Bapineuzumab	Amyloid Beta Peptide; A beta P; Abeta; Beta Amyloid	Alzheimer's Disease
Basiliximab	Interleukin 2 Receptor Subunit Alpha; TAC Antigen; p55; CD25; IL2RA	Inflammatory Bowel Disease; Ulcerative Colitis; Uveitis; Kidney Transplant Rejection
Bavituximab	Phosphatidylserine	Hepatocellular Carcinoma Adenocarcinoma; Rectal Cancer Ebolavirus Infections (Ebola Hemorrhagic Fever); Hemorrhagic Fever; Unspecified Influenza Virus Infections Hepatitis C Melanoma; Metastatic Breast Cancer; Non-Small Cell Lung Cancer; Pancreatic Cancer Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Non-Small Cell Lung Cancer
Begelomab	Dipeptidyl Peptidase 4; ADABP; Adenosine Deaminase Complexing Protein 2; T Cell Activation Antigen CD26; TP103; CD26; DPP4; EC 3.4.14.5	Graft Versus Host Disease (GVHD)

Antibody Name	Target	Related Disease, Disorder or Condition
Belimumab	Tumor Necrosis Factor Ligand Superfamily Member 13B; B Lymphocyte Stimulator; Dendritic Cell Derived TNF Like Molecule; TNF and APOL Related Leukocyte Expressed Ligand 1; CD257; TNFSF13B	Systemic Lupus Erythematosus; Polymyositis/Idiopathic Inflammatory Myopathy; Microscopic Polyangiitis (MPA); Anti-Neutrophil Cytoplasmic Antibody-Associated Vasculitis (ANCA Vasculitis); Granulomatosis with Polyangiitis (Wegener Polyangiitis); Lupus Nephritis; Membranous Glomerulonephritis; Kidney Transplant Rejection; Myasthenia Gravis; Sicca Syndrome (Sjogren); Systemic Sclerosis (Scleroderma); Idiopathic Thrombocytopenic Purpura (Immune Thrombocytopenic Purpura); Rheumatoid Arthritis Waldenstrom Macroglobulinemia
Benralizumab	Interleukin 5 Receptor Subunit Alpha; IL 5 Receptor Subunit Alpha; CDw125; CD125; IL5RA	Asthma Chronic Obstructive Pulmonary Disease (COPD); Rhinosinusitis; Hypereosinophilic Syndrome; Granulomatosis with Polyangiitis (Wegener Polyangiitis)
Bertilimumab	Eotaxin; C-C Motif Chemokine 11; Eosinophil Chemotactic Protein; Small Inducible Cytokine A11; CCL11	Atopic Dermatitis; Bullous Pemphigoid; Crohn's Disease (Regional Enteritis); Non-Alcoholic Steatohepatitis; Ulcerative Colitis; Atopic Keratoconjunctivitis; Vernal Keratoconjunctivitis; Wet (Neovascular / Exudative) Macular Degeneration; Primary Sclerosing Cholangitis; Psoriasis; Asthma;
Betalutin	Leukocyte Antigen CD37; Tetraspanin 26; CD37	Follicular Lymphoma; Mantle Cell Lymphoma; Marginal Zone B-cell Lymphoma; Diffuse Large B-Cell Lymphoma
Bevacizumab, Bevacizumab beta, Bevacizumab-rhuMAb-VEGF, Bevacituzuab	Vascular endothelial growth factor; VEGF; VEGF-A	Breast Cancer; Cervical Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Metastatic Ovarian Cancer; Metastatic Renal Cell Carcinoma; Peritoneal Cancer Colorectal Cancer; Metastatic Breast Cancer; Non-Small Cell Lung Cancer; Glioma; Renal Cell Carcinoma Colorectal Cancer; Metastatic Breast Cancer; Non-Small Cell Lung Cancer; Metastatic Colorectal Cancer; Ovarian Cancer; Cervical Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Glioblastoma Multiforme (GBM); Metastatic Breast Cancer; Metastatic Colorectal Cancer; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Peritoneal Cancer; Breast Cancer; Cervical Cancer; Colorectal Cancer; Glioblastoma Multiforme (GBM); Malignant Glioma; Non-Small Cell Lung Cancer; Ovarian Cancer Lung Cancer; Metastatic Colorectal Cancer; Cervical Cancer; Epithelial

Antibody Name	Target	Related Disease, Disorder or Condition
		Ovarian Cancer; Fallopian Tube Cancer; Malignant Glioma; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Peritoneal Cancer; Cervical Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Metastatic Colorectal Cancer; Peritoneal Cancer; Metastatic Breast Cancer; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Ovarian Cancer; Metastatic Breast Cancer; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Fallopian Tube Cancer; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Ovarian Cancer; Peritoneal Cancer; Glioma; Metastatic Breast Cancer; Non-Small Cell Lung Cancer; Cervical Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Metastatic Colorectal Cancer; Peritoneal Cancer; Cervical Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Peritoneal Cancer; Glioblastoma Multiforme (GBM); Malignant Pleural Mesothelioma; Metastatic Breast Cancer; Renal Cell Carcinoma; Neuroblastoma; Oligodendroglioma; Malignant Pleural Mesothelioma; Merkel Cell Carcinoma; Nasopharyngeal Cancer; Bladder Cancer; Chronic Lymphocytic Leukemia (CLL); Diffuse Large B-Cell Lymphoma; Metastatic Liver Cancer; Non-Rhabdomyosarcoma; Rhabdomyosarcoma; Small-Cell Lung Cancer; Gastrointestinal Tumor; Meningioma; Metastatic Melanoma; Metastatic Pancreatic Cancer; Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Breast Cancer; Neuroendocrine Tumors; Non-Small Cell Lung Cancer; Cancer
Bezlotoxumab	Clostridium difficile Toxin B; toxB; EC 3.4.22.	Clostridium difficile Infections (Clostridium difficile Associated Disease)
Bimagrumab	Activin Receptor Type 2B; ACVR2B; EC 2.7.11.30	Type 2 Diabetes; Bone Fracture; Sarcopenia; Cachexia; Cancer Anorexia-Cachexia Syndrome; Sporadic Inclusion Body Myositis (s-IBM)

Antibody Name	Target	Related Disease, Disorder or Condition
Bimekizumab	Interleukin 17A; Cytotoxic T Lymphocyte Associated Antigen 8; CTLA8; IL17A; Interleukin 17F; Cytokine ML 1; IL17F	Ulcerative Colitis; Plaque Psoriasis (Psoriasis Vulgaris); Rheumatoid Arthritis; Ankylosing Spondylitis (Bekhterev's Disease); Psoriatic Arthritis
Bleselumab	Tumor Necrosis Factor Receptor Superfamily Member 5; B Cell Surface Antigen CD40; Bp50; CDw40; CD40L Receptor; TNFRSF5; CD40	Kidney Transplant Rejection; Plaque Psoriasis (Psoriasis Vulgaris)
Blinatumomab, Blinatumumab	B Lymphocyte Antigen CD19; B Lymphocyte Surface Antigen B4; Differentiation Antigen CD19; T Cell Surface Antigen Leu 12; CD19; T Cell Surface Glycoprotein CD3 Epsilon Chain; T Cell Surface Antigen T3/Leu 4 Epsilon Chain; CD3E; CD3	Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Extranodal Marginal Zone B-Cell Lymphoma (Mucosa-Associated Lymphoid Tissue; MALT-Lymphoma); Follicular Lymphoma; Nodal Marginal Zone B-Cell Lymphoma; Splenic Marginal Zone B-Cell Lymphoma; Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Diffuse Large B-Cell Lymphoma; B-Cell Chronic Lymphocytic Leukemia; Hairy Cell Leukemia; Mantle Cell Lymphoma;
Blontuvetmab	Beta 2 Glycoprotein 1; APC Inhibitor; Activated Protein C Binding Protein; Anticardiolipin Cofactor; Apolipoprotein H; APOH; Phosphatidylserine	Infectious Disease; Oncology
Blosozumab	Sclerostin; SOST	Post Menopausal Osteoporosis
Bococizumab	Proprotein Convertase Subtilisin/Kexin Type 9; Proprotein Convertase 9; Neural Apoptosis Regulated Convertase 1; Subtilisin/Kexin Like Protease PC9; PCSK9; EC 3.4.21.	Hyperlipidemia; Heterozygous familial hypercholesterolemia (heFH); Mixed Dyslipidemia; Atherosclerosis; Post Acute Coronary Syndrome
Brazikumab	Interleukin 23; IL23	Crohn's Disease (Regional Enteritis); Psoriasis
Brentuximab, Brentuximab vedotin	Tumor Necrosis Factor Receptor Superfamily Member 8; CD30L Receptor; Ki 1 Antigen; Lymphocyte Activation Antigen CD30; CD30; TNFRSF8	Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Mycosis Fungoides; Anaplastic Large Cell Lymphoma (ALCL); Cutaneous T-Cell Lymphoma; Mycosis Fungoides; Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); T-Cell Lymphomas; Systemic Mastocytosis; Diffuse Large B-Cell Lymphoma; Mast Cell Leukemia; Systemic Lupus Erythematosus; Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Anaplastic Large Cell Lymphoma (ALCL); Angioimmunoblastic

Antibody Name	Target	Related Disease, Disorder or Condition
		T-Cell Lymphoma (AITL)/Immunoblastic Lymphadenopathy; Diffuse Large B-Cell Lymphoma; Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Lymphoma; Mycosis Fungoides; Peripheral T-Cell Lymphomas (PTCL); Solid Tumor; T-Cell Leukemia; Malignant Mesothelioma; Graft Versus Host Disease (GVHD); Anaplastic Large Cell Lymphoma (ALCL); Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma)
Briakinumab	Interleukin 12 Subunit Beta; Cytotoxic Lymphocyte Maturation Factor 40 kDa Subunit; CLMF p40; IL12 Subunit p40 NK Cell Stimulatory Factor Chain 2; IL12B	Multiple Sclerosis; Crohn's Disease (Regional Enteritis); Plaque Psoriasis (Psoriasis Vulgaris)
Brodalumab	Interleukin 17 Receptor; IL17R	Plaque Psoriasis (Psoriasis Vulgaris); Psoriatic Arthritis; Axial Spondyloarthritis; Crohn's Disease (Regional Enteritis); Rheumatoid Arthritis; Asthma
Brolucizumab	Vascular Endothelial Growth Factor A; Vascular Permeability Factor; VEGFA	Diabetic Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Keloids; Rosacea; Kaposi Sarcoma; Glioblastoma Multiforme (GBM)
Brontictuzumab	Neurogenic Locus Notch Homolog Protein 1; Translocation Associated Notch Protein TAN 1; NOTCH1	Adenoid Cystic Carcinoma (ACC); Bile Duct Cancer (Cholangiocarcinoma); Breast Cancer; Esophageal Cancer; Gastric Cancer; Metastatic Colorectal Cancer; Pancreatic Cancer; Small-Cell Lung Cancer; Solid Tumor; Hematological Tumor
BTT-1023, Timolumab	Membrane Primary Amine Oxidase; Copper Amine Oxidase; Semicarbazide-Sensitive Amine Oxidase; Vascular Adhesion Protein 1; HPAO; AOC3; EC 1.4.3.21	Primary Sclerosing Cholangitis; Inflammatory Bowel Disease; Neurology; Psoriasis; Rheumatoid Arthritis; Plaque Psoriasis (Psoriasis Vulgaris); Rheumatoid Arthritis
Burosumab	Fibroblast Growth Factor 23; Phosphatonin; Tumor Derived Hypophosphatemia Inducing Factor; FGF23	X-Linked Hypophosphatemic Rickets; Osteomalacia
Cabiralizumab	Macrophage Colony Stimulating Factor 1 Receptor; CSF 1 Receptor; Proto Oncogene c Fms; CD115; CSF1R; EC 2.7.10.1	Pigmented Villonodular Synovitis; Tenosynovial Giant Cell Tumor; Glioblastoma Multiforme (GBM); Head and Neck Cancer Squamous Cell Carcinoma; Melanoma; Non-Small Cell Lung Cancer; Ovarian Cancer; Pancreatic Cancer; Renal Cell Carcinoma; Colorectal Cancer; Rheumatoid Arthritis

Antibody Name	Target	Related Disease, Disorder or Condition
Camrelizumab	PDCD1	Solid tumours Breast cancer Melanoma
Canakinumab	Interleukin 1 Beta; IL 1 Beta; Catabolin; IL1B	Cryopyrin-Associated Periodic Syndromes; Familial Cold Autoinflammatory Syndrome (Familial Cold Urticaria); Mevalonate Kinase Deficiency (Hyperimmunoglobulin D Syndrome (HIDS)); Muckle-Wells Syndrome; Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (Familial Hibernian Fever); Systemic Idiopathic Juvenile Arthritis; Cryopyrin-Associated Periodic Syndromes; Familial Cold Autoinflammatory Syndrome (Familial Cold Urticaria); Muckle-Wells Syndrome; Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (Familial Hibernian Fever); Familial Mediterranean Fever; Familial Cold Autoinflammatory Syndrome (Familial Cold Urticaria); Muckle-Wells Syndrome; Neonatal Onset Multisystem Inflammatory Disease; Systemic Idiopathic Juvenile Arthritis; Cryopyrin-Associated Periodic Syndromes; Familial Cold Autoinflammatory Syndrome (Familial Cold Urticaria); Muckle-Wells Syndrome; Neonatal Onset Multisystem Inflammatory Disease; Cryopyrin-Associated Periodic Syndromes; Familial Cold Autoinflammatory Syndrome (Familial Cold Urticaria); Muckle-Wells Syndrome; Neonatal Onset Multisystem Inflammatory Disease; Cryopyrin-Associated Periodic Syndromes; Familial Cold Autoinflammatory Syndrome (Familial Cold Urticaria); Muckle-Wells Syndrome; Neonatal Onset Multisystem Inflammatory Disease; Cryopyrin-Associated Periodic Syndromes; Familial Cold Autoinflammatory Syndrome (Familial Cold Urticaria); Muckle-Wells Syndrome; Gouty Arthritis (Gout); Cryopyrin-Associated Periodic Syndromes; Familial Cold Autoinflammatory Syndrome (Familial Cold Urticaria); Muckle-Wells Syndrome; Neonatal Onset Multisystem Inflammatory Disease; Cryopyrin-Associated Periodic Syndromes; Familial Cold Autoinflammatory Syndrome (Familial Cold Urticaria); Muckle-Wells Syndrome Systemic Idiopathic Juvenile Arthritis; Mevalonate Kinase

Antibody Name	Target	Related Disease, Disorder or Condition
		Deficiency (Hyperimmunoglobulin D Syndrome (HIDS)); Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (Familial Hibernian Fever); Familial Mediterranean Fever; Systemic Idiopathic Juvenile Arthritis; Cardiovascular Risk Factors; Behcet Disease; Peripheral Arterial Disease (PAD)/ Peripheral Vascular Disease (PVD); Sarcoidosis; Pain; Abdominal Aortic Aneurysms; Polymyalgia Rheumatica; Mucocutaneous Lymph Node Syndrome (Kawasaki Disease); Choroidal Neovascularization; Keratoconjunctivitis sicca (Dry Eye); Chronic Obstructive Pulmonary Disease (COPD); Vasculitis; Rheumatoid Arthritis; Type 1 Diabetes (Juvenile Diabetes); Type 2 Diabetes; Gouty Arthritis (Gout)
Cantuzumab, Cantuzumab mertansine	CanAg antigen; Mucin CanAg	Colorectal Cancer; Gastric Cancer; Non-Small Cell Lung Cancer; Pancreatic Cancer
Cantuzumab, Cantuzumab ravtansine	CanAg antigen; MUC1	Colorectal Cancer; Gastric Cancer; Gastroesophageal (GE) Junction Carcinomas; Non-Small Cell Lung Cancer; Pancreatic Cancer; Solid Tumor
Caplacizumab	Von Willebrand Factor; VWF	Thrombotic Thrombocytopenic Purpura; Acute Coronary Syndrome
Carlumab	C-C chemokine ligand 2	Inflammatory Bowel Disease; Ovarian Cancer; Solid Tumor; Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Pancreatic Cancer; Idiopathic Pulmonary Fibrosis
Catumaxomab	CD3; Epithelial Cell Adhesion Molecule; Adenocarcinoma Associated Antigen; Cell Surface Glycoprotein Trop 1; Epithelial Cell Surface Antigen; Epithelial Glycoprotein 314; KS 1/4 Antigen; KSA; Tumor Associated Calcium Signal Transducer 1; CD326; EPCAM	Ascites; Adenocarcinoma Of The Gastroesophageal Junction; Peritoneal Cancer; Epithelial Ovarian Cancer; Epithelial Tumor
Cergutuzumab, Cergutuzumab amunaleukin	Interleukin 2 Receptor; IL2R	Solid Tumor

Antibody Name	Target	Related Disease, Disorder or Condition
Certolizumab, Certolizumab pegol	Tumor Necrosis Factor; Cachectin; TNF Alpha; Tumor Necrosis Factor Ligand Superfamily Member 2; TNF a; TNF	Rheumatoid Arthritis; Ankylosing Spondylitis (Bekhterev's Disease); Axial Spondyloarthritis; Psoriatic Arthritis; Plaque Psoriasis (Psoriasis Vulgaris); Crohn's Disease (Regional Enteritis)
Cetuximab, Erbitux	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Colorectal Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Colorectal Cancer; Chronic Pain; Neuropathic Pain; Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer; Metastatic Biliary Tract Cancer; Prostate Cancer; Fallopian Tube Cancer; Metastatic Pancreatic Cancer; Ovarian Cancer; Peritoneal Cancer; Non-Small Cell Lung Cancer; Pancreatic Cancer; Metastatic Breast Cancer; Non-Small Cell Lung Cancer; Squamous Cell Carcinoma
Citatuzumab, Citatuzumab bogatox	Epithelial Cell Adhesion Molecule; Adenocarcinoma Associated Antigen; Cell Surface Glycoprotein Trop 1; Epithelial Cell Surface Antigen; Epithelial Glycoprotein 314; KS 1/4 Antigen; KSA; Tumor Associated Calcium Signal Transducer 1; CD326; EPCAM	Solid Tumor
Cixutumumab	Insulin Like Growth Factor I Receptor; CD221; IGFIR; EC 2.7.10.1	Carcinomas; Colon Cancer; Rectal Cancer; Advanced Malignancy; Ewing Sarcoma; Head and Neck Cancer Squamous Cell Carcinoma; Hepatocellular Carcinoma; Islet Cell Carcinoma (Insulinoma); Leiomyosarcoma; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Metastatic Hepatocellular Carcinoma (HCC); Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Pancreatic Cancer; Neuroendocrine Tumors; Non-Small Cell Lung Cancer; Primitive Neuroectodermal Tumor (PNET); Rhabdomyosarcoma; Sarcomas; Soft Tissue Sarcoma
Clazakizumab	Interleukin 6; B Cell Stimulatory Factor 2; BSF2; CTL Differentiation Factor; CDF;	Rheumatoid Arthritis; Psoriatic Arthritis; Fatigue; Crohn's Disease (Regional Enteritis); Oral Mucositis; Anemia; Graft

Antibody Name	Target	Related Disease, Disorder or Condition
	Hybridoma Growth Factor; Interferon Beta 2; IFNB2; IL6	Versus Host Disease (GVHD); Cancer Anorexia-Cachexia Syndrome
Clivatuzumab, Clivatuzumab tetraxetan, Yttrium (90Y) clivatuzumab tetraxetan	Mucin 1; Breast Carcinoma Associated Antigen DF3; Episialin; H23AG; Krebs Von Den Lungen 6; PEMT; Peanut Reactive Urinary Mucin; Polymorphic Epithelial Mucin; Tumor Associated Epithelial Membrane Antigen; Tumor Associated Mucin; CD227; MUC1	Metastatic Pancreatic Cancer; Pancreatic Cancer
Codrituzumab	Glypican 3; Heparan Sulphate Proteoglycan; Intestinal Protein OCI 5; GTR2 2; MXR7; GPC3	Metastatic Hepatocellular Carcinoma (HCC)
Coltuximab ravtansine	B Lymphocyte Antigen CD19; B Lymphocyte Surface Antigen B4; Differentiation Antigen CD19; T Cell Surface Antigen Leu 12; CD19	Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Diffuse Large B-Cell Lymphoma
Conatumumab	Tumor Necrosis Factor Receptor Superfamily Member 10B; Death Receptor 5; TNF Related Apoptosis Inducing Ligand Receptor 2; TRAIL Receptor 2; DR5; CD262; TNFRSF10B	Colorectal Cancer; Lymphoma; Metastatic Cancer; Metastatic Colorectal Cancer; Metastatic Pancreatic Cancer; Neuroendocrine Tumors; Non-Hodgkin Lymphoma; Non-Small Cell Lung Cancer; Sarcomas; Soft Tissue Sarcoma; Solid Tumor; Non-Small Cell Lung Cancer; Solid Tumor
Concizumab	Tissue Factor Pathway Inhibitor; Extrinsic Pathway Inhibitor; EPI; Lipoprotein Associated Coagulation Inhibitor; LACI; TFPI	Hemophilia A; Hemophilia B
Cosfroviximab	Ebolavirus glycoprotein	Ebola virus infections
Crenezumab	Amyloid Beta Peptide; A beta P; Abeta; Beta Amyloid	Alzheimer's Disease
Crizanlizumab	P Selectin; CD62 Antigen Like Family Member P; Granule Membrane Protein 140; Leukocyte Endothelial Cell Adhesion Molecule 3; LECAM3; Platelet Activation Dependent Granule External Membrane Protein; CD62P; SELP	Vaso-Occlusive Crisis Associated With Sickle Cell Disease; Sickle Cell Disease
Crotedumab	Glucagon Receptor; GL R; GCGR	Type 2 Diabetes

Antibody Name	Target	Related Disease, Disorder or Condition
Dacetuzumab	Tumor Necrosis Factor Receptor Superfamily Member 5; B Cell Surface Antigen CD40; Bp50; CDw40; CD40L Receptor; TNFRSF5; CD40	Multiple Myeloma (Kahler Disease); Chronic Lymphocytic Leukemia (CLL); Diffuse Large B-Cell Lymphoma; B-Cell Non-Hodgkin Lymphoma
Daclixumab	Interleukin 2 Receptor Subunit Alpha; TAC Antigen; p55; CD25; IL2RA	Relapsing Remitting Multiple Sclerosis (RRMS); Ulcerative Colitis; Kidney Transplant Rejection
Daclizumab	Interleukin 2 Receptor Subunit Alpha; TAC Antigen; p55; CD25; IL2RA	Relapsing Remitting Multiple Sclerosis (RRMS); Ulcerative Colitis; Kidney Transplant Rejection
Dalotuzumab	Insulin Like Growth Factor 1 Receptor; CD221; IGF1R; EC 2.7.10.1	Metastatic Breast Cancer; Pancreatic Cancer; Metastatic Colorectal Cancer; Multiple Myeloma (Kahler Disease); Neuroendocrine Tumors; Non-Small Cell Lung Cancer
Dapirolizumab, Dapirolizumab pegol	CD40 Ligand; T Cell Antigen Gp39; TNF Related Activation Protein; Tumor Necrosis Factor Ligand Superfamily Member 5; CD154; CD40LG; CD40L	Amyotrophic Lateral Sclerosis; Systemic Lupus Erythematosus
Daratumumab	ADP Ribosyl Cyclase/Cyclic ADP Ribose Hydrolase 1; Cyclic ADP Ribose Hydrolase 1; T10; 2' Phospho ADP Ribosyl Cyclase/2' Phospho Cyclic ADP Ribose Transferase; ADP Ribosyl Cyclase 1; CD38; EC 3.2.2.6; EC 2.4.99.20	Multiple Myeloma (Kahler Disease); Refractory Multiple Myeloma; Amyloidosis; Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Mantle Cell Lymphoma; Myelodysplastic Syndrome; Non-Small Cell Lung Cancer; Multiple Myeloma (Kahler Disease); Natural Killer Cell Lymphomas; Refractory Acute Myeloid Leukemia; Relapsed Acute Myeloid Leukemia; T-Cell Lymphomas; Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Chronic Lymphocytic Leukemia (CLL); Prostate Cancer
Dectrekumab	Interleukin 13; IL13;	Lymphedema; Asthma; Eosinophilic Esophagitis; Anal Fistula; Asthma; Idiopathic Pulmonary Fibrosis; Pulmonary Fibrosis; Seasonal Allergic Rhinitis
Demcizumab	Delta Like Protein 4; Delta Like Ligand 4; Drosophila Delta Homolog 4; DLL4	Fallopian Tube Cancer; Non-Small Cell Lung Cancer; Ovarian Cancer; Pancreatic Ductal Adenocarcinoma; Peritoneal Cancer; Metastatic Colorectal Cancer; Solid Tumor; Breast Cancer; Colon Cancer

Antibody Name	Target	Related Disease, Disorder or Condition
Denintuzumab, Denintuzumab mafodotin	Expressing B Lymphocyte Antigen CD19; B Lymphocyte Surface Antigen B4; Differentiation Antigen CD19; T Cell Surface Antigen Leu 12; CD19	Burkitt Lymphoma; Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); B-Cell Non-Hodgkin Lymphoma; Lymphoblastic Lymphoma; Mantle Cell Lymphoma; Follicular Lymphoma; Diffuse Large B-Cell Lymphoma
Denosumab	Tumor Necrosis Factor Ligand Superfamily Member 11; Receptor Activator Of Nuclear Factor Kappa B Ligand; Osteoclast Differentiation Factor; TNF Related Activation Induced Cytokine; Osteoprotegerin Ligand; CD254; TNFSF11	Humoral Hypercalcemia of Malignancy; Bone Metastasis; Giant Cell Tumor Of Bone; Humoral Hypercalcemia of Malignancy; Osteoporosis; Post Menopausal Osteoporosis; Chemotherapy Effects; Rheumatoid Arthritis; Osteogenesis Imperfecta; Bone Disorders; Bone Metastasis; Glucocorticoid-Induced Osteoporosis; Non-Small Cell Lung Cancer; Breast Cancer; Osteoarthritis; Metastatic Breast Cancer
Depatuxizumab, Depatuxizumab mafodotin	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Glioma; Colorectal Cancer; Glioblastoma Multiforme (GBM); Head and Neck Cancer Squamous Cell Carcinoma; Non-Small Cell Lung Cancer; Solid Tumor
Derlotuximab, Iodine (131I) derlotuximab biotin	histone complex	Glioma; Anaplastic Astrocytoma; Glioblastoma Multiforme (GBM)
Dezamizumab	Serum Amyloid Protein; SAP	Amyloidosis
Dinutuximab	Ganglioside GD2	Neuroblastoma; Osteosarcoma
Dinutuximabbeta	Ganglioside GD2	Neuroblastoma
Diridavumab	Hemagglutinin	Influenza A Virus; H5N1 Subtype Infections; Pandemic Influenza
Domagrozumab	Growth/Differentiation Factor 8; Myostatin; GDF8; MSTN	Duchenne Muscular Dystrophy; Muscular Dystrophy; Becker Muscular Dystrophy
Drozitumab, Drozituab	Tumor Necrosis Factor Receptor Superfamily Member 10B; Death Receptor 5; TNF Related Apoptosis Inducing Ligand Receptor 2; TRAIL Receptor 2; DR5; CD262; TNFRSF10B	Non-Small Cell Lung Cancer; Follicular Lymphoma; Colorectal Cancer; Lymphoma; Non-Hodgkin Lymphoma; Chondrosarcoma; Metastatic Colorectal Cancer; Cancer

Antibody Name	Target	Related Disease, Disorder or Condition
Duligotuzumab, Duligotumab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1; Receptor Tyrosine Protein Kinase ERBB 3; Proto Oncogene Like Protein c ErbB 3; Tyrosine Kinase Type Cell Surface Receptor HER3; HER3; ERBB3; EC 2.7.10.1	Non-Small Cell Lung Cancer; Epithelial Tumor; Metastatic Colorectal Cancer; Recurrent Head and Neck Cancer; Squamous Cell Carcinoma; Testicular Cancer
Dupilumab	Interleukin 4 Receptor Subunit Alpha; CD124; IL4R	Atopic Dermatitis; Nasal Polyposis; Sinusitis; Asthma; Eosinophilic Esophagitis; Food Allergy
Durvalumab	Programmed Cell Death 1 Ligand 1; PD L1; B7 Homolog 1; CD274	Bladder Cancer; Metastatic Transitional (Urothelial) Tract Cancer; Head and Neck Cancer Squamous Cell Carcinoma; Non-Small Cell Lung Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Adenocarcinoma Of The Gastroesophageal Junction; B-Cell Chronic Lymphocytic Leukemia; Diffuse Large B-Cell Lymphoma; Esophageal Cancer; Follicular Lymphoma; Gastric Cancer; Germ Cell Tumors; Glioblastoma Multiforme (GBM); Hepatocellular Carcinoma; Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Lymphoma; Malignant Pleural Mesothelioma; Mantle Cell Lymphoma; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Metastatic Renal Cell Carcinoma; Multiple Myeloma (Kahler Disease); Myelodysplastic Syndrome; Ovarian Cancer; Pancreatic Ductal Adenocarcinoma; Papillary Renal Cell Carcinoma; Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Small-Cell Lung Cancer; Ureter Cancer; Urethral Cancer; Urinary Tract Cancer; B-Cell Non-Hodgkin Lymphoma; Cervical Cancer; Endometrial Cancer; Melanoma; Metastatic Biliary Tract Cancer; Multiple Myeloma (Kahler Disease); Muscle Invasive Bladder Cancer (MIBC); Myelodysplastic Syndrome; T-Cell Lymphomas Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Mycosis Fungoides; Ovarian Cancer; Post-Essential Thrombocythemia Myelofibrosis (Post-ET MF); Post-

Antibody Name	Target	Related Disease, Disorder or Condition
		Polycythemia Vera Myelofibrosis (PPV-MF); Sezary Syndrome; Soft Tissue Sarcoma; Non-Small Cell Lung Cancer; Advanced Malignancy; Solid Tumor; Muscle Invasive Bladder Cancer (MIBC)
Dusigitumab	Insulin Like Growth Factor I; Mechano Growth Factor; Somatomedin C; IGFI; Insulin Like Growth Factor II; Somatomedin A; T3M II Derived Growth Factor; IGF2	Hormone Sensitive Breast Cancer; Metastatic Breast Cancer; Advanced Malignancy; Solid Tumor; Metastatic Hepatocellular Carcinoma (HCC)
Duvortuxizumab (JNJ-64052781)	B Lymphocyte Antigen CD19; B Lymphocyte Surface Antigen B4; Differentiation Antigen CD19; T Cell Surface Antigen Leu 12; CD19; CD3	Follicular Lymphoma; B-Cell Chronic Lymphocytic Leukemia; Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Diffuse Large B-Cell Lymphoma; Mantle Cell Lymphoma
Ecromeximab	Ganglioside GD3	Metastatic Melanoma
Eculizumab, Erlizuab	Complement C5; C3 and PZP Like Alpha 2 Macroglobulin Domain Containing Protein 4; C5	Atypical Hemolytic Uremic Syndrome (Nondiarrhea-Associated Hemolytic Uremic Syndrome); Paroxysmal Nocturnal Hemoglobinuria; Myasthenia Gravis; Neuromyelitis Optica (Devic's Syndrome); Membranoproliferative Glomerulonephritis (Mesangiocapillary Glomerulonephritis); Acquired (Autoimmune) Hemolytic Anemia; Membranoproliferative Glomerulonephritis Type II (Dense Deposit Disease); Transplant Rejection; Vasculitis; Rheumatoid Arthritis; Dermatomyositis; Dry (Atrophic) Macular Degeneration; Allergic Asthma; Kidney Transplant Rejection; Typical Hemolytic Uremic Syndrome (Shiga-Toxin Associated Hemolytic Uremic Syndrome); Atypical HUS
Efalizumab	Integrin Alpha L; CD11 Antigen Like Family Member A; Leukocyte Adhesion Glycoprotein LFA I Alpha Chain; CD11a; ITGAL	Plaque Psoriasis (Psoriasis Vulgaris); Kidney Transplant Rejection; Rheumatoid Arthritis
Efungumab	Fungal Hsp90	Candida infection

Antibody Name	Target	Related Disease, Disorder or Condition
Eldelumab	C-X-C Motif Chemokine 10; 10 kDa Interferon Gamma Induced Protein; Small Inducible Cytokine B10; Gamma IP10; CXCL10	Crohn's Disease (Regional Enteritis); Ulcerative Colitis; Rheumatoid Arthritis
Elezanumab	Repulsive Guidance Molecule-a; RGMA;	Multiple Sclerosis
Elgemtumab	Receptor Tyrosine Protein Kinase ERBB 3; Proto Oncogene Like Protein c ErbB 3; Tyrosine Kinase Type Cell Surface Receptor HER3; HER3; ERBB3; EC 2.7.10.1	Esophageal Cancer; Squamous Cell Carcinoma; Gastric Cancer; Metastatic Breast Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma
Elotuzumab	LOIXC Monoclonal antibodies	Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Multiple Myeloma (Kahler Disease)
Emactuzumab	Macrophage Colony Stimulating Factor 1 Receptor; CSF 1 Receptor; Proto Oncogene c Fms; CD115; CSF1R; EC 2.7.10.1	Pigmented Villonodular Synovitis; Bladder Cancer; Colorectal Cancer; Endometrial Cancer; Fallopian Tube Cancer; Gastric Cancer; Malignant Mesothelioma; Melanoma; Metastatic Breast Cancer; Metastatic Ovarian Cancer; Pancreatic Cancer; Soft Tissue Sarcoma; Tenosynovial Giant Cell Tumor
Emapalumab (NI-0501)	IFNG	hemophagocytic lymphohistiocytosis
Emibetuzumab	Hepatocyte Growth Factor Receptor; Proto Oncogene c Met; Tyrosine Protein Kinase Met; HGF/SF Receptor; Scatter Factor Receptor; MET; EC 2.7.10.1	Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer; Metastatic Hepatocellular Carcinoma (HCC); Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Bone Metastasis; Lymphoma; Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Uveal Melanoma; Multiple Myeloma (Kahler Disease)
Emicizumab	Coagulation Factor IX; Christmas Factor; Plasma Thromboplastin Component; F9; EC 3.4.21.22; Coagulation Factor X; Stuart Prower Factor; Stuart Factor; F10; EC 3.4.21.6	Hemophilia A
Enavatuzumab	Tumor Necrosis Factor Receptor Superfamily Member 12A; TWEAK Receptor; Fibroblast Growth Factor Inducible Immediate Early Response Protein 14; CD266; TNFRSF12A	Solid Tumor

Antibody Name	Target	Related Disease, Disorder or Condition
Enfortumab, Enfortumab vedotin	Nectin 4; Ig Superfamily Receptor LNIR; Poliovirus Receptor Related Protein 4; Nectin Cell Adhesion Molecule 4; PVRL4; NECTIN4	Metastatic Transitional (Urothelial) Tract Cancer; Non-Small Cell Lung Cancer; Metastatic Breast Cancer; Solid Tumor
Enlimomab, Enlimomab pegol	Intercellular Adhesion Molecule 1; Major Group Rhinovirus Receptor; CD54; ICAM1	Stroke
Enoblituzumab	CD276 Antigen; B7 Homolog 3; 4Ig B7 H3; Costimulatory Molecule; CD276	Bladder Cancer; Breast Cancer; Childhood Rhabdomyosarcoma; Colon Cancer; Ewing Sarcoma; Head and Neck Cancer; Head and Neck Cancer Squamous Cell Carcinoma; Malignant Mesothelioma; Metastatic Melanoma; Metastatic Transitional (Urothelial) Tract Cancer; Neuroblastoma; Non-Small Cell Lung Cancer; Osteosarcoma; Ovarian Cancer; Pancreatic Cancer; Primitive Neuroectodermal Tumor (PNET); Prostate Cancer; Renal Cell Carcinoma; Rhabdomyosarcoma; Soft Tissue Sarcoma; Squamous Non-Small Cell Lung Cancer; Thyroid Cancer; Wilms' Tumor (Nephroblastoma)
Enokizumab	Interleukin 9; Cytokine P40; T Cell Growth Factor P40; IL9	Allergic Asthma
Enoticumab	Delta Like Protein 4; Delta Like Ligand 4; Drosophila Delta Homolog 4; DLL4	Advanced Malignancy; Solid Tumor
Ensituximab	Mucin 5AC; Gastric Mucin; Lewis B Blood Group Antigen; Major Airway Glycoprotein; Tracheobronchial Mucin; MUC5AC	Metastatic Colorectal Cancer; Metastatic Pancreatic Cancer
Entolimod	Toll Like Receptor 5; Toll/Interleukin 1 Receptor Like Protein 3; TLR5	Adenoid Squamous Cell Carcinoma (Pseudoglandular Squamous Cell Carcinoma); Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Liver Cancer; Uveal Melanoma; Radiation Toxicity (Radiation Sickness; Acute Radiation Syndrome); Colorectal Cancer
Epratuzumab, Yttrium (Y90) epratuzumab tetraxetan	B Cell Receptor CD22; B Lymphocyte Cell Adhesion Molecule; Sialic Acid Binding Ig Like Lectin 2; T Cell Surface Antigen Leu 14; CD22	Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Non-Hodgkin Lymphoma; Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Waldenstrom Macroglobulinemia; Sicca Syndrome (Sjogren); Systemic Lupus Erythematosus

Antibody Name	Target	Related Disease, Disorder or Condition
Eptacog beta	Coagulation Factor VII; Proconvertin; Serum Prothrombin Conversion Accelerator; SPCA; Eptacog Alfa; F7; EC 3.4.21.21	Congenital Hemophilia A; Congenital Hemophilia B; Hemophilia
Eptinezumab	Calcitonin Gene Related Peptide; CGRP	Migraine
Erenumab	Calcitonin Gene Related Peptide Type 1 Receptor; Calcitonin Receptor Like Receptor; CALCRL	Migraine; Stable Angina; Vasomotor Symptoms of Menopause (Hot Flashes)
Ertumaxomab	Receptor Tyrosine Protein Kinase ERBB 2; Metastatic Lymph Node Gene 19 Protein; Proto Oncogene Neu; Proto Oncogene C ErbB 2; Tyrosine Kinase Type Cell Surface Receptor HER2; p185erbB2; HER2; CD340; ERBB2; EC 2.7.10.1; T Cell Surface Glycoprotein CD3 Epsilon Chain; T Cell Surface Antigen T3/Leu 4 Epsilon Chain; CD3E	Solid Tumor
Etaracizumab	Integrin Alpha V; Vitronectin Receptor Subunit Alpha; CD51; ITGAV; Integrin Beta 3; Platelet Membrane Glycoprotein IIIa; CD61; ITGB3	Colorectal Cancer; Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Melanoma; Psoriasis; Rheumatoid Arthritis
Etrolizumab, Etrolizuab	Integrin Beta 7; Gut Homing Receptor Beta Subunit; ITGB7; integrin $\alpha 7\ \beta 7$	Hemophilia A; Hemophilia B; Crohn's Disease (Regional Enteritis); Ulcerative Colitis; Inflammatory Bowel Disease
Evinacumab	Angiopoietin Related Protein 3; Angiopoietin 5; Angiopoietin Like Protein 3; ANG 5; ANGPTL3	Homozygous Familial Hypercholesterolemia (HoFH); Hyperlipidemia
Evolocumab	Proprotein Convertase Subtilisin/Kexin Type 9; Proprotein Convertase 9; Neural Apoptosis Regulated Convertase 1; Subtilisin/Kexin Like Protease PC9; PCSK9; EC 3.4.21.	Familial Hypercholesterolemia (Type II Hyperlipoproteinemia); Hypercholesterolemia Atherosclerosis Heterozygous familial hypercholesterolemia (heFH); Homozygous Familial Hypercholesterolemia (HoFH); Hypercholesterolemia
Exbivirumab	Hepatitis B Virus Surface Antigen; HBsAg	Hepatitis B
Exenatide	Glucagon Like Peptide 1 Receptor; GLP1R	Obesity; Type 2 Diabetes
Faralimomab	Interferon Alpha/Beta Receptor 1; Cytokine Receptor Class II Member 1; Cytokine Receptor Family 2 Member 1; Type 1 Interferon Receptor 1; IFNAR1	Rheumatoid Arthritis; Systemic Lupus Erythematosus

Antibody Name	Target	Related Disease, Disorder or Condition
Farletuzumab	Folate Receptor Alpha; Adult Folate Binding Protein; Folate Receptor 1; KB Cells FBP; Ovarian Tumor Associated Antigen MOv18; FOLR1	Lung Adenocarcinoma; Ovarian Cancer; Pituitary Tumor
Fasinumab	Beta Nerve Growth Factor; Beta NGF; NGF	Low Back Pain; Osteoarthritis Pain; Chronic Pancreatitis Pain; Sciatic Pain; Vertebral Fracture Pain
Ferritizumab	Ferritin	Non-Small Cell Lung Cancer; Pancreatic Cancer
Fezakinumab	Interleukin 22; Cytokine Zcyto18; IL 10 Related T Cell Derived Inducible Factor; IL22	Psoriasis; Rheumatoid Arthritis
FG-3019, Pamrevlumab	Connective Tissue Growth Factor; CCN Family Member 2; Hypertrophic Chondrocyte Specific Protein 24; Insulin Like Growth Factor Binding Protein 8; IGFBP8; CTGF	Duchenne Muscular Dystrophy; Pancreatic Ductal Adenocarcinoma; Idiopathic Pulmonary Fibrosis; Liver Fibrosis; Focal Segmental Glomerulosclerosis (FSGS); Microalbuminuria; Proteinuria; Systemic Sclerosis (Scleroderma); Diabetic Nephropathy; Type 1 Diabetes (Juvenile Diabetes); Type 2 Diabetes
Fibatuzumab	EPHA3; ephrin receptor A3	Glioblastoma Multiforme (GBM); Solid Tumor; Myelofibrosis; Myelodysplastic Syndrome; Multiple Myeloma (Kahler Disease); Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Chronic Lymphocytic Leukemia (CLL); Chronic Myelocytic Leukemia (CML; Chronic Myeloid Leukemia); Myeloproliferative Disorders
Ficlatuzumab	Hepatocyte Growth Factor Receptor; Proto Oncogene c Met; Tyrosine Protein Kinase Met; HGF/SF Receptor; Scatter Factor Receptor; MET; EC 2.7.10.1	Nasopharyngeal Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Refractory Acute Myeloid Leukemia; Relapsed Acute Myeloid Leukemia; Esophageal Cancer; Gastric Cancer; Head and Neck Cancer Squamous Cell Carcinoma; Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Hypopharyngeal Cancer; Laryngeal Cancer; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Metastatic Pancreatic Cancer; Multiple Myeloma (Kahler Disease); Non-Hodgkin Lymphoma; Oral Cavity (Mouth) Cancer; Oropharyngeal Cancer; Non-Small Cell Lung Cancer
Figitumumab	Insulin Like Growth Factor 1 Receptor; CD221; IGF1R; EC 2.7.10.1	Adenocarcinoma; Breast Cancer; Colon Cancer; Multiple Myeloma (Kahler Disease); Rectal Cancer; Breast Cancer;

Antibody Name	Target	Related Disease, Disorder or Condition
		Ewing Sarcoma; Gastrointestinal Tract Cancer; Hormone-Sensitive Prostate Cancer; Non-Small Cell Lung Cancer; Small-Cell Lung Cancer; Urinary Tract Cancer
Firivumab	Hemagglutinin	Unspecified Influenza Virus Infections
Flanvotumab	5,6 Dihydroxyindole 2 Carboxylic Acid Oxidase; Glycoprotein 75; Melanoma Antigen gp75; Tyrosinase Related Protein 1; Catalase B; TYRP1; EC 1.14.18.	Melanoma
Fletikumab	Interleukin 20; Cytokine Zcytol0; IL20	Psoriasis; Rheumatoid Arthritis
Fontolizumab	Interferon Gamma; Immune Interferon; IFNG	Colitis; Crohn's Disease (Regional Enteritis); Rheumatoid Arthritis
Foralumab	T Cell Surface Glycoprotein CD3 Epsilon Chain; T Cell Surface Antigen T3/Leu 4 Epsilon Chain; CD3E	Crohn's Disease (Regional Enteritis); Autoimmune Disorders; Kidney Transplant Rejection; Inflammatory Bowel Disease; Non-Alcoholic Steatohepatitis; Type 1 Diabetes (Juvenile Diabetes)
Foravirumab	Rabies Virus Glycoprotein	Rabies
Fremanezumab	Calcitonin Gene Related Peptide; CGRP	Cluster Headache Syndrome; Migraine; Vasomotor Symptoms of Menopause (Hot Flashes)
Fresolimumab	Transforming Growth Factor Beta 1; TGFB1; Transforming Growth Factor Beta 2; BSC1 Cell Growth Inhibitor; Cetermin; Glioblastoma Derived T Cell Suppressor Factor; Polyergin; TGFB2; Transforming Growth Factor Beta 3; TGFB3	Non-Small Cell Lung Cancer; Osteogenesis Imperfecta; Glioma; Melanoma; Renal Cell Carcinoma; Solid Tumor; Idiopathic Pulmonary Fibrosis; Focal Segmental Glomerulosclerosis (FSGS)
Frunevetmab	Mus musculus nerve growth factor; Felis catus-Rattus norvegicus monoclonal NV-02 heavy chain; disulfide with Felis catus-Rattus norvegicus monoclonal NV-02 light chain; dimer	Control of Osteoarthritis Pain in Cats
Fulranumab	Beta Nerve Growth Factor; Beta NGF; NGF	Pain; Chronic Visceral Pain; Diabetic Neuropathic Pain; Low Back Pain; Postherpetic Neuralgia; Interstitial Cystitis (Painful Bladder Syndrome); Cancer Pain; Osteoarthritis Pain

Antibody Name	Target	Related Disease, Disorder or Condition
Futuximab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Glioblastoma Multiforme (GBM); Metastatic Colorectal Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Squamous Non-Small Cell Lung Cancer; Esophageal Cancer; Solid Tumor
Galcanezumab	Calcitonin Gene Related Peptide; CGRP	Cluster Headache Syndrome; Migraine; Osteoarthritis Pain
Galiximab, Goilixiab	T Lymphocyte Activation Antigen CD80; Activation B7-1 Antigen; CTLA 4 Counter Receptor B7.1; CD80	Autoimmune Disorders; Inflammation; Psoriasis; Rheumatoid Arthritis; Follicular Lymphoma; B-cell Lymphoma
Ganitumab	Insulin Like Growth Factor 1 Receptor; CD221; IGFIR; EC 2.7.10.1	Breast Cancer; Neuroendocrine Tumors; Ovarian Cancer; Ewing Sarcoma; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Non-Hodgkin Lymphoma; Small-Cell Lung Cancer; Soft Tissue Sarcoma; Squamous Non-Small Cell Lung Cancer; Metastatic Adenocarcinoma of The Pancreas; Metastatic Pancreatic Cancer
Gantenerumab	Amyloid Beta Peptide; A beta P; Abeta; Beta Amyloid	Alzheimer's Disease
Gatipotuzumab	Homo sapiens MUC1; mucin 1; polymorphic epithelial mucin; PEM; episialin; CD227 tumor antigen TA-MUC1 conformational epitope O-glycosylated on the threonine of the immunodominant PDTRP motif of the tandem repeats	
Gavilimomab	Basigin; Collagenase Stimulatory Factor; Extracellular Matrix Metalloproteinase Inducer; Leukocyte Activation Antigen M6; OK Blood Group Antigen; Tumor Cell Derived Collagenase Stimulatory Factor; CD147; BSG	Graft Versus Host Disease (GVHD)
Gedivumab	Influenza A virus hemagglutinin HA	Influenza disease;
Gemetuzumab, Gemtuzumab ozogamicin, Gemtuzumab	Myeloid Cell Surface Antigen CD33; Sialic Acid Binding Ig Like Lectin 3; gp67; CD33	Acute Myelocytic Leukemia (AML)

Antibody Name	Target	Related Disease, Disorder or Condition
Gerilimzumab	Interleukin 6; B Cell Stimulatory Factor 2; BSF2; CTL Differentiation Factor; CDF; Hybridoma Growth Factor; Interferon Beta 2; IFNB2; IL6	Autoimmune Disorders; Inflammation; Rheumatoid Arthritis
Gevokizumab	Interleukin 1 Beta; IL 1 Beta; Catabolin; IL1B	Acute Coronary Syndrome; Behcet Disease; Giant Cell Arteritis; Schnitzler Syndrome; Dermatomyositis; Polymyositis; Uveitis; Behcet Disease; Acne Vulgaris; Skin Inflammation; Autoimmune Disorders; Rheumatoid Arthritis; Diabetic Nephropathy; Type 2 Diabetes; Type 1 Diabetes (Juvenile Diabetes); Gouty Arthritis (Gout); Osteoarthritis; Systemic Idiopathic Juvenile Arthritis; Multiple Myeloma (Kahler Disease); Anterior Uveitis; Intermediate Uveitis; Posterior Uveitis; Uveitis; Scleritis
Gilvetmab	Canis familiaris PDCD1	Antineoplastic; Immunotherapy (Veterinary)
Gimsilumab	Granulocyte Macrophage Colony Stimulating Factor; GMCSF; Colony Stimulating Factor; CSF; Molgramostin; Sargramostim; CSF2	Rheumatoid Arthritis
Girentuximab, Iodine (124I) girentuximab	Carbonic Anhydrase 9; Carbonate Dehydratase IX; pMW1; Membrane Antigen MN; P54/58N; Renal Cell Carcinoma Associated Antigen G250; CA9; EC 4.2.1.1; CA-IX	Renal Cell Carcinoma
Glembatumumab vedotin	Transmembrane Glycoprotein NMB; Transmembrane Glycoprotein HGFIN; GPNMB	Lung Cancer; Osteosarcoma; Metastatic Uveal Melanoma; Metastatic Breast Cancer; Metastatic Melanoma; Squamous Non-Small Cell Lung Cancer
Glunomab	Glutamate Receptor Ionotropic NMDA 1; Glutamate [NMDA] Receptor Subunit Zeta 1; N Methyl D Aspartate Receptor Subunit NR1; GRIN1	Multiple Sclerosis
Golimumab	Tumor Necrosis Factor; Cachectin; TNF Alpha; Tumor Necrosis Factor Ligand Superfamily Member 2; TNF a; TNF	Ulcerative Colitis; Ankylosing Spondylitis (Bekhterev's Disease); Axial Spondyloarthritis; Psoriatic Arthritis; Rheumatoid Arthritis; Ankylosing Spondylitis (Bekhterev's Disease); Psoriatic Arthritis; Systemic Idiopathic Juvenile Arthritis; Type 1 Diabetes (Juvenile Diabetes); Sarcoidosis;

Antibody Name	Target	Related Disease, Disorder or Condition
		Systemic Idiopathic Juvenile Arthritis; Anterior Uveitis; Posterior Uveitis; Asthma
Guselkumab	Interleukin 23 Subunit Alpha; Interleukin 23 Subunit p19; IL23A	Plaque Psoriasis (Psoriasis Vulgaris); Psoriatic Arthritis; Rheumatoid Arthritis
HuMab 10F8	IL8	Inflammatory bowel disease and asthma
HuMab LC5002-002	Interleukin 13	Asthma; Atopic Dermatitis; Idiopathic Pulmonary Fibrosis; Pulmonary Fibrosis; Seasonal Allergic Rhinitis; Lymphedema; Ulcerative Colitis; Systemic Sclerosis (Scleroderma); Allergies
HuMab LC5002-003	Interleukin 13	Asthma; Atopic Dermatitis; Idiopathic Pulmonary Fibrosis; Pulmonary Fibrosis; Seasonal Allergic Rhinitis; Lymphedema; Ulcerative Colitis; Systemic Sclerosis (Scleroderma); Allergies
HuMab LC5002-005	Interleukin 13	Asthma; Atopic Dermatitis; Idiopathic Pulmonary Fibrosis; Pulmonary Fibrosis; Seasonal Allergic Rhinitis; Lymphedema; Ulcerative Colitis; Systemic Sclerosis (Scleroderma); Allergies
HuMab LC5002-007	Interleukin 13	Asthma; Atopic Dermatitis; Idiopathic Pulmonary Fibrosis; Pulmonary Fibrosis; Seasonal Allergic Rhinitis; Lymphedema; Ulcerative Colitis; Systemic Sclerosis (Scleroderma); Allergies
HuMab LC5002-018	Interleukin 13	Asthma; Atopic Dermatitis; Idiopathic Pulmonary Fibrosis; Pulmonary Fibrosis; Seasonal Allergic Rhinitis; Lymphedema; Ulcerative Colitis; Systemic Sclerosis (Scleroderma); Allergies
HuMab-7D8	CD20	Diseases associated with CD20 (including tumor-related diseases) and immune diseases (including autoimmune diseases)
huMAb-anti-MSP10.1	merozoite surface protein 10; MSP-10	Malaria; Plasmodium associate Diseases
huMAb-anti-MSP10.2	merozoite surface protein 10; MSP-10	Malaria; Plasmodium associate Diseases
HuMab-L612	Ganglioside GM3	metastatic melanoma
Ibalizumab	T Cell Surface Glycoprotein CD4; T Cell Surface Antigen T4/Leu 3; CD4	Human Immunodeficiency Virus (HIV) Infections (AIDS)

Antibody Name	Target	Related Disease, Disorder or Condition
Ibritumomab, Ibritumomab tiuxetan	B Lymphocyte Antigen CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	Acute Lymphocytic Leukemia (ALL); Acute Myelocytic Leukemia (AML); Chronic Lymphocytic Leukemia (CLL); Chronic Myelocytic Leukemia (CML); Multiple Myeloma (Kahler Disease); Myeloproliferative Disorders; Colorectal Cancer; Gastric Cancer; Melanoma; Prostate Cancer; Myelodysplastic Syndrome; Myelofibrosis; Glioblastoma Multiforme (GBM); Solid Tumor; non-Hodgkin's Lymphoma
Icrucumab	Vascular Endothelial Growth Factor Receptor 1; Fms Like Tyrosine Kinase 1; Tyrosine Protein Kinase Receptor FLT; Tyrosine Protein Kinase FRT; Vascular Permeability Factor Receptor; VEGFR1; FLT1; EC 2.7.10.1	Metastatic Breast Cancer; Metastatic Colorectal Cancer; Transitional Cell Carcinoma (Urothelial Cell Carcinoma)
Idarucizumab	Dabigatran; Pradaxa®	Bleeding and Clotting Disorders
Ifabotuzumab	CD22	Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Chronic Lymphocytic Leukemia (CLL); Chronic Myelocytic Leukemia (CML; Chronic Myeloid Leukemia); Multiple Myeloma (Kahler Disease); Myeloproliferative Disorders; Colorectal Cancer; Gastric Cancer; Melanoma; Prostate Cancer; Myelodysplastic Syndrome; Myelofibrosis; Glioblastoma Multiforme (GBM); Solid Tumor
IGF-IR HUMAB-1A	Soluble extracellular domain of IGF-IR.	Tumor; Cancer
IGF-IR HUMAB-23	Soluble extracellular domain of IGF-IR.	Tumor; Cancer
IGF-IR HUMAB-8	Soluble extracellular domain of IGF-IR.	Tumor; Cancer
ImAb1	IDH1R132H	Glioma
Imalumab	Macrophage Migration Inhibitory Factor; Glycosylation Inhibiting Factor; L Dopachrome Isomerase; L Dopachrome Tautomerase; Phenylpyruvate Tautomerase; MIF; EC 5.3.2.1; EC 5.3.3.12	Metastatic Colorectal Cancer; Solid Tumor; Septic Shock; Multiple Sclerosis; Colitis; Glomerulonephritis; Lupus Nephritis; Diabetes; Arthritis; Malignant Ascites
Imgatuzumab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Colorectal Cancer; Non-Small Cell Lung Cancer; Solid Tumor

Antibody Name	Target	Related Disease, Disorder or Condition
Inclacumab	P Selectin; CD62 Antigen Like Family Member P; Granule Membrane Protein 140; Leukocyte Endothelial Cell Adhesion Molecule 3; LECAM3; Platelet Activation Dependent Granule External Membrane Protein; CD62P; SELP Inhibitor	Peripheral Arterial Disease (PAD)/ Peripheral Vascular Disease (PVD); Acute Coronary Syndrome; Myocardial Infarction; Percutaneous Coronary Intervention
Indatuximab, Indatuximab ravtansine	Syndecan 1; CD138; SDC1	Lung Cancer; Prostate Cancer; Head and Neck Cancer; Pancreatic Cancer; Breast Cancer; Bladder Cancer; Refractory Multiple Myeloma; Relapsed Multiple Myeloma
Indusatumab, Indusatumab vedotin	Heat Stable Enterotoxin Receptor; Guanylyl Cyclase C; or Intestinal Guanylate Cyclase; GUCY2C; EC 4.6.1.2	Metastatic Colorectal Cancer; Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer; Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer; Metastatic Adenocarcinoma of The Pancreas
Inebilizumab	Central Nervous System	Progressive Relapsing Multiple Sclerosis (PRMS); Relapsing Remitting Multiple Sclerosis (RRMS); Secondary Progressive Multiple Sclerosis (SPMS); Neuromyelitis Optica (Devic's Syndrome); Follicular Lymphoma; Mantle Cell Lymphoma; Non-Hodgkin Lymphoma; Follicular Lymphoma; Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Multiple Myeloma (Kahler Disease); Systemic Sclerosis (Scleroderma); Diffuse Large B-Cell Lymphoma; Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Chronic Lymphocytic Leukemia (CLL)
Infliximab	Tumor Necrosis Factor; Cachectin; TNF Alpha; Tumor Necrosis Factor Ligand Superfamily Member 2; TNF a; TNF; TNFa	Crohn's Disease (Regional Enteritis); Ulcerative Colitis Plaque Psoriasis (Psoriasis Vulgaris); Psoriasis; Rheumatoid Arthritis Ankylosing Spondylitis (Bekhterev's Disease); Psoriatic Arthritis Behcet Disease Crohn's Disease (Regional Enteritis); Ulcerative Colitis Mucocutaneous Lymph Node Syndrome (Kawasaki Disease); Plaque Psoriasis (Psoriasis Vulgaris); Psoriasis; Rheumatoid Arthritis Giant Cell Arteritis Juvenile Rheumatoid Arthritis; Sarcoidosis Cancer Anorexia-Cachexia Syndrome Hepatitis C; Autoimmune Disease
Inolimomab	Interleukin 2 Receptor Subunit Alpha; TAC Antigen; p55; CD25; IL2RA	Graft Versus Host Disease (GVHD)

Antibody Name	Target	Related Disease, Disorder or Condition
Insulin peglispro	Insulin Receptor; IR; CD220; INSR; EC 2.7.10.1	Type 1 Diabetes (Juvenile Diabetes); Type 2 Diabetes
Interferon beta-1b	Interferon Alpha/Beta Receptor 1; Cytokine Receptor Class II Member 1; Cytokine Receptor Family 2 Member 1; Type I Interferon Receptor 1; IFNAR1; Interferon Alpha/Beta Receptor 2; Interferon Alpha Binding Protein; Type I Interferon Receptor 2; IFNAR2	Alopecia; Demyelinating Diseases; Multiple Sclerosis; Relapsing Remitting Multiple Sclerosis (RRMS); Secondary Progressive Multiple Sclerosis (SPMS)
Intetumumab	Integrin Alpha V; Vitronectin Receptor Subunit Alpha; CD51; ITGAV; Integrin Beta 1; Fibronectin Receptor Subunit Beta; Glycoprotein IIa; VLA 4 Subunit Beta; CD29; ITGB1; Integrin Beta 3; Platelet Membrane Glycoprotein IIIa; CD61; ITGB3; Integrin Beta 5; ITGB5; Integrin Beta 6; ITGB6	Angiosarcoma; Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Melanoma; Melanoma
Ipilimumab	Cytotoxic T Lymphocyte Protein 4; Cytotoxic T Lymphocyte Associated Antigen 4; CD152; CTLA4	Metastatic Melanoma; Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer Adenocarcinoma Of The Gastroesophageal Junction; Adrenal Gland Cancer; Gastric Cancer; Metastatic Liver Cancer; Metastatic Lung Cancer; Ovarian Cancer; Skin Cancer Chronic Myelocytic Leukemia (CML; Chronic Myeloid Leukemia); Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Non-Hodgkin Lymphoma; Refractory Multiple Myeloma; Relapsed Multiple Myeloma Adenocarcinoma; Breast Cancer; Metastatic Adenocarcinoma of The Pancreas; Transitional Cell Cancer (Urothelial Cell Cancer); Metastatic Hormone Refractory (Castration Resistant; androgen-Independent); Prostate Cancer
Iratumumab	Tumor Necrosis Factor Receptor Superfamily Member 8; CD30L Receptor; Ki 1 Antigen; Lymphocyte Activation Antigen CD30; CD30; TNFRSF8	Anaplastic Large Cell Lymphoma (ALCL); Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma)

Antibody Name	Target	Related Disease, Disorder or Condition
Isatuximab	ADP Ribosyl Cyclase/Cyclic ADP Ribose Hydrolase 1; Cyclic ADP Ribose Hydrolase 1; T10; 2' Phospho ADP Ribosyl Cyclase/2' Phospho Cyclic ADP Ribose Transferase; ADP Ribosyl Cyclase 1; CD38; EC 3.2.2.6; EC 2.4.99.20	Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Multiple Myeloma (Kahler Disease); Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); B-Cell Non-Hodgkin Lymphoma; Chronic Lymphocytic Leukemia (CLL)
Itolizumab	T Cell Differentiation Antigen CD6; T12; TP120; CD6	Plaque Psoriasis (Psoriasis Vulgaris); Arthritis; Relapsing Remitting Multiple Sclerosis (RRMS); Rheumatoid Arthritis; Vitiligo; Psoriatic Arthritis
Ixekizumab	Interleukin 17A; Cytotoxic T Lymphocyte Associated Antigen 8; CTLA8; IL17A	Ankylosing Spondylitis (Bekhterev's Disease); Rheumatoid Arthritis; Plaque Psoriasis (Psoriasis Vulgaris); Psoriatic Arthritis; Axial Spondyloarthritis
Labetuzumab, Labetuzumab govitecan	Carcinoembryonic Antigen Related Cell Adhesion Molecule 5; Carcinoembryonic Antigen; CEA; Meconium Antigen 100; CD66e; CEACAM5	Ovarian Cancer; Small-Cell Lung Cancer; Metastatic Colorectal Cancer; Colorectal Cancer
Lacnotuzumab	Macrophage Colony Stimulating Factor 1 Receptor; CSF 1 Receptor; Proto Oncogene c Fms; CD115; CSF1R; EC 2.7.10.1	Pigmented Villonodular Synovitis; Tenosynovial Giant Cell Tumor; Glioblastoma Multiforme (GBM); Head and Neck Cancer Squamous Cell Carcinoma; Melanoma; Non-Small Cell Lung Cancer; Ovarian Cancer; Pancreatic Cancer; Renal Cell Carcinoma; Colorectal Cancer; Rheumatoid Arthritis
Lampalizumab	Complement Factor D; C3 Convertase Activator; Adipsin; Properdin Factor D; CFD; EC 3.4.21.46	Dry (Atrophic) Macular Degeneration
Lanadelumab	Kallikrein; EC 3.4.21.	Diabetic Macular Edema; Hereditary Angioedema (HAE) (C1 Esterase Inhibitor [C1-INH] Deficiency)
Landogrozumab	Growth/Differentiation Factor 8; Myostatin; GDF8; MSTN	Cancer Anorexia-Cachexia Syndrome; Muscle Atrophy
Laprituximab, Laprituximab emtansine	EGFR; epidermal growth factor receptor	
Larcaviximab	Ebolavirus glycoprotein	Ebola virus infections

Antibody Name	Target	Related Disease, Disorder or Condition
Lebrikizumab	Interleukin 13; IL13	Idiopathic Pulmonary Fibrosis; Atopic Dermatitis; Chronic Obstructive Pulmonary Disease (COPD); Idiopathic Pulmonary Fibrosis; Asthma
Lendalizumab	Complement 5; Anaphylatoxine; C5a; C5 Pr678-751];.	
Lenercept	Tumor Necrosis Factor Receptor Superfamily Member 1A; Tumor Necrosis Factor Receptor 1; Tumor Necrosis Factor Receptor Type 1; p55; p60; CD120a; TNFRSF1A	Septic Shock; Multiple Sclerosis; Rheumatoid Arthritis; Sepsis;
Lenzilumab	Granulocyte Macrophage Colony Stimulating Factor; GMCSF; Colony Stimulating Factor; CSF; Molgramostin; Sargramostim; CSF2	Leukemias Multiple Sclerosis Psoriasis Bone Cancer; Juvenile Myelomonocytic Leukemia (JMML) Chronic Obstructive Pulmonary Disease (COPD) Rheumatoid Arthritis Asthma
Lerdelimumab	Transforming Growth Factor Beta 2; BSCI Cell Growth Inhibitor; Cetermin; Glioblastoma Derived T Cell Suppressor Factor; Polyergin; TGFB2	Glaucoma Drainage Surgery
Lesofavumab	Influenza B virus hemagglutinin HA	Infectious Disease
Letolizumab	CD40 Ligand; T Cell Antigen Gp39; TNF Related Activation Protein; Tumor Necrosis Factor Ligand Superfamily Member 5; CD154; CD40LG	Idiopathic Thrombocytopenic Purpura (Immune Thrombocytopenic Purpura)
Lexatumumab	Tumor Necrosis Factor Receptor Superfamily Member 10B; Death Receptor 5; TNF Related Apoptosis Inducing Ligand Receptor 2; TRAIL Receptor 2; DR5; CD262; TNFRSF10B	Solid Tumor
Libivirumab	Hepatitis B Virus Surface Antigen; HBsAg	Hepatitis B
Lifastuzumab, Lifastuzumab vedotin	Sodium Dependent Phosphate Transport Protein 2B; Sodium Phosphate Transport Protein 2B; NaPi3b; Sodium/Phosphate Cotransporter 2B; NaPi 2b; Solute Carrier Family 34 Member 2; SLC34A2; phosphate-sodium co-transporter	Non-Small Cell Lung Cancer; Ovarian Cancer
Ligelizumab	Immunoglobulin E; IgE	Allergic Asthma; Chronic Urticaria; Hives; Atopic Dermatitis; Bullous Pemphigoid

Antibody Name	Target	Related Disease, Disorder or Condition
Lilotomab, Betalutin, Lutetium (177Lu) Lilotomab satetraxetan	Leukocyte Antigen CD37; Tetraspanin 26; CD37	Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Mantle Cell Lymphoma; Marginal Zone B-cell Lymphoma
Lintuzumab, Actimab-A	Myeloid Cell Surface Antigen CD33; Sialic Acid Binding Ig Like Lectin 3; gp67; CD33	Refractory Acute Myeloid Leukemia; Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Relapsed Acute Myeloid Leukemia
Lirilumab	Killer Cell Immunoglobulin Like Receptor 2DL1; CD158 Antigen Like Family Member A; MHC Class I NK Cell Receptor; CD158a; KIR2DL1 Antagonist; Killer Cell Immunoglobulin Like Receptor 2DL2; CD158 Antigen Like Family Member B1; MHC Class I NK Cell Receptor; Natural Killer Associated Transcript 6; CD158b1; KIR2DL2 Antagonist; Killer Cell Immunoglobulin Like Receptor 2DL3; MHC Class I NK Cell Receptor; Killer Inhibitory Receptor cl 2-3; Natural Killer Associated Transcript 2; CD158b2; KIR2DL3 Antagonist	Chronic Lymphocytic Leukemia (CLL); Gastrointestinal Tract Cancer; Head and Neck Cancer Squamous Cell Carcinoma; Hepatocellular Carcinoma; Melanoma; Myelodysplastic Syndrome; Non-Small Cell Lung Cancer; Refractory Acute Myeloid Leukemia; Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Acute Myeloid Leukemia; Relapsed Chronic Lymphocytic Leukemia (CLL); Chronic Myelocytic Leukemia (CML; Chronic Myeloid Leukemia); Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Non-Hodgkin Lymphoma; Refractory Multiple Myeloma; Relapsed Multiple Myeloma
Lodelcizumab	Proprotein Convertase Subtilisin/Kexin Type 9; Proprotein Convertase 9; Neural Apoptosis Regulated Convertase 1; Subtilisin/Kexin Like Protease PC9; PCSK9; EC 3.4.21.	Bacterial Sepsis; Inflammation; Hypercholesterolemia
Lokivetmab	Interleukin 31	canine atopic dermatitis
Lorvotuzumab, Lorvotuzumab mertansine	Neural Cell Adhesion Molecule 1; Antigen Recognized By Monoclonal Antibody 5.1H11; CD56; NCAM1	Ovarian Cancer; Non-Small Cell Lung Cancer; Skin Cancer; Neuroendocrine Tumors; Small-Cell Lung Cancer; Neuroendocrine Carcinoma; Refractory Multiple Myeloma; Relapsed Multiple Myeloma
Losatuxizumab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Colorectal Cancer; Non-Small Cell Lung Cancer; Solid Tumor
Lpathomab	Lysophosphatidic Acid; LPA	Neuropathic Pain; Traumatic Brain Injury; Chronic Pain; Postherpetic Neuralgia; Spinal Cord Injury Kidney Fibrosis

Antibody Name	Target	Related Disease, Disorder or Condition
		Diabetic Neuropathy Pulmonary Fibrosis Chemotherapy Induced Peripheral Neuropathy Wet (Neovascular / Exudative) Macular Degeneration
Lucatumumab	CD40 Ligand; T Cell Antigen Gp39; TNF Related Activation Protein; Tumor Necrosis Factor Ligand Superfamily Member 5; CD154; CD40LG; Tumor Necrosis Factor Receptor Superfamily Member 5; B Cell Surface Antigen CD40; Bp50; CDw40; CD40L Receptor; TNFRSF5; CD40	Follicular Lymphoma; Hematological Tumor; Multiple Myeloma (Kahler Disease); Non-Hodgkin Lymphoma; Chronic Lymphocytic Leukemia (CLL); Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma)
Lulizumab	T Cell Specific Surface Glycoprotein CD28; TP44; CD28	Sicca Syndrome (Sjogren); Systemic Lupus Erythematosus
Lulizumab pegol	T Cell Specific Surface Glycoprotein CD28; TP44; CD28	Sicca Syndrome (Sjogren); Systemic Lupus Erythematosus
Lumiliximab	Low Affinity Immunoglobulin Epsilon Fc Receptor; BLAST 2; C Type Lectin Domain Family 4 Member J; Fc Epsilon RII; Immunoglobulin E Binding Factor; Lymphocyte IgE Receptor; CD23; FCER2	Atopic Dermatitis Chronic Lymphocytic Leukemia (CLL) Allergic Asthma Allergic Rhinitis
Lumretuzumab	Receptor Tyrosine Protein Kinase ERBB 3; Proto Oncogene Like Protein c ErbB 3; Tyrosine Kinase Type Cell Surface Receptor HER3; HER3; ERBB3; EC 2.7.10.1	Metastatic Breast Cancer; Non-Small Cell Lung Cancer; Squamous Non-Small Cell Lung Cancer;; Colorectal Cancer; Head and Neck Cancer Squamous Cell Carcinoma; Non-Small Cell Lung Cancer
Lupartumab	HUMAN GPI-ANCHORED CELL SURFACE-ASSOCIATED PROTEIN C4.4A	Neoplastics
Lutikizumab	IL1A; interleukin 1 alpha and interleukin 1 beta; IL1B	Osteoarthritis (OA)
Mapatumumab	Tumor Necrosis Factor Receptor Superfamily Member 10A; Death Receptor 4; TNF Related Apoptosis Inducing Ligand Receptor 1; TRAIL Receptor 1; DR4; CD261; TNFRSF10A	Hepatocellular Carcinoma; Cervical Cancer; Non-Hodgkin Lymphoma; Non-Small Cell Lung Cancer; Refractory Multiple Myeloma; Relapsed Multiple Myeloma

Antibody Name	Target	Related Disease, Disorder or Condition
Margetuximab	Receptor Tyrosine Protein Kinase ERBB 2; Metastatic Lymph Node Gene 19 Protein; Proto Oncogene Neu; Proto Oncogene C ErbB 2; Tyrosine Kinase Type Cell Surface Receptor HER2; p185erbB2; HER2; CD340; ERBB2; EC 2.7.10.1	Metastatic Breast Cancer; Breast Cancer; Gastric Cancer; Gastroesophageal (GE) Junction Carcinomas; Colorectal Cancer; Esophageal Cancer; Head and Neck Cancer; Hepatocellular Carcinoma; Cervical Cancer; Non-Hodgkin Lymphoma; Non-Small Cell Lung Cancer; Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Solid Tumor
Marzeptacog alfa	Coagulation Factor VII; Proconvertin; Serum Prothrombin Conversion Accelerator; SPCA; Eptacog Alfa; F7; EC 3.4.21.21	Hemophilia A; Hemophilia B
Matuzumab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Lung Cancer; Ovarian Cancer; Non-Small Cell Lung Cancer; Non-Small Cell Lung Cancer; Esophageal Cancer; Gastric Cancer; Metastatic Colorectal Cancer
Mavrilimumab	Granulocyte Colony Stimulating Factor Receptor; CD114; GCSFR; CSF3R	Rheumatoid Arthritis
MDX-1303, Valortim	Anthrax Protective Antigen; pa	Anthrax
Mepolizumab	Interleukin 5; Eosinophil Differentiation Factor; B Cell Differentiation Factor I; T Cell Replacing Factor; IL5	Hypereosinophilic Syndrome; Nasal Polyps; Atopic Dermatitis; Asthma; Chronic Obstructive Pulmonary Disease (COPD); Churg-Strauss Syndrome; Hypereosinophilic Syndrome
Metelimumab	Transforming Growth Factor Beta 1; TGFB1	Systemic Sclerosis (Scleroderma)
Milatuzumab	HLA Class II Histocompatibility Antigen Gamma Chain; HLA DR Antigens Associated Invariant Chain; Ia Antigen Associated Invariant Chain; p33; CD74	B-Cell Non-Hodgkin Lymphoma; Systemic Lupus Erythematosus; Graft Versus Host Disease (GVHD); Chronic Lymphocytic Leukemia (CLL); Refractory Multiple Myeloma; Relapsed Multiple Myeloma
Mirvetuximab soravtansine	Folate Receptor Alpha; Adult Folate Binding Protein; Folate Receptor 1; KB Cells FBP; Ovarian Tumor Associated Antigen MOv18; FOLR1 "	Metastatic Breast Cancer; Fallopian Tube Cancer; Epithelial Ovarian Cancer; Peritoneal Cancer; Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Endometrial Cancer; Adenocarcinoma
Modotuximab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Esophageal Cancer; Solid Tumor; Glioblastoma Multiforme (GBM); Metastatic Colorectal Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Squamous Non-Small Cell Lung Cancer

Antibody Name	Target	Related Disease, Disorder or Condition
Mogamulizumab	C-C Chemokine Receptor Type 4; K5-5; CD194; CCR4	Allergic Rhinitis; Asthma; T-Cell Leukemia; T-Cell Lymphomas; Breast Cancer; Gastric Cancer; Non-Small Cell Lung Cancer; Solid Tumor; Cutaneous T-Cell Lymphoma; Peripheral T-Cell Lymphomas (PTCL); T-Cell Leukemia; T-Cell Lymphomas
Monalizumab	NKG2 A/NKG2 B Type II Integral Membrane Protein; NK Cell Receptor A; NKG2 A/B Activating NK Receptor; CD159a; KLRC1	Cervical Cancer; Chronic Lymphocytic Leukemia (CLL); Endometrial Cancer; Fallopian Tube Cancer; Ovarian Cancer; Peritoneal Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Chronic Lymphocytic Leukemia (CLL); Rheumatoid Arthritis; Oral Cavity (Mouth) Cancer; Squamous Cell Carcinoma
Motavizumab	Respiratory Syncytial Virus Fusion Protein; RSV F Protein	Respiratory Syncytial Virus (RSV) Infections
Moxetumomab, Moxetumomab pasudotox	B Cell Receptor CD22; B Lymphocyte Cell Adhesion Molecule; Sialic Acid Binding Ig Like Lectin 2; T Cell Surface Antigen Leu 14; CD22	Hairy Cell Leukemia; Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Follicular Lymphoma; Relapsed Chronic Lymphocytic Leukemia (CLL); Refractory Chronic Lymphocytic Leukemia (CLL); Diffuse Large B-Cell Lymphoma; B-Cell Non-Hodgkin Lymphoma; Mantle Cell Lymphoma
Muromonab-CD3	T Cell Surface Glycoprotein CD3 Epsilon Chain; T Cell Surface Antigen T3/Leu 4 Epsilon Chain; CD3E	Heart Transplant Rejection; Kidney Transplant Rejection; Liver Transplant Rejection
Namilumab	Granulocyte Macrophage Colony Stimulating Factor; GMCSF; Colony Stimulating Factor; CSF; Molgramostin; Sargramostim; CSF2	Rheumatoid Arthritis; Plaque Psoriasis (Psoriasis Vulgaris)
Naptumomab estafenatox	Trophoblast Glycoprotein; M6P1; 5T4 Oncofetal Antigen; 5T4 Oncofetal Trophoblast Glycoprotein; Wnt Activated Inhibitory Factor 1; TPBG	Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Pancreatic Cancer; Advanced Malignancy
Narnatumab	Macrophage Stimulating Protein Receptor; CDw136; Protein Tyrosine Kinase 8; p185 Ron; CD136; MSTIR; EC 2.7.10.1	Advanced Malignancy; Solid Tumor
Natalizumab	Integrin Alpha 4; CD49 Antigen Like Family Member D; VLA4 Subunit Alpha; CD49d; ITGA4	Acute Ischemic Stroke; Multiple Sclerosis; Rheumatoid Arthritis; Paraneoplastic Syndrome; Graft Versus Host

Antibody Name	Target	Related Disease, Disorder or Condition
		Disease (GVHD); Crohn's Disease (Regional Enteritis) ; Relapsing Remitting Multiple Sclerosis (RRMS)
Navicixizumab	Delta Like Protein 4; Delta Like Ligand 4; Drosophila Delta Homolog 4; DLL4; Vascular Endothelial Growth Factor; VEGF	Ovarian Cancer; Uterine Cancer; Fallopian Tube Cancer; Solid Tumor; Metastatic Colorectal Cancer; Peritoneal Cancer
Navivumab	Influenza A virus hemagglutinin HA	Infectious Disease
Ndimab-varB	Nerve growth factor	Chronic Pancreatitis Pain; Sciatic Pain; Vertebral Fracture Pain; Cancer Pain; Chronic Pain; Osteoarthritis Pain; Low Back Pain
Necitumumab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Metastatic Colorectal Cancer; Non-Small Cell Lung Cancer; Squamous Non-Small Cell Lung Cancer
Neliximab	V Type Proton Atpase 116 Kda Subunit A Isoform 3; Osteoclastic Proton Pump 116 kDa Subunit; T Cell Immune Regulator 1; T Cell Immune Response cDNA7 Protein; Vacuolar Proton Translocating ATPase 116 kDa Subunit A Isoform 3; TCIRG1; EC 3.6.3.6	Heart Transplant Rejection; Kidney Transplant Rejection; Inflammation; Arthritis
Nemolizumab	Interleukin 31 Receptor Subunit Alpha; Cytokine Receptor Like 3; Gp130 Like Monocyte Receptor; GLM R; ZcytoR17; IL31RA	Pruritus; Atopic Dermatitis
Nesvacumab	Angiopoietin 2; Ang 2; ANGPT2; Placenta Growth Factor; Vascular Endothelial Growth Factor Related Protein; PGF; Vascular Endothelial Growth Factor A; Vascular Permeability Factor; VEGFA; Vascular Endothelial Growth Factor B; VEGF Related Factor; VEGFB	Diabetic Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration
Neuradiab	Tenascin; Cytotactin; GMEM; GP 150-225; Glioma Associated Extracellular Matrix Antigen; Hexabrachion; JI; Myotendinous Antigen; Neuronectin; Tenascin C; TNC	Non-Hodgkin Lymphoma; Glioblastoma Multiforme (GBM); Brain Cancer

Antibody Name	Target	Related Disease, Disorder or Condition
Nimotuzumab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Gastric Cancer; Glioblastoma Multiforme (GBM); Pediatric Diffuse Intrinsic Pontine Glioma; Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer ; Metastatic Adenocarcinoma of The Pancreas; Non-Small Cell Lung Cancer; Nasopharyngeal Cancer; Oropharyngeal Cancer; Cervical Cancer; Metastatic Breast Cancer; Hypopharyngeal Cancer; Squamous Non-Small Cell Lung Carcinoma
Nivolumab	Programmed Cell Death Protein 1; PD1; CD279; PDCD1	Squamous Non-Small Cell Lung Cancer Metastatic Melanoma; Metastatic Renal Cell Carcinoma; Squamous Non-Small Cell Lung Cancer Metastatic Melanoma; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Metastatic Melanoma; Metastatic Renal Cell Carcinoma; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Squamous Non-Small Cell Lung Cancer; Transitional Cell Cancer (Urothelial Cell Cancer) Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Metastatic Melanoma; Renal Cell Carcinoma; Squamous Non-Small Cell Lung Cancer Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Squamous Non-Small Cell Lung Cancer Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Metastatic Melanoma; Metastatic Renal Cell Carcinoma; Squamous Non-Small Cell Lung Cancer Gastric Cancer Non-Small Cell Lung Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Renal Cell Carcinoma Transitional Cell Cancer (Urothelial Cell Cancer) Malignant Pleural Mesothelioma; Small-Cell Lung Cancer Esophageal Cancer Gastric Cancer; Gastroesophageal (GE) Junction Carcinomas Glioblastoma Multiforme (GBM) Head and Neck Cancer Squamous Cell Carcinoma; Transitional Cell Carcinoma (Urothelial Cell Carcinoma) Head and Neck Carcinoma Hepatocellular Carcinoma; Non-Small Cell Lung Cancer; Renal Cell Carcinoma; Small-Cell Lung Cancer; Transitional Cell Cancer (Urothelial Cell Cancer) Malignant Pleural Mesothelioma; Ovarian Cancer Esophageal Cancer;

Antibody Name	Target	Related Disease, Disorder or Condition
		Gastric Cancer; Gastroesophageal (GE) Junction Carcinomas; Hepatocellular Carcinoma; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Recurrent Glioblastoma Multiforme (GBM); Refractory Multiple Myeloma; Relapsed Multiple Myeloma Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); B-Cell Non-Hodgkin Lymphoma; Bladder Cancer; Chronic Lymphocytic Leukemia (CLL); Pancreatic Ductal Adenocarcinoma; Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Chronic Lymphocytic Leukemia (CLL) Metastatic Breast Cancer; Ovarian Cancer; Primary CNS Lymphoma; Testicular Cancer Human Papillomavirus Infections Adenocarcinoma; Anal Cancer; Cutaneous T-Cell Lymphoma; Gastric Cancer; Gastroesophageal (GE) Junction Carcinomas; Merkel Cell Carcinoma; Metastatic Colorectal Cancer; Papillary Tumor; Peripheral T-Cell Lymphomas (PTCL); Signet Ring Cell Squamous Cell Carcinoma Cervical Cancer; Nasopharyngeal Cancer; Skin Cancer; Vaginal Cancer; Vulvar Cancer Endometrial Cancer; Fallopian Tube Cancer; Peritoneal Cancer; Primary CNS Lymphoma; Soft Tissue Sarcoma; Testicular Cancer; Uterine Cancer Ovarian Cancer Bladder Cancer Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Gastric Cancer Cervical Cancer; Colon Cancer; Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Nasopharyngeal Cancer; Pancreatic Cancer; Skin Cancer; Vaginal Cancer; Vulvar Cancer Sepsis Bile Duct Cancer (Cholangiocarcinoma); Solid Tumor Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Non-Small Cell Lung Cancer Hepatitis C Chronic Myelocytic Leukemia (CML; Chronic Myeloid Leukemia) Oral Cavity (Mouth) Cancer Leptomeningeal Disease (Neoplastic Meningitis; Leptomeningeal Carcinomatosis) Metastatic Melanoma Gastric Cancer; Non-Small Cell Lung Cancer; Renal Cell Carcinoma; Small-Cell Lung Cancer Gastroesophageal (GE) Junction

Antibody Name	Target	Related Disease, Disorder or Condition
		Carcinomas Head and Neck Cancer Malignant Pleural Mesothelioma Metastatic Renal Cell Carcinoma Recurrent Glioblastoma Multiforme (GBM) Bladder Cancer; Breast Cancer; Ewing Sarcoma; Hepatocellular Carcinoma; Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Malignant Pleural Mesothelioma; Metastatic Colorectal Cancer; Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Pancreatic Cancer; Metastatic Transitional (Urothelial) Tract Cancer; Metastatic Uveal Melanoma; Neuroblastoma; Non-Hodgkin Lymphoma; Non-Small Cell Lung Cancer; Osteosarcoma; Primitive Neuroectodermal Tumor (PNET); Rhabdomyosarcoma Melanoma Merkel Cell Carcinoma; Metastatic Hrmone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Non-Small Cell Lung Cancer Epithelial Ovarian Cancer; Fallopian Tube Cancer; Peritoneal Cancer
Obiltoxaximab	Anthrax Protective Antigen; pa	Anthrax
Obinutuzumab	B Lymphocyte Antigen CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	Graft Versus Host Disease (GVHD); Waldenstrom Macroglobulinemia; End-Stage Kidney Disease (End-Stage Renal Disease; ESRD); Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Splenic Marginal Zone B-Cell Lymphoma Lupus Nephritis; Non-Hodgkin Lymphoma; Chronic Lymphocytic Leukemia (CLL); Follicular Lymphoma
Ocaratuzumab	B Lymphocyte Antigen CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	Follicular Lymphoma; Lymphoma; Rheumatoid Arthritis; Systemic Lupus Erythematosus; Chronic Lymphocytic Leukemia (CLL)
Ocrelizumab	B Lymphocyte Antigen CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	Follicular Lymphoma; Rheumatoid Arthritis; Lupus Nephritis; Systemic Lupus Erythematosus; Primary Progressive Multiple Sclerosis (PPMS); Relapsing Multiple Sclerosis (RMS);

Antibody Name	Target	Related Disease, Disorder or Condition
Odulimomab	Integrin Alpha L; CD11 Antigen Like Family Member A; Leukocyte Adhesion Glycoprotein LFA 1 Alpha Chain; CD11a; ITGAL	Multiple Sclerosis; Graft Versus Host Disease (GVHD); Kidney Transplant Rejection
Ofatumumab	CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	Relapsing Remitting Multiple Sclerosis (RRMS); Secondary Progressive Multiple Sclerosis (SPMS) B-Cell Non-Hodgkin Lymphoma; Neuromyelitis Optica (Devic's Syndrome); Rheumatoid Arthritis; Diffuse Large B-Cell Lymphoma; Diffuse Large B-Cell Lymphoma; Waldenstrom Macroglobulinemia; Pemphigus Vulgaris; Rheumatoid Arthritis; Refractory Chronic Lymphocytic Leukemia (CLL); Chronic Lymphocytic Leukemia (CLL); Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Chronic Lymphocytic Leukemia (CLL)"
Olaratumab	Platelet Derived Growth Factor Receptor; PDGFR; EC 2.7.10.1; Platelet Derived Growth Factor Receptor Alpha; Alpha Type Platelet Derived Growth Factor Receptor; CD140 Antigen Like Family Member A; Platelet Derived Growth Factor Receptor 2; CD140a; PDGFRA; EC 2.7.10.1	Epithelial Ovarian Cancer; Fallopian Tube Cancer; Gastrointestinal Stromal Tumor (GIST); Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Peritoneal Cancer; Recurrent Glioblastoma Multiforme (GBM); Metastatic Pancreatic Cancer; Non-Small Cell Lung Cancer; Soft Tissue Sarcoma
Oleclumab	5' Nucleotidase; Ecto 5' Nucleotidase; CD73; NT5E; EC 3.1.3.5	Colorectal Cancer; Pancreatic Cancer
Olokizumab	Interleukin 6; B Cell Stimulatory Factor 2; BSF2; CTL Differentiation Factor; CDF; Hybridoma Growth Factor; Interferon Beta 2; IFNB2; IL6	Rheumatoid Arthritis; Crohn's Disease (Regional Enteritis)
Omalizumab	Immunoglobulin E; IgE	Kidney Disease; Rhino-Conjunctivitis; Nasal Polyposis; Rhinosinusitis; Asthma; Allergic Asthma; Chronic Urticaria; Hives
Onartuzumab	Hepatocyte Growth Factor Receptor; Proto Oncogene c Met; Tyrosine Protein Kinase Met; HGF/SF Receptor; Scatter Factor Receptor; MET; EC 2.7.10.1	Gastric Cancer; Hepatocellular Carcinoma; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Non-Small Cell Lung Cancer; Recurrent Glioblastoma Multiforme (GBM); Non-Small Cell Lung Cancer; Metastatic Melanoma; Recurrent Glioblastoma Multiforme (GBM)

Antibody Name	Target	Related Disease, Disorder or Condition
Ontuxizumab	Endosialin; Tumor Endothelial Marker 1; CD164 Sialomucin Like 1; CD248	Metastatic Melanoma; Solid Tumor; Metastatic Colorectal Cancer; Rhabdomyosarcoma; Soft Tissue Sarcoma; Lymphoma
Opicinumab	Leucine Rich Repeat and Immunoglobulin Like Domain Containing Nogo Receptor Interacting Protein 1; Leucine Rich Repeat and Immunoglobulin Domain Containing Protein 1; Leucine Rich Repeat Neuronal Protein 1; Leucine Rich Repeat Neuronal Protein 6A; LINGO1	Optic Neuritis; Relapsing Remitting Multiple Sclerosis (RRMS); Secondary Progressive Multiple Sclerosis (SPMS)
Oportuzumab monatox	Epithelial Cell Adhesion Molecule; Adenocarcinoma Associated Antigen; Cell Surface Glycoprotein Trop 1; Epithelial Cell Surface Antigen; Epithelial Glycoprotein 314; KS 1/4 Antigen; KSA; Tumor Associated Calcium Signal Transducer 1; CD326; EPCAM	Head and Neck Cancer Squamous Cell Carcinoma; Ovarian Cancer; Liver Cancer; Non Muscle Invasive Bladder Cancer (NMIBC) (Superficial Bladder Cancer)
Oregovomab	Mucin 16; Ovarian Cancer Related Tumor Marker CA125; Ovarian Carcinoma Antigen CA125; MUC16	Epithelial Ovarian Cancer; Fallopian Tube Cancer; Ovarian Cancer; Pancreatic Ductal Adenocarcinoma; Peritoneal Cancer
Oreptacog, Oreptacog alfa	rFVIIa	Hämophilie
Orticumab	Oxidized low-density lipoprotein	Atherosclerosis
Otelixizumab	T Cell Surface Glycoprotein CD3 Epsilon Chain; T Cell Surface Antigen T3/Leu 4 Epsilon Chain; CD3E	Graves' Ophthalmopathy; Type 1 Diabetes (Juvenile Diabetes); Myasthenia Gravis; Psoriasis; Rheumatoid Arthritis
Otlertuzumab	Leukocyte Antigen CD37; Tetraspanin 26; CD37	B-Cell Non-Hodgkin Lymphoma; Follicular Lymphoma; Lymphoblastic Lymphoma; Non-Hodgkin Lymphoma; Relapsed Chronic Lymphocytic Leukemia (CLL); Chronic Lymphocytic Leukemia (CLL)
Oxelumab	Tumor Necrosis Factor Ligand Superfamily Member 4; Glycoprotein Gp34; OX40 Ligand; TAX Transcriptionally Activated Glycoprotein 1; CD252; TNFSF4	Asthma

Antibody Name	Target	Related Disease, Disorder or Condition
Ozanezumab	Reticulon 4; Human NogoA; Neurite Outgrowth Inhibitor; Foocen; Neuroendocrine Specific Protein; Neuroendocrine Specific Protein C Homolog; RTN x; Reticulon 5; RTN4	Amyotrophic Lateral Sclerosis; Relapsing Remitting Multiple Sclerosis (RRMS)
Ozoralizumab	Tumor Necrosis Factor; Cachectin; TNF Alpha; Tumor Necrosis Factor Ligand Superfamily Member 2; TNF a; TNF	Rheumatoid Arthritis
Pagibaximab	Lipoteichoic Acid; LTA	Bacterial Sepsis; Staphylococcal Infections
Palivizumab	Respiratory Syncytial Virus Fusion Protein; RSV F Protein	Respiratory Syncytial Virus (RSV) Infections
Pamrevlumab	Connective Tissue Growth Factor; CCN Family Member 2; Hypertrophic Chondrocyte Specific Protein 24; Insulin Like Growth Factor Binding Protein 8; IGFBP8; CTGF	Duchenne Muscular Dystrophy; Pancreatic Ductal Adenocarcinoma; Idiopathic Pulmonary Fibrosis; Liver Fibrosis; Focal Segmental Glomerulosclerosis (FSGS); Microalbuminuria; Proteinuria; Systemic Sclerosis (Scleroderma); Diabetic Nephropathy; Type 1 Diabetes (Juvenile Diabetes); Type 2 Diabetes
Panitumumab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Esophageal Cancer; Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer; Metastatic Breast Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Anal Cancer; Non-Small Cell Lung Cancer; Glioblastoma Multiforme (GBM); Gliosarcoma; Malignant Glioma; Muscle Invasive Bladder Cancer (MIBC); Non-Small Cell Lung Cancer; Renal Cell Carcinoma; Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Colorectal Cancer
Pankomab, Pankoab	Mucin 1; Breast Carcinoma Associated Antigen DF3; Episialin; H23AG; Krebs Von Den Lungen 6; PEMT; Peanut Reactive Urinary Mucin; Polymorphic Epithelial Mucin; Tumor Associated Epithelial Membrane Antigen; Tumor Associated Mucin; CD227; MUC1; tumor specific glycosylation of MUC1	Fallopian Tube Cancer; Epithelial Ovarian Cancer; Peritoneal Cancer ; Breast Cancer; Non-Small Cell Lung Cancer; Colorectal Cancer; Ovarian Cancer
Panobacumab	Lipopolysaccharide; Endotoxin	Ventilator Associated Pneumonia (VAP); Hospital Acquired Pneumonia (HAP); Pseudomonas aeruginosa Pneumonia

Antibody Name	Target	Related Disease, Disorder or Condition
Parsatuzumab	Epidermal Growth Factor Like Protein 7; Multiple Epidermal Growth Factor Like Domains Protein 7; NOTCH4 Like Protein; Vascular Endothelial Statin; Zneul; EGFL7	Solid Tumor; Metastatic Colorectal Cancer; Non-Small Cell Lung Cancer; Solid Tumor
Pascolizumab	Interleukin 4; B Cell Stimulatory Factor 1; Binetrakin; Lymphocyte Stimulatory Factor 1; Pitrakinra; IL4	Asthma
Pasotuxizumab	Glutamate Carboxypeptidase 2; Folate Hydrolase 1; Prostate Specific Membrane Antigen; PSMA; Pteroylpoly Gamma Glutamate Carboxypeptidase; Cell Growth Inhibiting Gene 27 Protein; FOLH1; EC 3.4.17.21; T Cell Surface Glycoprotein CD3 Epsilon Chain; T Cell Surface Antigen T3/Leu 4 Epsilon Chain; CD3E	Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer
Pateclizumab	Lymphotoxin Alpha; TNF Beta; Tumor Necrosis Factor Ligand Superfamily Member 1; LTA	Rheumatoid Arthritis
Patritumab	Receptor Tyrosine Protein Kinase ERBB 3; Proto Oncogene Like Protein c ErbB 3; Tyrosine Kinase Type Cell Surface Receptor HER3; HER3; ERBB3; EC 2.7.10.1	Non-Small Cell Lung Cancer; Breast Cancer; Bladder Cancer; Cervical Cancer; Colon Cancer; Endometrial Cancer; Esophageal Cancer; Gastric Cancer; Liver Cancer; Ovarian Cancer; Pancreatic Cancer; Prostate Cancer; Metastatic Breast Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma
Pembrolizumab	Programmed Cell Death Protein 1; PD1; CD279; PDCD1	Metastatic Melanoma; Non-Small Cell Lung Cancer Metastatic Melanoma; Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Metastatic Melanoma; Non-Small Cell Lung Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Melanoma; Non-Small Cell Lung Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Colorectal Cancer; Metastatic Transitional (Urothelial) Tract Cancer; Non-Small Cell Lung Cancer; Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer; Breast Cancer; Metastatic Breast Cancer; Metastatic Renal Cell Carcinoma; Multiple Myeloma

Antibody Name	Target	Related Disease, Disorder or Condition
		(Kahler Disease); Refractory Multiple Myeloma; Non-Small Cell Lung Cancer Adenocarcinoma Of The Gastroesophageal Junction; Esophageal Cancer; Gastric Cancer; Hepatocellular Carcinoma; Hypopharyngeal Cancer; Laryngeal Cancer; Metastatic Transitional (Urothelial) Tract Cancer; Oral Cavity (Mouth) Cancer; Oropharyngeal Cancer; Refractory Multiple Myeloma; Ureter Cancer; Urethral Cancer Bladder Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma Adenocarcinoma Of The Gastroesophageal Junction; Esophageal Cancer; Mantle Cell Lymphoma; Merkel Cell Carcinoma; Metastatic Biliary Tract Cancer; Small-Cell Lung Cancer; Squamous Cell Carcinoma Anal Cancer; Basal Cell Carcinoma (Basal Cell Epithelioma); Cervical Cancer; Chondrosarcoma; Dedifferentiated Liposarcoma; Diffuse Large B-Cell Lymphoma; Endometrial Cancer; Epithelial Ovarian Cancer; Ewing Sarcoma; Fallopian Tube Cancer; Follicular Lymphoma; Germinomatous (Seminomatous) Germ Cell Tumors; Gliosarcoma; Leiomyosarcoma; Lymphoma; Malignant Pleural Mesothelioma; Metastatic Colorectal Cancer; Metastatic Prostate Cancer; Metastatic Renal Cell Carcinoma; Nasopharyngeal Cancer; Neuroblastoma; Neuroendocrine Tumors; Non Muscle Invasive Bladder Cancer (NMIBC) (Superficial Bladder Cancer); Non-Hodgkin Lymphoma; Nongerminomatous (Nonseminomatous) Germ Cell Tumors; Osteosarcoma; Pancreatic Cancer; Peripheral Nerve Sheath Tumor (Neurofibrosarcoma); Peritoneal Cancer; Primary Mediastinal B-Cell Lymphoma; Recurrent Glioblastoma Multiforme (GBM); Salivary Gland Cancer; Small-Cell Lung Cancer; Soft Tissue Sarcoma; Synovial Sarcoma; T-Cell Lymphomas; Thymic Carcinoma; Thyroid Cancer Adenoid Cystic Carcinoma (ACC); Chronic Idiopathic Myelofibrosis; Chronic Lymphocytic Leukemia (CLL); Diffuse Large B-Cell Lymphoma; Post-Essential Thrombocythemia Myelofibrosis (Post-ET MF); Post-Polycythemia Vera Myelofibrosis (PPV-MF);

Antibody Name	Target	Related Disease, Disorder or Condition
		Small-Cell Lung Cancer; Soft Tissue Sarcoma Metastatic Melanoma Chronic Lymphocytic Leukemia (CLL); Lymphoma; Mycosis Fungoides; Myelodysplastic Syndrome; Non-Hodgkin Lymphoma; Sezary Syndrome Melanoma; Metastatic Breast Cancer; Neuroendocrine Gastroenteropancreatic Tumors (GEP-NET)
Perakizumab	Interleukin 17; IL17	Psoriatic Arthritis; Autoimmune Disorders; Inflammation; Rheumatoid Arthritis
Pertuzumab, Pertuzuab	Receptor Tyrosine Protein Kinase ERBB 2; Metastatic Lymph Node Gene 19 Protein; Proto Oncogene Neu; Proto Oncogene C ErbB 2; Tyrosine Kinase Type Cell Surface Receptor HER2; p185erbB2; HER2; CD340; ERBB2; EC 2.7.10.1; HER2/neu	Non-Small Cell Lung Cancer; Pancreatic Cancer; Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Neuroendocrine Cancer; Adenocarcinoma Of The Gastroesophageal Junction; Breast Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Gastric Cancer; Metastatic Breast Cancer; Peritoneal Cancer; Breast Cancer; Metastatic Breast Cancer
Pexelizumab, Pexelizumab h5gl.1	Complement C5; C3 and PZP Like Alpha 2 Macroglobulin Domain Containing Protein 4; C5	Coronary Disease; Myocardial Infarction; Reduction of Side Effects of Cardiac Surgery
PF-05082566, Utomilumab	Tumor Necrosis Factor Receptor Superfamily Member 9; 4-1BB Ligand Receptor; T Cell Antigen 4-1BB Homolog; T Cell Antigen ILA; CD137; TNFRSF9	Non-Small Cell Lung Cancer; Colorectal Cancer; Metastatic Breast Cancer; Small-Cell Lung Cancer; Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Melanoma; Ovarian Cancer; Renal Cell Carcinoma; Follicular Lymphoma; Cervical Cancer; Pancreatic Cancer; Gastric Cancer; Bladder Cancer; Diffuse Large B-Cell Lymphoma; Sarcomas; Anaplastic Thyroid Cancer; Metastatic Hepatocellular Carcinoma (HCC); Thymoma (Thymic Epithelial Tumor)

Antibody Name	Target	Related Disease, Disorder or Condition
Pidilizumab	Programmed Cell Death 1; PD-1; PDCD1;	Pontine Glioma; Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Hepatitis C; Hepatocellular Carcinoma; Metastatic Colorectal Cancer; Pancreatic Cancer
Pinatuzumab, Pinatuzumab vedotin	B Cell Receptor CD22; B Lymphocyte Cell Adhesion Molecule; Sialic Acid Binding Ig Like Lectin 2; T Cell Surface Antigen Leu 14; CD22	Follicular Lymphoma; Chronic Lymphocytic Leukemia (CLL); Diffuse Large B-Cell Lymphoma
Placulumab	Tumor Necrosis Factor; Cachectin; TNF Alpha; Tumor Necrosis Factor Ligand Superfamily Member 2; TNF a; TNF	Sciatica; Plaque Psoriasis (Psoriasis Vulgaris); Rheumatoid Arthritis
Plozalizumab	C-C Chemokine Receptor Type 2; Monocyte Chemoattractant Protein 1 Receptor; CD192; CCR2	Rheumatoid Arthritis; Bone Metastasis; Diabetic Nephropathy; Relapsing Remitting Multiple Sclerosis (RRMS); Atherosclerosis; Melanoma; Solid Tumor
Pogalizumab	Tumor Necrosis Factor Receptor Superfamily Member 4; ACT35 Antigen; TAX Transcriptionally Activated Glycoprotein 1 Receptor; OX40L Receptor; CD134; TNFRSF4	Solid Tumor; Metastatic Transitional (Urothelial) Tract Cancer
Polatuzumab, Polatuzumab vedotin, Polatuzuab	B Cell Antigen Receptor Complex Associated Protein Beta Chain; B Cell Specific Glycoprotein B29; Ig Beta; Immunoglobulin Associated B29 Protein; CD79B	Follicular Lymphoma; Diffuse Large B-Cell Lymphoma; B-Cell Non-Hodgkin Lymphoma; Chronic Lymphocytic Leukemia (CLL); Mantle Cell Lymphoma
Ponezumab	Amyloid Beta Peptide; A beta P; Abeta; Beta Amyloid	Alzheimer's Disease; Neurodegenerative Diseases
Porgaviximab	Ebolavirus glycoprotein	Ebola virus infections
Prezalumab	ICOS Ligand; B7 Homolog 2; B7 Like Protein G150; B7 Related Protein 1; CD275; ICOSLG	Subacute Cutaneous Lupus Erythematosus (SCLE); Psoriasis; Systemic Lupus Erythematosus; Sicca Syndrome (Sjogren)
Pritoxaximab	Shiga Toxin Type 1; stx1; Shiga Toxin Type 2; stx2	Escherichia coli Infections; Typical Hemolytic Uremic Syndrome (Shiga-Toxin Associated Hemolytic Uremic Syndrome); Typical Hemolytic Uremic Syndrome (Shiga-Toxin Associated Hemolytic Uremic Syndrome)
Pritumumab	Vimentin; Epididymis Luminal Protein 113; VIM	Glioma; Pancreatic Cancer
Quilizumab	Immunoglobulin E; IgE	Allergic Asthma; Allergic Rhinitis; Chronic Urticaria; Hives
Racotumomab	N Glycolylneuraminyl Lactosylceramide; NeuGcGM3	Breast Cancer; Melanoma; Small-Cell Lung Cancer; Ewing Sarcoma; Glioma; Retinoblastoma; Wilms' Tumor

Antibody Name	Target	Related Disease, Disorder or Condition
		(Nephroblastoma); Neuroblastoma; Non-Small Cell Lung Cancer
Radretumab	Fibronectin; Cold Insoluble Globulin; FNI	Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Lung Cancer; Prostate Cancer; Metastatic Brain Tumor; Non-Small Cell Lung Cancer; Colorectal Cancer
Rafivirumab	Rabies Virus Glycoprotein	Rabies
Ralpancizumab	Neural Apoptosis-regulated Proteinase I	dyslipidemia; Hypercholesterolemia; Hyperlipidemia
Ramucirumab	Vascular Endothelial Growth Factor Receptor 2; Fetal Liver Kinase I; Kinase Insert Domain Receptor; Protein Tyrosine Kinase Receptor flk I; VEGFR2; CD309; KDR; EC 2.7.10.I	Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer; Metastatic Colorectal Cancer; Non-Small Cell Lung Cancer; Gastric Cancer; Metastatic Colorectal Cancer; Non-Small Cell Lung Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Gallbladder Cancer; Metastatic Biliary Tract Cancer; Metastatic Breast Cancer; Metastatic Renal Cell Carcinoma; Peritoneal Tumor; Mantle Cell Lymphoma; Neuroendocrine Tumors; Hepatocellular Carcinoma; Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Melanoma; Recurrent Glioblastoma Multiforme (GBM); Metastatic Breast Cancer
Ranevetmab	Canine Nerve Growth Factor; NGF	Pain; Osteoarthritis
Ranibizumab, Ranibiziuab	Vascular Endothelial Growth Factor Receptor 2; Fetal Liver Kinase I; Kinase Insert Domain Receptor; Protein Tyrosine Kinase Receptor flk I; VEGFR2; CD309; KDR; EC 2.7.10.I; VEGF-A	Retinal Vein Occlusion; Age Related Macular Degeneration; Diabetic Macular Edema; Diabetic Macular Edema; Diabetic Retinopathy; Non-Proliferative Diabetic Retinopathy (NPDR); Proliferative Diabetic Retinopathy (PDR); Choroidal Neovascularization; Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Macular Edema; Wet (Neovascular / Exudative) Macular Degeneration; Retinopathy Of Prematurity; Epistaxis; Corneal Neovascularization; Cystoid Macular Edema; Macular Edema; Polypoidal Choroidal Vasculopathy; Pterygium; Retinal Vein Occlusion; Uveitis
Raxibacumab	Anthrax Protective Antigen; pa	Anthrax
Refanezumab	Myelin Associated Glycoprotein; Siglec 4a; Sialic Acid Binding Ig Like Lectin 4A; MAG	Ischemic Stroke

Antibody Name	Target	Related Disease, Disorder or Condition
Regavirumab	Human Cytomegalovirus Envelope Glycoprotein B; gB	Cytomegalovirus (HHV-5) Infections
REGN2810	Programmed Cell Death Protein 1; PD1; CD279; PDCD1	Melanoma; Squamous Cell Carcinoma; Non-Small Cell Lung Cancer; Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Hodgkin Lymphoma (B-Cell Hodgkin Lymphoma); Solid Tumor; B-Cell Non-Hodgkin Lymphoma; Basal Cell Carcinoma (Basal Cell Epithelioma)
Remtolumab	Interleukin 17A; Cytotoxic T Lymphocyte Associated Antigen 8; CTLA8; IL17A; Tumor Necrosis Factor; Cachectin; TNF Alpha; Tumor Necrosis Factor Ligand Superfamily Member 2; TNF a; TNF	Rheumatoid Arthritis; Psoriatic Arthritis; Systemic-Onset Juvenile Idiopathic Arthritis (Still Disease)
Reslizumab	Interleukin 5; Eosinophil Differentiation Factor; B Cell Differentiation Factor I; T Cell Replacing Factor; IL5	Asthma; Churg-Strauss Syndrome; Hypereosinophilic Syndrome; Eosinophilic Esophagitis
rhuMAb-VEGF	Vascular Endothelial Growth Factor A; Vascular Permeability Factor; VEGFA	Breast Cancer; Lung Cancer; Ovarian Cancer; Glioblastoma Multiforme (GBM); Glioma; Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Fallopian Tube Cancer; Epithelial Ovarian Cancer; Colorectal Cancer; Cervical Cancer; Metastatic Breast Cancer; Malignant Glioma; Metastatic Colorectal Cancer; Metastatic Ovarian Cancer; Metastatic Renal Cell Carcinoma; Peritoneal Cancer
Rilotumumab	Hepatocyte Growth Factor; Hepatopoietin A; Scatter Factor; HGF	Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer; Gliosarcoma; Metastatic Colorectal Cancer; Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Recurrent Glioblastoma Multiforme (GBM); Recurrent Malignant Glioma; Small-Cell Lung Cancer

Antibody Name	Target	Related Disease, Disorder or Condition
Rinucumab	Placenta Growth Factor; Vascular Endothelial Growth Factor Related Protein; PGF; Platelet Derived Growth Factor Receptor Beta; Beta Type Platelet Derived Growth Factor Receptor; CD140 Antigen Like Family Member B; Platelet Derived Growth Factor Receptor I; CD140b; PDGFRB; EC 2.7.10.1; Vascular Endothelial Growth Factor A; Vascular Permeability Factor; VEGFA; Vascular Endothelial Growth Factor B; VEGF Related Factor; VEGFB	Wet (Neovascular / Exudative) Macular Degeneration
Risankizumab	Interleukin 23; IL23	Asthma; Ulcerative Colitis; Ankylosing Spondylitis (Bekhterev's Disease); Psoriatic Arthritis; Plaque Psoriasis (Psoriasis Vulgaris; Crohn's Disease (Regional Enteritis)
Rituximab	B Lymphocyte Antigen CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	B-Cell Non-Hodgkin Lymphoma; Chronic Lymphocytic Leukemia (CLL); Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Non-Hodgkin Lymphoma; Microscopic Polyangiitis (MPA); Granulomatosis with Polyangiitis (Wegener Polyangiitis); Rheumatoid Arthritis; Vasculitis; Nephrotic Syndrome; Pemphigus Vulgaris; Neuromyelitis Optica (Devic's Syndrome); Glomerulonephritis; Idiopathic Thrombocytopenic Purpura (Immune Thrombocytopenic Purpura); Kidney Transplant Rejection; Liver Transplant Rejection; Thrombotic Thrombocytopenic Purpura; Hemophilia A; Lupus Nephritis; Myasthenia Gravis; Sicca Syndrome (Sjogren); Systemic Lupus Erythematosus; Autoimmune Disease
Rivabazumab, Rivabazumab pegol	Pseudomonas aeruginosa type III secrection system; ttss pcrv protein	Pseudomonas aeruginosa infection
Robatumumab	Insulin Like Growth Factor I; Mechano Growth Factor; Somatomedin C; IGF1	Colorectal Cancer; Ewing Sarcoma; Osteosarcoma; Solid Tumor
Roledumab	Blood Group Rh(D Polypeptide; RHXIII; Rh Polypeptide 2; Rhesus D Antigen; CD240D; RHD	Erythroblastosis Fetalis (Hemolytic Disease In Newborns)

Antibody Name	Target	Related Disease, Disorder or Condition
Romosozumab	Sclerostin; SOST	Post Menopausal Osteoporosis; Osteopenia; Bone Fracture; Osteoporosis
Rontalizumab, Rontalizuab	Interferon Alpha/Beta Receptor 1; Cytokine Receptor Class II Member 1; Cytokine Receptor Family 2 Member 1; Type I Interferon Receptor 1; IFNAR1; Interferon Alpha/Beta Receptor 2; Interferon Alpha Binding Protein; Type I Interferon Receptor 2; IFNAR2; IFN-α	Systemic Lupus Erythematosus
Rosmantuzumab	R Spondin 3; Roof Plate Specific Spondin 3; Protein With TSP Type 1 Repeat; Thrombospondin Type 1 Domain Containing Protein 2; RSPO3	Solid Tumor; Metastatic Colorectal Cancer; Lung Cancer; Ovarian Cancer; Pancreatic Cancer
Rovalpituzumab, Rovalpituzumab tesirine	Delta Like Protein 3; Drosophila Delta Homolog 3; DLL3	Graft Versus Host Disease (GVHD); Small-Cell Lung Cancer; Prostate Cancer; Glioblastoma Multiforme (GBM); Melanoma; Pancreatic Cancer; Gastric Cancer; Small-Cell Lung Cancer; Medullary Thyroid Cancer; Neuroendocrine Carcinoma; Small-Cell Lung Cancer
Rovelizumab	Integrin Beta 2; Cell Surface Adhesion Glycoproteins LFA-1/CR3/p150;95 Subunit Beta; Complement Receptor C3 Subunit Beta; CD18; ITGB2	Multiple Sclerosis; Hemorrhagic Shock; Ischemic Stroke; Myocardial Infarction; Restenosis; Cerebral Vasospasm; Kidney Transplant Rejection; Brain (Head) Trauma
Rozanolixizumab	FCGRT; FCRN Receptor	Myasthenia Gravis; Idiopathic Thrombocytopenic Purpura (Immune Thrombocytopenic Purpura)
Ruplizumab	CD40 Ligand; T Cell Antigen Gp39; TNF Related Activation Protein; Tumor Necrosis Factor Ligand Superfamily Member 5; CD154; CD40LG	Glomerulonephritis; Kidney Transplant Rejection; Lupus Nephritis; Transplant Rejection
Sacituzumab, Sacituzumab govitecan	Tumor Associated Calcium Signal Transducer 2; Cell Surface Glycoprotein Trop 2; Membrane Component Chromosome 1 Surface Marker 1; Pancreatic Carcinoma Marker Protein GA733-1; TACSTD2	Neuromyelitis Optica (Devic's Syndrome); Breast Cancer; Lung Cancer; Ovarian Cancer; Glioblastoma Multiforme (GBM); Kidney Cancer (Renal Cell Cancer); Non-Small Cell Lung Cancer; Esophageal Cancer; Epithelial Tumor; Colorectal Cancer; Cervical Cancer; Gastric Cancer; Bladder Cancer; Metastatic Breast Cancer; Small-Cell Lung Cancer; Endometrial Cancer; Colon Cancer; Follicular Thyroid Cancer;

Antibody Name	Target	Related Disease, Disorder or Condition
		Head and Neck Cancer Squamous Cell Carcinoma; Hepatocellular Carcinoma; Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Pancreatic Ductal Adenocarcinoma; Transitional Cell Cancer (Urothelial Cell Cancer)
Samalizumab	OX 2 Membrane Glycoprotein; MOX1; MOX2; MRC; CD200	Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Refractory Acute Myeloid Leukemia; Relapsed Acute Myeloid Leukemia; Solid Tumor; B-Cell Chronic Lymphocytic Leukemia; Multiple Myeloma (Kahler Disease)
Sapelizumab	Interleukin 6 Receptor; IL6R	Rheumatoid Arthritis; Neuromyelitis Optica (Devic's Syndrome)
Sarilumab	Interleukin 6 Receptor; IL6R	Oligoarticular Idiopathic Juvenile Arthritis; Polyarticular Juvenile Idiopathic Arthritis (PJIA); Systemic-Onset Juvenile Idiopathic Arthritis (Still Disease); Ankylosing Spondylitis (Bekhterev's Disease); Intermediate Uveitis; Posterior Uveitis; Uveitis; Rheumatoid Arthritis
Satumomab, Satumomab pendetide	Insulin Receptor; IR; CD220; INSR; EC 2.7.10.1; TAG-72	Type 1 Diabetes (Juvenile Diabetes); Type 2 Diabetes; Cancer (Diagnosis)
Secukinumab	Interleukin 17; IL17; Interleukin 17A; Cytotoxic T Lymphocyte Associated Antigen 8; CTLA8; IL17A	Axial Spondyloarthritis; Psoriasis; Ankylosing Spondylitis (Bekhterev's Disease); Psoriatic Arthritis; Plaque Psoriasis (Psoriasis Vulgaris); Congenital Ichthyosis; Netherton Syndrome (Trichorrhexis Invaginata; Bamboo Hair); Systemic-Onset Juvenile Idiopathic Arthritis (Still Disease); Alopecia; Atopic Dermatitis; Contact Dermatitis; Crohn's Disease (Regional Enteritis); Neutrophilia; Type 1 Diabetes (Juvenile Diabetes); Keratoconjunctivitis sicca (Dry Eye); Relapsing Multiple Sclerosis (RMS); Relapsing Remitting Multiple Sclerosis (RRMS); Uveitis; Rheumatoid Arthritis; Asthma
Selicrelumab	CD40; tumor necrosis factor receptor superfamily member 5; TNFRSF5	Solid Cancer
Senlizumab	Tumor Necrosis Factor; Cachectin; TNF Alpha; Tumor Necrosis Factor Ligand Superfamily Member 2; TNF a; TNF	Septic Shock; Crohn's Disease (Regional Enteritis)

Antibody Name	Target	Related Disease, Disorder or Condition
Seribantumab	Receptor Tyrosine Protein Kinase ERBB 3; Proto Oncogene Like Protein c ErbB 3; Tyrosine Kinase Type Cell Surface Receptor HER3; HER3; ERBB3; EC 2.7.10.1	Bile Duct Cancer (Cholangiocarcinoma); Breast Cancer; Endometrial Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Metastatic Breast Cancer; Ovarian Cancer; Peritoneal Cancer; Solid Tumor; Colorectal Cancer; Head and Neck Cancer Squamous Cell Carcinoma; Non-Small Cell Lung Cancer
Setoxaximab	Shiga Toxin Type 2; stx2	Escherichia coli Infections; Typical Hemolytic Uremic Syndrome (Shiga-Toxin Associated Hemolytic Uremic Syndrome)
Sevirumab	Human Cytomegalovirus Glycoprotein H; gH	Cytomegalovirus (CMV) Retinitis; Cytomegalovirus (HHV-5) Infections
Sibrotuzumab	Prolyl Endopeptidase FAP; 170 kDa Melanoma Membrane Boand Gelatinase; Dipeptidyl Peptidase FAP; Integral Membrane Serine Protease; Fibroblast Activation Protein Alpha; Gelatine Degradation Protease FAP; Seprase; FAP; EC 3.4.21.26; EC 3.4.14.5	Metastatic Colorectal Cancer; Non-Small Cell Lung Cancer
Sifalimumab	Interferon Alpha; IFNA	Systemic Lupus Erythematosus; Dermatomyositis; Polymyositis; Plaque Psoriasis (Psoriasis Vulgaris)
Siltuximab	Interleukin 6; B Cell Stimulatory Factor 2; BSF2; CTL Differentiation Factor; CDF; Hybridoma Growth Factor; Interferon Beta 2; IFNB2; IL6	B-Cell Non-Hodgkin Lymphoma; Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Renal Cell Carcinoma; Myelodysplastic Syndrome; Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Multiple Myeloma (Kahler Disease); Giant Lymph Node Hyperplasia (Castleman's Disease)
Simtuzumab	Lysyl Oxidase Homolog 2; Lysyl Oxidase Like Protein 2; Lysyl Oxidase Related Protein 2; Lysyl Oxidase Related Protein WS9-14; LOXL2; EC 1.4.3.13	Idiopathic Pulmonary Fibrosis; Adenocarcinoma; Metastatic Adenocarcinoma of The Pancreas; Metastatic Colorectal Cancer; Myelofibrosis; Post-Polycythemia Vera Myelofibrosis (PPV-MF); Thrombocythemia Myelofibrosis; Liver Cirrhosis; Liver Fibrosis; Non-Alcoholic Steatohepatitis; Primary Sclerosing Cholangitis
Siplizumab	T Cell Surface Antigen CD2; Erythrocyte Receptor; LFA2; LFA3 Receptor; Rosette Receptor; T Cell Surface Antigen T11/Leu 5; CD2	Leukemias; Natural Killer Cell Lymphomas; Kidney Disease; Graft Versus Host Disease (GVHD); Kidney Transplant Rejection; Plaque Psoriasis (Psoriasis Vulgaris); Cutaneous T-

Antibody Name	Target	Related Disease, Disorder or Condition
		Cell Lymphoma; Peripheral T-Cell Lymphomas (PTCL); T-Cell Lymphomas
Sirukumab	Interleukin 6; B Cell Stimulatory Factor 2; BSF2; CTL Differentiation Factor; CDF; Hybridoma Growth Factor; Interferon Beta 2; IFNB2; IL6	Rheumatoid Arthritis; Giant Cell Arteritis; Major Depressive Disorder; Polymyalgia Rheumatica; Asthma; Cutaneous Lupus Erythematosus; Systemic Lupus Erythematosus; Lupus Nephritis
Sofituzumab vedotin	Mucin 16; Ovarian Cancer Related Tumor Marker CA125; Ovarian Carcinoma Antigen CA125; MUC16	Ovarian Cancer; Fallopian Tube Cancer; Epithelial Ovarian Cancer; Pancreatic Cancer; Peritoneal Cancer
Solanezumab	Amyloid Beta Peptide; A beta P; Abeta; Beta Amyloid	Alzheimer's Disease; Dementia Associated With Alzheimer's Disease
Solitomab	Epithelial Cell Adhesion Molecule; Adenocarcinoma Associated Antigen; Cell Surface Glycoprotein Trop 1; Epithelial Cell Surface Antigen; Epithelial Glycoprotein 314; KS 1/4 Antigen; KSA; Tumor Associated Calcium Signal Transducer 1; CD326; EPCAM; T Cell Surface Glycoprotein CD3 Epsilon Chain; T Cell Surface Antigen T3/Leu 4 Epsilon Chain; CD3E	Adenocarcinoma Of The Gastroesophageal Junction; Breast Cancer; Colorectal Cancer; Gastric Cancer; Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Lung Adenocarcinoma; Ovarian Cancer; Small-Cell Lung Cancer; Solid Tumor
Sonepcizumab	Sphingosine 1-Phosphate Receptor 1; Endothelial Differentiation G Protein Coupled Receptor 1; Sphingosine 1 Phosphate Receptor Edg 1; CD363; S1PR1	Choroidal Neovascularization; Retinal Pigment Epithelial (RPE) Detachment; Wet (Neovascular / Exudative) Macular Degeneration; Renal Cell Carcinoma; Solid Tumor; Diabetic Retinopathy; Multiple Sclerosis; Colitis
Sontuzumab	Mucin 1; Breast Carcinoma Associated Antigen DF3; Episialin; H23AG; Krebs Von Den Lungen 6; PEMT; Peanut Reactive Urinary Mucin; Polymorphic Epithelial Mucin; Tumor Associated Epithelial Membrane Antigen; Tumor Associated Mucin; CD227; MUC1	Advanced Malignancy; Breast Cancer
Stamulumab	Growth/Differentiation Factor 8; Myostatin; GDF8; MSTN	Muscular Dystrophy

Antibody Name	Target	Related Disease, Disorder or Condition
Suptavumab	Respiratory Syncytial Virus Fusion Protein; RSV F Protein	Respiratory Syncytial Virus (RSV) Infections
Suvizumab	Human Immunodeficiency Virus Type 1; HIV-1 envelope glycoprotein gp120 third variable loop V3	Human Immunodeficiency Virus (HIV) Infections (AIDS)
Suvratoxumab	Staphylococcus aureus Alpha Hemolysin; Alpha Toxin; hly	Staphylococcus aureus Infections; Ventilator Associated Pneumonia (VAP)
Tabalumab	Tumor Necrosis Factor Ligand Superfamily Member 13B; B Lymphocyte Stimulator; Dendritic Cell Derived TNF Like Molecule; TNF and APOL Related Leukocyte Expressed Ligand 1; CD257; TNFSF13B	Relapsing Remitting Multiple Sclerosis (RRMS); End-Stage Kidney Disease (End-Stage Renal Disease; ESRD); Rheumatoid Arthritis; Systemic Lupus Erythematosus; Multiple Myeloma (Kahler Disease) Refractory Multiple Myeloma; Relapsed Multiple Myeloma
Tacatuzumab, Tacatuzumab tetraxetan	Alpha Fetoprotein Receptor; AFPR	Liver Cancer
Tadocizumab	Integrin Alpha 2b; GPalpha IIb; Platelet Membrane Glycoprotein IIb; CD41; ITGA2B Antagonist	Coronary Thrombosis; Cerebral Infarction (Brain Infarction)
Talizumab	Immunoglobulin E; IgE	Peanut Allergy; allergy
Tamtuvetmab	Canis familiaris T cell	Infectious Disease; Oncology
Tanezumab	Beta Nerve Growth Factor; Beta NGF; NGF	Chronic Pancreatitis Pain; Chronic Visceral Pain; Diabetic Neuropathic Pain; Neuropathic Pain; Cancer Pain; Chronic Pain; Low Back Pain; Osteoarthritis Pain; Interstitial Cystitis (Painful Bladder Syndrome)
Tarextumab	Neurogenic Locus Notch Homolog Protein 2; NOTCH2; Neurogenic Locus Notch Homolog Protein 3; NOTCH3	Small-Cell Lung Cancer; Solid Tumor; Metastatic Pancreatic Cancer
Tavolixizumab	Tumor Necrosis Factor Receptor Superfamily Member 4; ACT35 Antigen; TAX Transcriptionally Activated Glycoprotein 1 Receptor; OX40L Receptor; CD134; TNFRSF4	Solid Tumor; Head and Neck Cancer Squamous Cell Carcinoma
Tefibazumab	Clumping Factor A; Fibrinogen Receptor A; Fibrinogen Binding Protein A; clfA	Staphylococcus aureus Infections

Antibody Name	Target	Related Disease, Disorder or Condition
Telisotuzumab, Telisotuzuab vedotin	Hepatocyte Growth Factor Receptor; Proto Oncogene c Met; Tyrosine Protein Kinase Met; HGF/SF Receptor; Scatter Factor Receptor; MET; EC 2.7.10.1	Solid Tumor
Tenatumomab	Tenascin; Cytotactin; GMEM; GP 150-225; Glioma Associated Extracellular Matrix Antigen; Hexabrachion; JI; Myotendinous Antigen; Neuronectin; Tenascin C; TNC	Breast Cancer; Lung Cancer; Ovarian Cancer; Colorectal Cancer; B-Cell Non-Hodgkin Lymphoma; T-Cell Lymphomas
Teneliximab	Tumor Necrosis Factor Receptor Superfamily Member 5; B Cell Surface Antigen CD40; Bp50; CDw40; CD40L Receptor; TNFRSF5; CD40	Kidney Transplant Rejection; Transplant Rejection
Teplizumab	T Cell Surface Glycoprotein CD3 Epsilon Chain; T Cell Surface Antigen T3/Leu 4 Epsilon Chain; CD3E	Psoriasis
Teprotumumab	Insulin Like Growth Factor 1 Receptor; CD221; IGF1R; EC 2.7.10.1	Graves' Ophthalmopathy; Diabetic Macular Edema; Solid Tumor; Breast Cancer; Ewing Sarcoma; Non-Small Cell Lung Cancer; Osteosarcoma; Rhabdomyosarcoma; Sarcomas; Synovial Sarcoma;
Tesidolumab	Complement C5; C3 and PZP Like Alpha 2 Macroglobulin Domain Containing Protein 4; C5	Thrombotic Microangiopathy Paroxysmal Nocturnal Hemoglobinuria Dry (Atrophic) Macular Degeneration; Intermediate Uveitis; Posterior Uveitis; Uveitis End-Stage Kidney Disease (End-Stage Renal Disease; ESRD) Wet (Neovascular / Exudative) Macular Degeneration
Tezepelumab	Thymic Stromal Lymphopoietin; TSLP	Atopic Dermatitis; Cat Allergy; Allergic Asthma
ThioMAb-chMA79b	CD79	
ThioMAb-huMA79b.v17	CD79	
ThioMAb-huMA79b.v18	CD79	
ThioMAb-huMA79b.v28	CD79	

Antibody Name	Target	Related Disease, Disorder or Condition
Tigatuzumab, Igatuzuab	Tumor Necrosis Factor Receptor Superfamily Member 5; B Cell Surface Antigen CD40; Bp50; CDw40; CD40L Receptor; TNFRSF5; CD40; TRAIL-R2	Adenocarcinoma; Brenner Tumor; Carcinomas; Lymphoma; Metastatic Breast Cancer; Metastatic Colorectal Cancer; Metastatic Ovarian Cancer; Metastatic Pancreatic Cancer; Non-Small Cell Lung Cancer; Transitional Cell Carcinoma (Urothelial Cell Carcinoma); Hepatocellular Carcinoma
Tildrakizumab	Interleukin 23 Subunit Alpha; Interleukin 23 Subunit p19; IL23A	Ankylosing Spondylitis (Bekhterev's Disease); Axial Spondyloarthritis; Psoriatic Arthritis; Plaque Psoriasis (Psoriasis Vulgaris)
Timigutuzumab	ERBB2; epidermal growth factor receptor 2; receptor tyrosine- protein kinase	Breast Cancer; Adenocarcinoma Of The Gastroesophageal Junction; Gastric Cancer; Metastatic Breast Cancer
Timolumab	Membrane Primary Amine Oxidase; Copper Amine Oxidase; Semicarbazide-Sensitive Amine Oxidase; Vascular Adhesion Protein 1; HPAO; AOC3; EC 1.4.3.21	Primary Sclerosing Cholangitis; Neurology; Plaque Psoriasis (Psoriasis Vulgaris); Rheumatoid Arthritis; Chronic Obstructive Pulmonary Disease (COPD); Inflammatory Bowel Disease; Psoriasis; Rheumatoid Arthritis
Tisotumab vedotin	Tissue Factor; TF	Ovarian Cancer; Non-Small Cell Lung Cancer; Esophageal Cancer; Cervical Cancer; Bladder Cancer; Endometrial Cancer; Head and Neck Cancer Squamous Cell Carcinoma; Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Pancreatic Cancer; Cancer
Tocilizumab	Interleukin 6 Receptor; IL6R	Systemic Sclerosis (Scleroderma); Amyotrophic Lateral Sclerosis; Dermatomyositis; Polymyositis; Pulmonary Arterial Hypertension; Schnitzler Syndrome; B-Cell Chronic Lymphocytic Leukemia; Polymyalgia Rheumatica; Giant Lymph Node Hyperplasia (Castleman's Disease); Ankylosing Spondylitis (Bekhterev's Disease); Metastatic Pancreatic Cancer; Giant Cell Arteritis; Polyarticular Juvenile Idiopathic Arthritis (PJIA); Systemic Idiopathic Juvenile Arthritis; Giant Lymph Node Hyperplasia (Castleman's Disease); Rheumatoid Arthritis; Rheumatoid Arthritis; Takayasu Arteritis; Vasculitis"
Tomuzotuximab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Colorectal Cancer; Non-Small Cell Lung Cancer; Solid Tumor

Antibody Name	Target	Related Disease, Disorder or Condition
Toralizumab	CD40 Ligand; T Cell Antigen Gp39; TNF Related Activation Protein; Tumor Necrosis Factor Ligand Superfamily Member 5; CD154; CD40LG	Multiple Sclerosis; Crohn's Disease (Regional Enteritis); Idiopathic Thrombocytopenic Purpura (Immune Thrombocytopenic Purpura); Autoimmune Disorders; Psoriasis; Systemic Lupus Erythematosus
Tosatoxumab	Staphylococcus aureus Alpha Hemolysin; Alpha Toxin; hly	Community Acquired Pneumonia; Hospital Acquired Pneumonia (HAP); Sepsis; Ventilator Associated Pneumonia (VAP)
Tositumomab	B Lymphocyte Antigen CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	B-Cell Non-Hodgkin Lymphoma; Follicular Lymphoma
Tovetumab	Platelet Derived Growth Factor Receptor Alpha; Alpha Type Platelet Derived Growth Factor Receptor; CD140 Antigen Like Family Member A; Platelet Derived Growth Factor Receptor 2; CD140a; PDGFRA; EC 2.7.10.1 Antagonist	Solid Tumor; Hepatocellular Carcinoma; Advanced Malignancy; Glioblastoma Multiforme (GBM); Non-Small Cell Lung Cancer;
Tralokinumab	Interleukin 13; IL13	Ulcerative Colitis; Idiopathic Pulmonary Fibrosis; Atopic Dermatitis; Asthma
Trastuzumab,Trastuzumab duocarmazine, Trastuzumab emtansine, rhuMab HER2, rhuMab HER2(9C1), Herceptin,	Receptor Tyrosine Protein Kinase ERBB 2; Metastatic Lymph Node Gene 19 Protein; Proto Oncogene Neu; Proto Oncogene C ErbB 2; Tyrosine Kinase Type Cell Surface Receptor HER2; p185erbB2; HER2; CD340; ERBB2; HER2/neu; EC 2.7.10.1	Gastric Cancer; Metastatic Breast Cancer; Metastatic Transitional (Urothelial) Tract Cancer; Pancreatic Cancer; Adenocarcinoma Of The Gastroesophageal Junction; Breast Cancer; Gastric Cancer; Cancer
TRC-105, TRC105	Endoglin; CD105; ENG	Breast Cancer; Non-Small Cell Lung Cancer; Fallopian Tube Cancer; Epithelial Ovarian Cancer; Colorectal Cancer; Bladder Cancer; Metastatic Breast Cancer; Angiosarcoma; Choriocarcinoma (Gestational Trophoblastic Neoplasia); Hepatocellular Carcinoma; Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Metastatic Renal Cell Carcinoma; Myocardial Fibrosis; Peritoneal Cancer;

Antibody Name	Target	Related Disease, Disorder or Condition
		Recurrent Glioblastoma Multiforme (GBM); Transitional Cell Carcinoma (Urothelial Cell Carcinoma); Wet (Neovascular / Exudative) Macular Degeneration
Tregalizumab	T Cell Surface Glycoprotein CD4; T Cell Surface Antigen T4/Leu 3; CD4 Activator	Multiple Sclerosis; Plaque Psoriasis (Psoriasis Vulgaris); Rheumatoid Arthritis
Tremelimumab,Ticiliuab, Ticilimumab	Cytotoxic T Lymphocyte Protein 4; Cytotoxic T Lymphocyte Associated Antigen 4; CD152; CTLA4; CTLA-4	Non-Small Cell Lung Cancer; Adenocarcinoma Of The Gastroesophageal Junction; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Gastric Cancer; Hepatocellular Carcinoma; Metastatic Breast Cancer; Peritoneal Cancer; Human Immunodeficiency Virus (HIV) Infections (AIDS); Bladder Cancer; Colorectal Cancer; Gastrointestinal Tract Cancer; Prostate Cancer; Renal Cell Carcinoma; Malignant Pleural Mesothelioma; Metastatic Melanoma; Metastatic Pancreatic Cancer
Trevogrumab	Growth/Differentiation Factor 8; Myostatin; GDF8; MSTN	Sarcopenia
Tucotuzumab, Tucotuzumab celmoleukin	Epithelial Cell Adhesion Molecule; Adenocarcinoma Associated Antigen; Cell Surface Glycoprotein Trop 1; Epithelial Cell Surface Antigen; Epithelial Glycoprotein 314; KS 1/4 Antigen; KSA; Tumor Associated Calcium Signal Transducer 1; CD326; EPCAM; EpCAM	Ovarian Cancer; Prostate Cancer; Renal Cell Carcinoma; Non-Small Cell Lung Cancer; Colorectal Cancer; Small-Cell Lung Cancer; Cancer
Tuvirumab	Hepatitis B Virus Surface Antigen; HBsAg	Hepatitis B
Ublituximab	B Lymphocyte Antigen CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	Chronic Lymphocytic Leukemia (CLL); Relapsed Chronic Lymphocytic Leukemia (CLL); B-Cell Non-Hodgkin Lymphoma; Mantle Cell Lymphoma; Neuromyelitis Optica (Devic's Syndrome); Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Chronic Lymphocytic Leukemia (CLL)

Antibody Name	Target	Related Disease, Disorder or Condition
Ulocuplumab	C-X-C Chemokine Receptor Type 4; FB22; Fusin; HM89; LCR1; Leukocyte Derived Seven Transmembrane Domain Receptor; Lipopolysaccharide Associated Protein 3; Stromal Cell Derived Factor 1 Receptor; NPYRL; CD184; CXCR4	Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Refractory Multiple Myeloma; Relapsed Multiple Myeloma; Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Metastatic Pancreatic Cancer; Refractory Acute Myeloid Leukemia; Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Acute Myeloid Leukemia; Relapsed Chronic Lymphocytic Leukemia (CLL); Small-Cell Lung Cancer
Urelumab	Tumor Necrosis Factor Receptor Superfamily Member 9; 4-1BB Ligand Receptor; T Cell Antigen 4-1BB Homolog; T Cell Antigen ILA; CD137; TNFRSF9	Diffuse Large B-Cell Lymphoma; Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Melanoma; Non-Small Cell Lung Cancer; Follicular Lymphoma; Gliosarcoma; Metastatic Colorectal Cancer; Recurrent Glioblastoma Multiforme (GBM); Chronic Lymphocytic Leukemia (CLL); Lymphoma; Refractory Chronic Lymphocytic Leukemia (CLL); Relapsed Chronic Lymphocytic Leukemia (CLL)
Urtoxazumab	Shiga Toxin Type 2; stx2	Escherichia coli Infections
Ustekinumab	Interleukin 12 Subunit Beta; Cytotoxic Lymphocyte Maturation Factor 40 kDa Subunit; CLMF p40; IL12 Subunit p40 NK Cell Stimulatory Factor Chain 2; IL12B	Ulcerative Colitis; Axial Spondyloarthritis; Systemic Lupus Erythematosus; Type 1 Diabetes (Juvenile Diabetes); Crohn's Disease (Regional Enteritis); Relapsing Remitting Multiple Sclerosis (RRMS); Hidradenitis Suppurativa; Plaque Psoriasis (Psoriasis Vulgaris); Psoriasis; Rheumatoid Arthritis; Primary Biliary Cirrhosis; Atopic Dermatitis; Sarcoidosis; Psoriatic Arthritis; Plaque Psoriasis (Psoriasis Vulgaris); Crohn's Disease (Regional Enteritis)"
utomilumab	Tumor Necrosis Factor Receptor Superfamily Member 9; 4-1BB Ligand Receptor; T Cell Antigen 4-1BB Homolog; T Cell Antigen ILA; CD137; TNFRSF9	Anaplastic Thyroid Cancer; Bladder Cancer; Cervical Cancer; Diffuse Large B-Cell Lymphoma; Follicular Lymphoma; Gastric Cancer; Metastatic Hepatocellular Carcinoma (HCC); Ovarian Cancer; Pancreatic Cancer; Renal Cell Carcinoma; Sarcomas; Thymoma (Thymic Epithelial Tumor); Colorectal Cancer; Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Breast Cancer; Metastatic Melanoma; Non-Small Cell Lung Cancer; Small-Cell Lung Cancer
Vadastuximab, Vadastuximab talirine	Myeloid Cell Surface Antigen CD33; Sialic Acid Binding Ig Like Lectin 3; gp67; CD33	Acute Myelocytic Leukemia (AML; Acute Myeloblastic Leukemia); Myelodysplastic Syndrome; Refractory Acute Myeloid Leukemia; Relapsed Acute Myeloid Leukemia

Antibody Name	Target	Related Disease, Disorder or Condition
Vandortuzumab, Vandortuzumab vedotin	Metalloreductase STEAP1; Six Transmembrane Epithelial Antigen Of The Prostate 1; STEAP1; EC 1.16.1.	Metastatic Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer
Vantictumab	Frizzled 7; hFz7; FzE3; FZD7	Metastatic Breast Cancer; Non-Small Cell Lung Cancer; Pancreatic Ductal Adenocarcinoma
Vanucizumab	Angiopoietin 2; Ang 2; ANGPT2; Vascular Endothelial Growth Factor A; Vascular Permeability Factor; VEGFA	Metastatic Colorectal Cancer; Epithelial Ovarian Cancer; Fallopian Tube Cancer; Peritoneal Cancer; Solid Tumor
Vapaliximab	Membrane Primary Amine Oxidase; Copper Amine Oxidase; Semicarbazide-Sensitive Amine Oxidase; Vascular Adhesion Protein 1; HPAO; AOC3; EC 1.4.3.21	Inflammation
Varisacumab, Apagin	Vascular Endothelial Growth Factor A; Vascular Permeability Factor; VEGFA	Metastatic Cancer; Oncology
Varlilumab	CD27 Antigen; CD27L Receptor; T Cell Activation Antigen CD27; Tumor Necrosis Factor Receptor Superfamily Member 7; TI4; TNFRSF7; CD27	Bladder Cancer; Breast Cancer; Colorectal Cancer; Fallopian Tube Cancer; Glioblastoma Multiforme (GBM); Head and Neck Cancer Squamous Cell Carcinoma; Metastatic Melanoma; Non-Small Cell Lung Cancer; Ovarian Cancer; Renal Cell Carcinoma; Colorectal Cancer; Hormone Refractory (Castration Resistant; androgen-Independent) Prostate Cancer; Leukemias; Lymphoma; Metastatic Melanoma; Non-Small Cell Lung Cancer; Ovarian Cancer; Renal Cell Carcinoma
Vatelizumab	Integrin Alpha 2; CD49 Antigen Like Family Member B; Collagen Receptor; Platelet Membrane Glycoprotein Ia; VLA 2 Subunit Alpha; CD49b; ITGA2	Crohn's Disease (Regional Enteritis); Ulcerative Colitis; Relapsing Remitting Multiple Sclerosis (RRMS)
Vedolizumab	Integrin Alpha 4; CD49 Antigen Like Family Member D; VLA4 Subunit Alpha; CD49d; ITGA4; Integrin Beta 7; Gut Homing Receptor Beta Subunit; ITGB7	Primary Sclerosing Cholangitis; Celiac Disease; Graft Versus Host Disease (GVHD); Human Immunodeficiency Virus (HIV) Infections (AIDS); Melanoma; Crohn's Disease (Regional Enteritis); Ulcerative Colitis"
Veltuzumab	B Lymphocyte Antigen CD20; B Lymphocyte Surface Antigen B1; Bp35; Leukocyte Surface Antigen Leu 16; Membrane Spanning 4 Domains Subfamily A Member 1; CD20; MS4A1	Idiopathic Thrombocytopenic Purpura (Immune Thrombocytopenic Purpura); Non-Hodgkin Lymphoma; Pemphigus Vulgaris; Acute Lymphocytic Leukemia (ALL; Acute Lymphoblastic Leukemia); Chronic Lymphocytic Leukemia

Antibody Name	Target	Related Disease, Disorder or Condition
		(CLL); Follicular Lymphoma; Systemic Lupus Erythematosus; Rheumatoid Arthritis
Vepalimomab	Membrane Primary Amine Oxidase; Copper Amine Oxidase; Semicarbazide-Sensitive Amine Oxidase; Vascular Adhesion Protein 1; HPAO; AOC3; EC 1.4.3.21	Contact Dermatitis; Ulcerative Colitis; Psoriasis
Vesencumab	Neuropilin 1; Vascular Endothelial Cell Growth Factor 165 Receptor; CD304; NRP1	Solid Tumor
Visilizumab	T Cell Surface Glycoprotein CD3 Epsilon Chain; T Cell Surface Antigen T3/Leu 4 Epsilon Chain; CD3E	Graft Versus Host Disease (GVHD); Crohn's Disease (Regional Enteritis); Ulcerative Colitis
Vobarilizumab	Interleukin 6 Receptor; IL6R	Rheumatoid Arthritis; Systemic Lupus Erythematosus
Volociximab	Integrin Alpha 5; CD49 Antigen Like Family Member E; Fibronectin Receptor Subunit Alpha; Integrin Alpha F; VLA 5; CD49e; ITGA5; Integrin Beta 1; Fibronectin Receptor Subunit Beta; Glycoprotein IIa; VLA 4 Subunit Beta; CD29; ITGB1	Age Related Macular Degeneration; Metastatic Melanoma; Metastatic Pancreatic Cancer; Non-Small Cell Lung Cancer; Ovarian Cancer; Peritoneal Tumor; Renal Cell Carcinoma
Vorsetuzumab, Vorsetuzumab mafodotin	CD70 Antigen; CD27 Ligand; Tumor Necrosis Factor Ligand Superfamily Member 7; CD70	Autoimmune Disorders; Cancer
Vunakizumab	Interleukin 17A; Cytotoxic T Lymphocyte Associated Antigen 8; CTLA8; IL17A	Psoriasis
Xentuzumab	Insulin Like Growth Factor 1; Mechano Growth Factor; Somatomedin C; IGF1; Insulin Like Growth Factor II; Somatomedin A; T3M II Derived Growth Factor; IGF2	Non-Small Cell Lung Cancer; Metastatic Breast Cancer; Solid Tumor; Metastatic Hormone Refractory (Castration Resistant, androgen-Independent) Prostate Cancer
Zalutumumab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Non-Small Cell Lung Cancer; Squamous Cell Carcinoma; Colorectal Cancer; Head and Neck Cancer; Metastatic Cancer
Zanolimumab	T Cell Surface Glycoprotein CD4; T Cell Surface Antigen T4/Leu 3; CD4	Psoriasis; Rheumatoid Arthritis; Cutaneous T-Cell Lymphoma; Sezary Syndrome; Mycosis Fungoides; T-Cell Lymphomas

Antibody Name	Target	Related Disease, Disorder or Condition
Zatuximab	Epidermal Growth Factor Receptor; Proto Oncogene c ErbB 1; Receptor Tyrosine Protein Kinase erbB 1; HER1; ERBB1; EGFR; EC 2.7.10.1	Glioblastoma Multiforme (GBM); Metastatic Colorectal Cancer; Recurrent Head and Neck Cancer Squamous Cell Carcinoma; Squamous Non-Small Cell Lung Cancer; Esophageal Cancer; Solid Tumor

Preferably, the RNA according to the present invention, the combination of RNA's according to the present invention, the composition according to the present invention, the vaccine according to the present invention, or the pharmaceutically active component of the kit according to the present invention is administered by injection, preferably by needle-less injection, more preferably by jet injection.

It is also preferred that the treatment of the diseases/disorders as described above (therapy or prophylaxis) by using the RNA according to the present invention, the combination of RNA's according to the present invention,the composition according to the present invention, the vaccine according to the present invention, or the kit according to the present invention comprises the administration of a further pharmaceutical compound. Such a further pharmaceutical compound is preferably a chemotherapeutic agent or a kinase inhibitor, in particular in the context of treatment of cancer. Moreover, in particular in the context of cancer treatment, the the treatment or prophylaxis as described herein may preferably further comprise radiation therapy.

It is also preferred that the treatment of the diseases/disorders as described above (therapy or prophylaxis) by using the RNA according to the present invention, the combination of RNA's according to the present invention, the composition according to the present invention, the vaccine according to the present invention, or the kit according to the present invention further comprises the administration of at least one modulator of an inhibitory and/or a stimulatory checkpoint molecule, such as an inhibitor of an inhibitory checkpoint molecule, preferably an inhibitor of CTLA-4 or of the PD-1 pathway.

The present invention also provides methods of treating or preventing the diseases and/or disorders as described above by administering to a subject in need thereof a (pharmaceutically) effective amount of the RNA, the combination of RNA's, the pharmaceutical composition or the vaccine according to the invention. Such a method typically comprises an optional first step of preparing the RNA, the combination of RNA's, the composition or the vaccine of the present invention, and a second step, comprising administering (a pharmaceutically effective amount of)

said composition or vaccine to a patient/subject in need thereof. A subject in need thereof will preferably be a mammal. In the context of the present invention, the mammal is preferably selected from the group comprising, without being limited thereto, e.g. goat, cattle, swine, dog, cat, donkey, monkey, ape, a rodent such as a mouse, hamster, rabbit and, particularly, human, wherein the mammal typically suffers from the diseases and/or disorders as described above. Preferably, the disease/disorder is a cancer, a cardiovascular disease, an infectious disease, an autoimmune disease, a virus disease or a monogenetic disease.

In such a method according to the present invention also a combination of RNA's as described herein may be used, whereby the at least two RNA's of such a combination may be administered separately or in the same composition as described above. For example, in separate administration the at least two distinct RNA's may be administered at about the same time or consecutively via the same or different routes of administration as decribed above.

The subject receiving the RNA, the combination of RNA's, the pharmaceutical composition or the vaccine according to the invention may, for example, be a patient with cancer, preferably as defined herein, or a related condition, receiving chemotherapy (e.g. first-line or second-line chemotherapy), radiotherapy, chemoradiation (combination of chemotherapy and radiotherapy), tyrosine kinase inhibitors (e.g. EGFR tyrosine kinase inhibitors), antibody therapy and/or inhibitory and/or stimulatory checkpoint molecules (e.g. CTLA4 inhibitors, PD1 pathway inhibitors), or a patient, who has achieved partial response or stable disease after having received one or more of the treatments specified above. Support of the treatment or prophylaxis of cancer may be also envisaged in any of the other embodiments defined herein. Accordingly, any use of the RNA, the (pharmaceutical) composition or the vaccine according to the invention in co-therapy with any other approach, preferably one or more of the above therapeutic approaches, in particular in combination with surgery, radiation therapy, chemotherapy, chemoradiation, and/or treatment with kinase inhibitors, modulators of inhibitory and/or stimulatory checkpoint molecules or antibodies is within the scope of the present invention. In particular, modulators of inhibitory and/or stimulatory checkpoint molecules used for combination with the RNA, the vaccine or the (pharmaceutical) composition according to the invention may be encoded by a nucleic acid, preferably an RNA and most preferably by an mRNA.

For administration, preferably any of the administration routes may be used as defined herein. In particular, an administration route is used, which is suitable for treating or preventing any of the disorders and/or diseases as described herein. Administration of the composition and/or the vaccine according to the invention may then occur prior, concurrent and/or subsequent to administering another composition and/or vaccine as defined herein, which may – in addition –

contain another RNA or combination of RNAs encoding different fragments of the same antibody or different antibodies, wherein each antibody encoded by the RNA according to the invention is preferably suitable for the treatment or prophylaxis of any of the disorders and/or diseases as described herein. In this context, a treatment as defined herein may also comprise the modulation of a disease associated to the of the disorders and/or diseases as described herein.

According to a preferred embodiment of this aspect of the invention, the (pharmaceutical) composition or the vaccine according to the invention is administered by injection. Any suitable injection technique known in the art may be employed. Preferably, the inventive composition is administered by injection, preferably by needle-less injection, for example by jet-injection.

In one embodiment, the inventive composition comprises at least two, three, four, five, six, seven, eight, nine, ten, eleven, twelve or more RNAs as defined herein, each of which is preferably injected separately, preferably by needle-less injection. Alternatively, the inventive composition comprises at least two, three, four, five, six, seven, eight, nine, ten, eleven, twelve or more RNAs, wherein the at least two, three, four, five, six, seven, eight, nine, ten, eleven, twelve or more RNAs are administered, preferably by injection as defined herein, as a mixture.

The (passive) immunization protocol for the immunization of a subject typically comprises a series of single doses or dosages of the (pharmaceutical) composition or the vaccine according to the invention. A single dosage, as used herein, refers to the initial/first dose, a second dose or any further doses, respectively. In this context, each single dosage preferably comprises the administration of RNA encoding the same antibody or the same combination of antibodies as defined herein, wherein the interval between the administration of two single dosages can vary from at least one day, preferably 2, 3, 4, 5, 6 or 7 days, to at least one week, preferably 2, 3, 4, 5, 6, 7 or 8 weeks. The intervals between single dosages may be constant or vary over the course of the immunization protocol, e.g. the intervals may be shorter in the beginning and longer towards the end of the protocol. Depending on the total number of single dosages and the interval between single dosages, the immunization protocol may extend over a period of time, which preferably lasts at least one week, more preferably several weeks (e.g. 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12 weeks), even more preferably several months (e.g. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 18 or 24 months). Each single dosage preferably encompasses the administration of an RNA encoding an antibody, preferably of a combination of at least two, three, four, five, six, seven, eight, nine, ten, eleven, twelve or more antibodies as defined herein and may involve at least one, preferably 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12 injections. In some cases, the composition or the vaccine according to the invention is administered as a single dosage typically in one injection. In the case, where the vaccine according to the invention comprises separate RNA formulations encoding distinct

antibody fragments or distinct antibodies as defined herein, the minimum number of injections carried out during the administration of a single dosage may correspond to the number of separate components of the vaccine. In certain embodiments, the administration of a single dosage may encompass more than one injection for each component of the vaccine (e.g. a specific RNA formulation comprising an RNA encoding, for instance, one antibody as defined herein). For example, parts of the total volume of an individual component of the vaccine may be injected into different body parts, thus involving more than one injection. In a more specific example, a single dosage of a vaccine comprising four separate RNA formulations, each of which is administered in two different body parts, comprises eight injections. Typically, a single dosage comprises all injections required to administer all components of the vaccine, wherein a single component may be involve more than one injection as outlined above. In the case, where the administration of a single dosage of the vaccine according to the invention encompasses more than one injection, the injection are carried out essentially simultaneously or concurrently, i.e. typically in a time-staggered fashion within the time-frame that is required for the practitioner to carry out the single injection steps, one after the other. The administration of a single dosage therefore preferably extends over a time period of several minutes, e.g. 2, 3, 4, 5, 10, 15, 30 or 60 minutes.

Administration of the RNA as defined herein, the (pharmaceutical) composition or the vaccine according to the invention may be carried out in a time staggered treatment. A time staggered treatment may be e.g. administration of the RNA, the composition or the vaccine prior, concurrent and/or subsequent to a conventional therapy of any of of the disorders and/or diseases as described herein, e.g. by administration of the RNA, the composition or the vaccine prior, concurrent and/or subsequent to a therapy or an administration of a therapeutic suitable for the treatment or prophylaxis of any of of the disorders and/or diseases as described herein. Such time staggered treatment may be carried out using e.g. a kit, preferably a kit of parts as defined herein.

Time staggered treatment may additionally or alternatively also comprise an administration of the RNA as defined herein, the (pharmaceutical) composition or the vaccine according to the invention in a form, wherein the RNA encoding an antibody as defined herein or a fragment or variant thereof, preferably forming part of the composition or the vaccine, is administered parallel, prior or subsequent to another RNA encoding an antibody as defined above, preferably forming part of the same inventive composition or vaccine. Preferably, the administration (of all RNAs) occurs within an hour, more preferably within 30 minutes, even more preferably within 15, 10, 5, 4, 3, or 2 minutes or even within 1 minute. Such time staggered treatment may be carried out using e.g. a kit, preferably a kit of parts as defined herein.

In a preferred embodiment, the pharmaceutical composition or the vaccine of the present invention is administered repeatedly, wherein each administration preferably comprises individual administration of the at least one mRNA of the inventive composition or vaccine. At each time point of administration, the at least one mRNA may be administered more than once (e.g. 2 or 3 times). In a particularly preferred embodiment of the invention, at least two, three, four, five, six or more RNAs (each encoding a distinct one of the antibodies as defined herein) are administered at each time point, wherein each RNA is administered twice by injection, distributed over the four limbs.

Brief description of the Figures:

Figure 1 illustrates the structure of an IgG antibody. IgG antibodies are built up from in each case two identical light and two heavy protein chains which are bonded to one another via disulfide bridges. The light chain comprises the N-terminal variable domain V_L and the C-terminal constant domain C_L. The heavy chain of an IgG antibody can be divided into an N-terminal variable domain V_H and three constant domains C_H1, C_H2 and C_H3.

Figure 2 shows the gene cluster for the light and the heavy chains of an antibody:
(A): Gene cluster for the light chain κ.
(B): Gene cluster for the light chain λ.
(C): and (D): Gene cluster for the heavy chain.
In this context, the variable region of a heavy chain is composed of three different gene segments. In addition to the V and J segments, additional D segments are also found here. The V_H, D_H and J_H segments can likewise be combined with one another virtually as desired to form the variable region of the heavy chain.

Figure 3 illustrates in the form of a diagram the differences in the light and heavy chains of murine (i.e. obtained in the mouse host organism), chimeric, humanized and human antibodies.

Figure 4 shows an overview of the structure of various antibody fragments. The constituents of the antibody fragments are shown on a dark grey background.

Figure 5 shows various variants of antibodies and antibody fragments in Figure 5A, 5B and 5C:

(A) shows a diagram of an IgG antibody of two light and two heavy chains.

(B) shows an Fab fragments from the variable and a constant domain in each case of a light and a heavy chain. The two chains are bonded to one another via a disulfide bridge.

(C) shows an scFv fragment from the variable domain of the light and the heavy chain, which are bonded to one another via an artificial polypeptide linker.

Figure 6 shows a presentation of an exemplified antibody-coding (modified) RNA according to the invention as an expression construct. In this:

V_H = variable domain of the heavy chain;

C_H = constant domain of the heavy chain;

V_L = variable domain of the light chain;

C_L = constant domain of the light chain;

SIRES = internal ribosomal entry site (IRES, superIRES)

muag = mutated form of the 3' UTR of the alpha-globin gene; and

A70C30 = polyA-polyC tail.

Figure 7 shows a diagram of the detection of an antibody coded by an RNA according to the invention by means of ELISA on the example of the antigen Her2.

Figure 8 shows the wild-type DNA sequence of the heavy chain of the antibody rituximab (= Rituxan, MabThera) (wild-type: GC content: 56.5%, length: 1,344) (SEQ ID NO: 61161).

Figure 9 shows a GC-optimized DNA sequence of the heavy chain of the antibody rituximab (= Rituxan, MabThera) (GC content: 65.9%, length: 1,344) (SEQ ID NO: 61162).

Figure 10 shows the wild-type DNA sequence of the light chain of the antibody rituximab (= Rituxan, MabThera) (wild-type: GC content: 58.5%, length: 633) (SEQ ID NO: 61163).

Figure 11 shows a GC-optimized DNA sequence of the light chain of the antibody rituximab (= Rituxan, MabThera) (GC content: 67.2%, length: 633) (SEQ ID NO: 61164).

Figure 12 shows the total construct of a GC-optimized DNA sequence of the antibody rituximab (= Rituxan, MabThera) with the light and heavy chains (SEQ ID NO: 61165). The total construct contains the following sequences and cleavage sites (see also alternative cleavage sites of Fig. 25, SEQ ID NO: 61209):

ACC linker for an optimum Kozak sequence
AAGCTT HindIII
TGA stop codon
ACTAGT SpeI
AGATCT BglII
ATGCAT NsiI
CATCATCATCATCATCAT His tag

Signal peptide, HLA-A*0201: *GC-rich*
ATGGCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCT CGCCCTGACGCAGACCTGGGCCGGG.

The coding region of the heavy chain sequence starts with the signal peptide as given above (*italic*). This region is G/C enriched as well. The subsequent sequence starting with CAG represents the actual antibody coding sequence (see Fig. 9) for the heavy chain, which ends with AAG and is followed by the above described His tag sequence. Finally, the open reading frame for the heavy chain ends with the stop codon TGA (_____). The coding region for the light chain sequence starts 3' upstream with the signal peptide's ATG as given above followed by the light chain's coding region for the light chain starting with CAG running to the stop codon TGA (_____) (see Figure 11). Both coding regions for the light and the heavy chain are separated by an IRES element (.....). The inventive RNA coded by the construct given in Figure 12 may or may not contain a (His) tag sequence and may contain a signal peptide sequence different from the above peptide sequence or may even have no signal peptide sequence. Accordingly, the inventive RNA molecule contains preferably the coding region (with or without a signal peptide sequence at its beginning) of the heavy and/or the light chain (e.g. as shown in Figure 12), preferably in combination with at least one ribosomal entry site.

Figure 13 shows the wild-type DNA sequence of the heavy chain of the antibody cetuximab (= Erbitux) (wild-type: GC content: 56.8%, length: 1,359) (SEQ ID NO: 61166).

Figure 14 shows a GC-optimized DNA sequence of the heavy chain of the antibody cetuximab (= Erbitux) (GC content: 65.9%, length: 1,359) (SEQ ID NO: 61167).

Figure 15 shows the wild-type DNA sequence of the light chain of the antibody cetuximab (= Erbitux) (wild-type: GC content: 58.2%, length: 642) (SEQ ID NO: 61168).

Figure 16 shows a GC-optimized DNA sequence of the light chain of the antibody cetuximab (= Erbitux) (GC content: 65.7%, length: 642) (SEQ ID NO: 61169).

Figure 17 shows the total construct of a GC-optimized DNA sequence of the antibody cetuximab (= Erbitux) with the light and heavy chains (SEQ ID NO: 61170). The total construct contains the following sequences and cleavage sites (see also alternative cleavage sites of Fig. 26, SEQ ID No 61210):

ACC linker for an optimum Kozak sequence

AAGCTT HindIII

TGA stop codon

ACTAGT SpeI

AGATCT BglII

ATGCAT NsiI

CATCATCATCATCATCAT His tag

Signal peptide, HLA-A*0201: *GC-rich*

ATGGCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCT CGCCCTGACGCAGACCTGGGCCGGG.

The coding region of the heavy chain sequence starts with the signal peptide as given above (*italic*). This region is G/C enriched as well. The subsequent sequence starting with CAG represents the actual antibody coding sequence (see Fig. 14) for the heavy chain, which ends with AAG and is followed by the above described His tag sequence. Finally, the open reading frame for the heavy chain ends with the stop codon TGA (____). The coding region for the light chain sequence starts 3' upstream with the signal peptide's ATG as given above followed by the light chain's coding region for the light chain starting with GAC running to the stop codon TGA (____) (see Figure 16). Both coding regions for the light and the heavy chain are separated by an IRES element (.....). The inventive RNA coded by the construct given in Figure 17 may or may not contain a (His) tag sequence and may contain a signal peptide sequence different from the above peptide sequence or may even have no signal peptide sequence. Accordingly, the inventive RNA molecule contains preferably the coding region (with or without a signal peptide sequence at its beginning) of the heavy and/or the light chain (e.g. as shown in Figure 17), preferably in combination with at least one ribosomal entry site.

Figure 18 shows the wild-type DNA sequence of the heavy chain of the antibody trastuzumab (= Herceptin) (wild-type: GC content: 57.8%, length: 1,356) (SEQ ID NO: 61171).

Figure 19 shows a GC-optimized DNA sequence of the heavy chain of the antibody trastuzumab (= Herceptin) (GC content: 67.0%, length: 1,356) (SEQ ID NO: 61172).

Figure 20 shows the wild-type DNA sequence of the light chain of the antibody trastuzumab (= Herceptin) (wild-type: GC content: 56.9%, length: 645) (SEQ ID NO: 61173).

Figure 21 shows a GC-optimized DNA sequence of the light chain of the antibody trastuzumab (= Herceptin) (GC content: 66.4%, length: 645) (SEQ ID NO: 61174).

Figure 22 shows a total construct of the GC-optimized DNA sequence of the antibody trastuzumab (= Herceptin) with the light and heavy chains (SEQ ID NO: 61175). The total construct contains the following sequences and cleavage sites (see also alternative cleavage sites of Fig. 27, SEQ ID NO: 61211):

ACC linker for an optimum Kozak sequence

AAGCTT HindIII

TGA stop codon

ACTAGT SpeI

AGATCT BglII

ATGCAT NsiI

CATCATCATCATCATCAT His tag

Signal peptide, HLA-A*0201: *GC-rich*

ATGGCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCT CGCCCTGACGCAGACCTGGGCCGGG.

The coding region of the heavy chain sequence starts with the signal peptide as given above (*italic*). This region is G/C enriched as well. The subsequent sequence starting with GAG represents the actual antibody coding sequence (see Fig. 19) for the heavy chain, which ends with AAG and is followed by the above described His tag sequence. Finally, the open reading frame for the heavy chain ends with the stop codon TGA (TGA). The coding region for the light chain sequence starts 3' upstream with the signal peptide's ATG as given above followed by the light chain's coding region for the light chain starting with GAC running to the stop codon TGA (TGA) (see Figure 21). Both coding regions for the light and the heavy chain are separated by an IRES element

(.....). The inventive RNA coded by the construct given in Figure 22 may or may not contain a (His) tag sequence and may contain a signal peptide sequence different from the above peptide sequence or may even have no signal peptide sequence. Accordingly, the inventive RNA molecule contains preferably the coding region (with or without a signal peptide sequence at its beginning) of the heavy and/or the light chain (e.g. as shown in Figure 22), preferably in combination with at least one ribosomal entry site.

Figure 23 shows for Example 1 RNA-mediated antibody expression in cell culture. CHO or BHK cells were transfected with 20 µg of antibody-encoding mRNA according to the invention which was produced (RNA, G/C enriched, see above) or mock-transfected. 24 hours after transfection protein synthesis was analysed by Western blotting of cell lysates. Cells harboured about 0.5 µg of protein as assessed by Western Blot analysis. Each lane represents 10% of total lysate. Humanised antibodies served as control and for a rough estimate of protein levels. The detection antibody recognises both heavy and light chains; moreover, it shows some unspecific staining with cell lysates (three distinct bands migrating much slower than those of the antibodies). A comparison with control antibodies clearly demonstrates that heavy and light chains were produced in equal amounts.

Figure 24 shows for Example 1 that RNA-mediated antibody expression gives rise to a functional protein (antibody). Functional antibody formation was addressed by FACS staining of antigen-expressing target cells. In order to examine the production of functional antibodies, cell culture supernatants of RNA-transfected (20 µg of Ab-RNA as defined above in Example 1) cells were collected after 48 to 96 hours. About 8% of total supernatant was used to stain target cells expressing the respective antigen. Humanised antibodies served as control and for a rough estimate of protein levels. Primary antibody used for cell staining: a) humanised antibody; b) none; c,d) supernatant from RNA-transfected cells expressing the respective antibody; e) supernatant from mock-transfected CHO cells. Calculations on the basis of the analysis shown in Fig. 24 reveal that cells secreted more than 12-15 µg of functional antibody within 48-96 hours. Accordingly, the present invention proves that RNA encoding antibodies may enter into cell, may be expressed within the cell and considerable amounts of RNA encoded antibodies are then secreted by the cell into the surrounding medium/extracellular space. Cell transfection in vivo or in vitro by the inventive RNA may therefore be used to provide antibodies acting e.g. therapeutically in the extracellular space.

Figure 25 shows an alternative sequence of the construct of Fig. 12 (antibody rituximab), wherein the restriction sites have been modified as compared to SEQ ID NO: 61165 of Fig. 12 (SEQ ID NO: 61209). For closer information with regard to the description of various sequence elements it is referred to Figure 12.

Figure 26 shows an alternative sequence of the construct of Fig. 17 (antibody cetuximab), wherein the restriction sites have been modified as compared to SEQ ID NO: 61170 of Fig. 17 (SEQ ID NO: 61210). For closer information with regard to the description of various sequence elements it is referred to Figure 17.

Figure 27 shows an alternative sequence of the construct of Fig. 22 (antibody trastuzumab), wherein the restriction sites have been modified as compared to SEQ ID NO: 61175 of Fig. 22 (SEQ ID NO: 61211). For closer information with regard to the description of various sequence elements it is referred to Figure 22.

Figure 28 shows for Example 2 the median survival time of mice injected with mRNA encoding the antibody trastuzumab (Herceptin) as compared to the median survival time of naïve control mice in an *in vivo* tumor model. Briefly, BALB/c nu/nu mice (n = 14 per group) were subcutaneously implanted with slow-release estrogen pellets (0.72 mg 17β-estradiol). Mice were inoculated subcutaneously with 10 x 10^6 BT-474 tumour cells (100 µl of a cell/matrigel suspension) per mouse on day 0. Treatment was started on day 11 when tumors became injectable. Mice were treated twice weekly for up to 3.5 weeks with a single dose of 50 µg of mRNA (R1965) in a 50 µl injection volume (Ringer Lactate buffer).

Figure 29 shows for Example 3 the concentration of cetuximab in the supernatant of R3578-transfected cells (in vitro antibody expression study). Briefly, HEK293T cells were transfected with 1µg or 4µg of mRNA (R3578) using the Lipofectamine2000 reagent. 24 hours after the transfection, the supernatant was collected and used for staining of A431 cells (EGFR-expressing cell line) and analysed by flow cytometry (FACS). The concentration of Cetuximab in the supernatant of the transfected cells was calculated using a standard curve generated with the commercially available Cetuximab protein.

Figure 30 shows for Example 3 the median survival time of mice injected with mRNA encoding the antibody cetuximab (Erbitux) as compared to the median survival time of naïve control mice in an *in vivo* tumor model. Briefly, BALB/c nu/nu mice were

inoculated subcutaneously in the right flank (near the dorsal region) with a cell suspension of about 5×10^6 SW48 cells (human colon cancer cell line; 100 µl of a cell/matrigel suspension). When the tumor reached a volume of 400-500 mm^3, the tumor tissue blocks were harvested for transplantation. SW48 tumor blocks (about 1.5 mm x 1.5 mm x 1.5 mm in size) were subcutaneously transplanted in the right flank (near the dorsal region) of 125 animals; eventually 40 tumor-bearing mice were enrolled in the study and were assigned to one of the following four groups (n=10 per group): untreated, Ringer Lactate ("RiLa"), 50 µg mRNA encoding cetuximab ("R3578 (50 µg)") and 100 µg mRNA encoding cetuximab ("R3578 (100 µg)"). Except for the untreated group, all mice received the respective "treatment" (RiLa or 50 or 100 µg mRNA) every 3 days for a total of seven injections (21 days).

Figure 31 shows for Example 3 the concentration of cetuximab antibody in the sera of treated mice. Briefly, the sera from mice injected with 100µg and 50µg of R3578 were collected 24 hours after the third application and tested by flow cytometry (FACS) for the presence of functional antibodies as described above. The sera from untreated animals and mice injected with RiLa served as controls.

Figure 32 shows for Example 4 the reduction of the mean tumor volume after treatment with mRNA encoding Blinatumomab (R3981) versus untreated (RiLa control buffer experiment). Mean tumor volume after treatment with R3981 or buffer is depicted. NOG mice were subcutaneously challenged with a mixture of NALM-6 cells and human PBMCs followed by treatment with R3981 or buffer as a control (5x on consecutive days). Tumor growth was measured using caliper and tumor growth curves are depicted. Contrary to the control group, only one of six mice in the cohort treated with the mRNA encoding Blinatumomab developed a measurable tumor. As a result, a statistically significant inhibition of tumor growth was observed compared to the control group.

Figure 33 shows for Example 4 the tumor volume of R3981- and buffer-treated mice on day 34. Day 34 was chosen for this analysis as the last day when all animals in all groups were still alive and therefore the mean tumor volumes could be compared. The treatment with the mRNA encoding Blinatumomab (R3981) significantly inhibited tumor growth compared to the buffer control. The dots represent the tumor volume of individual mice and the horizontal line represents the median.

Figure 34 shows for Example 4 the median survival time of mice injected with mRNA encoding the antibody blinatumomab ("R3981") as compared to the median survival time of buffer control mice in an *in vivo* tumor model. Briefly, survival proportions after tumor challenge with NALM-6 cells were investigated. Survival in groups treated with R3981 or buffer are shown. MS: median survival time.

Figure 35 shows for Example 5 expression of anti-BoNTx antibodies by mRNA transfected cells evaluated by Western blot analysis. Aliquots of cell lysates and supernatants were separated by SDS-PAGE, blotted onto a membrane, and stained with an anti-human detection antibody recognizing heavy as well as light chain. Samples from cells transfected with mRNA encoding an unrelated antibody were used as positive control. Mock-transfected cells served as negative control.

Figure 36 shows for Example 6 the expression of anti-HA antibodies by mRNA transfected cells evaluated by Western blot analysis. Aliquots of cell lysates and supernatants were separated by SDS-PAGE, blotted onto a membrane, and stained with an anti-human detection antibody recognizing heavy as well as light chain. 100 ng of a recombinant antibody were used as positive control and for rough quantification of mRNA-mediated antibody expression. Mock-transfected cells served as negative control.

Figure 37 shows for Example 6 the production of functional anti-HA antibodies by mRNA transfected cells evaluated by flow cytometry. 24 h after transfection of BHK cells with mRNA-encoded anti-HAn antibody supernatant was collected and used for staining of HA-expressing HeLa cells. The supernatant of mock-transfected cells served as negative control.

Figure 38 shows for Example 7 the production of functional anti-RAV G antibodies by mRNA transfected cells evaluated by flow cytometry. 24 h after transfection of BHK cells with mRNA-encoded anti-RAV G antibody supernatant was collected and used for staining of RAV G-expressing HeLa cells. The supernatant of mock-transfected cells served as negative control.

Figure 39 shows the complete mRNA sequence "R1965" coding for the antibody Trastuzumab (Herceptin) (cf. Example 1).

Figure 40 shows the complete mRNA sequence "R3578" coding for the antibody Cetuximab (Erbitux) (cf. Example 1).

Figure 41 shows the complete mRNA sequence "R3981" coding for the antibody Blinatumomab (cf. Example 1).

Figure 42 shows for Example 8 data resulting from an ELISA assay (titers of anti-HIV antibodies expressed by mRNA). Individual supernatants (triplicates; pooled) were analyzed by IgG-specific ELISA. For mock co-transfection, an mRNA encoding eGFP was used.

Figure 43 shows for Example 8 the HIV entry in MAGI-R5 cells in a Magi R5-Tropic Antiviral Assay (VC = virus control; CC = cell control) of a control without RNA (A); the HIV entry in MAGI-R5 cells in a Magi R5-Tropic Antiviral Assay (VC = virus control; CC = cell control) of mRNA-encoded VRC01 (B); and the HIV entry in MAGI-R5 cells in a Magi R5-Tropic Antiviral Assay (VC = virus control; CC = cell control) of commercially available recombinant VRC01 control (C).

Figure 44 shows for Example 9 the concentration of human antibodies in the supernatant of R3917-transfected HEK293T cells evaluated by ELISA. The plates were coated with anti-human antibodies, followed by incubation with the supernatant of R3917-transfected cells and anti-human detection antibodies. The concentration of human antibodies was calculated from the standard curve generated using commercially available Rituximab. The supernatant from the sham-transfected cells (WFI, water for injection) served as a control.

Figure 45 shows for Example 9 the concentration of the functional Rituximab antibodies in the supernatant of R3917-transfected cells evaluated by flow cytometry. 24h after the transfection of HEK293T cells with mRNA-encoded Rituximab (R3917) supernatant was collected and used for staining of CD20-expressing Raji cells. The concentration of Rituximab was calculated from the standard curve generated using commercially available Rituximab. The supernatant from the sham-transfected cells (WFI) served as a control.

Figure 46 shows for Example 10 the expression of anti-RSV F antibodies by mRNA transfected cells evaluated by Western blot analysis. Aliquots of cell lysates and supernatants were separated by SDS-PAGE, blotted onto a membrane, and stained with an anti-human detection antibody recognizing heavy as well as light chain. 100 ng of a recombinant antibody were used as positive control and for rough quantification of

mRNA-mediated antibody expression. Mock-transfected cells served as negative control.

Examples

The Examples shown in the following are merely illustrative and shall describe the present invention in a further way. These Examples shall not be construed to limit the present invention thereto.

Example 1: Preparation of an mRNA encoding heavy and light chain variable regions and antibody expression

1.1 Preparation of expression vectors for modified RNA sequences:

For the production of modified RNA sequences according to the invention, the GC-enriched and translation-optimized DNA sequences which code for a heavy chain and a light chain of the antibodies shown below in Table 12 (e.g. cetuximab (Erbitux), trastuzumab (Herceptin) and rituximab (Rituxan), cf. SEQ ID NO: 61161- 61175, where SEQ ID NO: 61161, 61163, 61166, 61168, 61171 and 61173 represent the particular coding sequences which are not GC-optimized of the heavy and the light chains of these antibodies and SEQ ID NO: 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, and 61175 represent the coding GC-enriched sequences (see above)) were cloned into the pCV19 vector (CureVac GmbH) by standard molecular biology methods. To ensure equimolar expression of the two chains, an IRES (internal ribosomal entry site) was introduced. The mutated 3' UTR (untranslated region) of the alpha-globin gene and a polyA-polyC tail at the 3' end serve for additional stabilizing of the mRNA. The signal peptide of the HLA-A*0201 gene is coded for secretion of the antibody expressed. A His tag was additionally introduced for detection of the antibody. Fig. 6 shows the expression constructs used for cetuximab (Erbitux), trastuzumab (Herceptin) and rituximab (Rituxan).

Table 12: SEQ ID NOs of exemplified and preferred antibodies encoded by the mRNA according to the present invention and of exemplified and preferred mRNAs according to the invention

Antibody	Protein heavy chain (SEQ ID NO)	Protein light chain (SEQ ID NO)	Optimized CDS heavy chain (SEQ ID NO)	Optimized CDS light chain (SEQ ID NO)	mRNA sequence (SEQ ID NO)
Cetuximab (Erbitux)	61237	61238	61240	61241	61243 ("R3578")
Trastuzumab	61270	61271	61273	61274	61276 ("R1965")
Rituximab (Rituxan)	61303	61305	61306	61308	61310 ("R3001")
Blinatumomab	61640 (single chain)	-	61642 (single chain)	-	61643 ("R3981")
Anti-BoNTx_v1	61603	61606	61604	61607	61605 (heavy chain; R4120") 61608 (light chain; "R4122")
Anti-BoNTx_v2	61609	61612	61610	61613	61611 (heavy chain;R5045") 61614 (light chain; "R5046")
Anti-HA CR8033_v1	61456	61457	61458	61459	61465 ("R3996")
Anti-HA CR8033_v2	61469	61470	61471	61472	61474 ("R3998")
Anti-HA CR8033_v3	61475	61476	61477	61478	61480 ("R4000")
Anti-HA CR8033_v4	61481	61482	61483	61484	61486 ("R4002")
Anti-HA CR8033_v5	61487	61488	61489	61490	61492 ("R4004")
Anti-HA CR8033_v6	61493	61494	61495	61496	61498 ("R4012")
Anti-Rabies	61408	61412	61409	61413	61410 (heavy chain; "R4116") 61414 (light chain; "R4118")
Anti-Rabies	61384	61385	61402	61403	61405 ("R3059")
Anti-HIV	61370	61381	61371	61382	61372 (heavy chain; "R5319") 61383 (light chain; "R5320")
Rituximab (Rituxan)	61320	61332	61321	61333	61337 ("R3917")
Anti-RSV F	61675	61697	61676	61698	61677 (heavy chain; "R4179") 61699 (light chain; "R4181")

Antibody	Protein heavy chain (SEQ ID NO)	Protein light chain (SEQ ID NO)	Optimized CDS heavy chain (SEQ ID NO)	Optimized CDS light chain (SEQ ID NO)	mRNA sequence (SEQ ID NO)
Anti-RSV F	61686	61708	61687	61709	61688 (heavy chain; "R4180") 61710 (light chain; "R4182")
Anti-RSV F	61660	61661	61662	61663	61666 ("R3060")

Table 13 below shows further RNA constructs, which were produced, including their SEQ ID NOs and the antibodies, which they encode.

Table 13: SEQ ID NOs of exemplified and preferred mRNAs according to the invention encoding the indicated antibodies.

RNA construct name	SEQ ID NO	Encoded antibody
R3578	61243	Cetuximab (Erbitux)
R3000	61244	Cetuximab (Erbitux)
R1965	61276	Trastuzumab (Herceptin)
R2999	61277	Trastuzumab (Herceptin)
R3012	61278	Trastuzumab (Herceptin)
R3001	61310	Rituximab
R3484	61311	Rituximab
R4128	61322	Rituximab
R5910	61323	Rituximab
R4129	61334	Rituximab
R5911	61335	Rituximab
R3917	61337	Rituximab
R4126	61348	Lexatumumab
R4127	61359	Lexatumumab
R3985	61361	Lexatumumab
R5319	61372	VRC01
R5320	61383	VRC01
R3059	61404	SO57
R3059	61405	SO57
R3061	61406	SO57
R4634	61407	SO57
R4116	61410	SO57
R4635	61411	SO57
R4118	61414	SO57
R4636	61415	SO57
R4640	61416	SO57
R4640	61417	SO57

R5230	61428	anti-rabies_Mouse_ab
R5231	61439	anti-rabies_Mouse_ab
R4112	61460	CR8033
R4530	61461	CR8033
R4114	61462	CR8033
R4531	61463	CR8033
R3996	61465	CR8033
R4633	61466	CR8033
R4639	61467	CR8033
R4639	61468	CR8033
R3998	61473	CR8033
R3998	61474	CR8033
R4000	61479	CR8033
R4000	61480	CR8033
R4002	61485	CR8033
R4002	61486	CR8033
R4004	61491	CR8033
R4004	61492	CR8033
R4012	61497	CR8033
R4012	61498	CR8033
R4007	61520	5J8
R4008	61542	FLA5.10
R4010	61564	PN-SIA49
R5417	61575	Ipilimumab
R5418	61586	Ipilimumab
R4120	61603	anti-BoNT-A
R4120	61604	anti-BoNT-A
R4120	61605	anti-BoNT-A
R4122	61606	anti-BoNT-A
R4122	61607	anti-BoNT-A
R4122	61608	anti-BoNT-A
R5045	61609	anti-BoNT-A
R5045	61610	anti-BoNT-A
R5045	61611	anti-BoNT-A
R5046	61612	anti-BoNT-A
R5046	61613	anti-BoNT-A
R5046	61614	anti-BoNT-A
R3118, R3729	61615	anti-BoNT-A
R3118	61616	anti-BoNT-A
R3729	61617	anti-BoNT-A
R3979	61638	Blinatumomab
R3981	61643	Blinatumomab
R3058	61665	anti-RSV
R3060	61666	anti-RSV
R4179	61677	anti-RSV
R4180	61688	anti-RSV

R4181	61699	anti-RSV
R4182	61710	anti-RSV
R4124	61721	anti-VEGFR2
R4125	61732	anti-VEGFR2
R3983	61733	anti-VEGFR2
R3983	61734	anti-VEGFR2

1.2 Preparation of the G/C-enriched and translation-optimized antibody-coding mRNA

An *in vitro* transcription was carried out by means of T7 polymerase (T7-Opti mRNA Kit, CureVac, Tübingen, Germany), followed by purification with Pure Messenger™ (CureVac, Tübingen, Germany). For this, a DNase digestion was first carried out, followed by an LiCl precipitation and thereafter an HPLC using a porous reverse phase as the stationary phase (PURE Messenger).

1.3 Cell lines

RNA-based expression of humanised antibodies was done in either CHO-K1 or BHK-21 (Syrian hamster kidney, HER2-negative) cells. The tumour cell lines BT-474, A-431 and Raji strongly expressing HER2, EGFR and CD20, respectively, were used to record antibody levels by FACS analysis. All cell lines except CHO were maintained in RPMI medium supplemented with FCS and glutamine according to the supplier's information. CHO cells were grown in Ham's F12 supplemented with 10% FCS. All cell lines were obtained from the German collection of cell cultures (DSMZ, Braunschweig, Germany).

1.4 Antibody expression

Various amounts of mRNA (G/C enriched as defined by Figures 12, 17, 22, 25, 26, 27) encoding the humanised antibodies Herceptin, Erbitux, and Rituxan, respectively, were transfected into either CHO or BHK cells by electroporation (300 V, 450 µF for CHO and 300 V, 150 µF for BHK). After transfection, cells were seeded onto 24-well cell culture plates at a density of 200.000 to 400.000 cells per well. For collection of secreted protein, medium was replaced by 250 µl of fresh medium after cell attachment to the plastic surface. Secreted protein was collected for 24-96 hours and stored at 4 °C. In addition, cells were harvested into 50 µl of phosphate buffered saline (1xPBS buffer) containing 0.5% BSA and broken up by three freeze-thaw cycles. Cell lysates were cleared by centrifugation and stored at -80 °C.

1.5 Western Blot analysis

In order to detect translation of transfected RNA, proteins from either cell culture supernatants or cell lysates were separated by a 12% SDS-PAGE and blotted onto a nitrocellulose membrane. Humanised antibodies Herceptin (Roche), Erbitux (Merck KGAA), and Mabthera = Rituxan

(Roche) were used as controls. After blotting was completed, membranes were consecutively incubated with a biotinylated goat anti-human IgG antibody (Dianova), streptavidin coupled to horseradish peroxidase (BD), and a chemiluminescent substrate (SuperSignal West Pico, Pierce). Staining was detected with a Fuji LAS-1000 chemiluminescence camera. Results are shown in Figure 23.

1.6 FACS analysis

Functional antibody formation can be demonstrated by FACS staining of antigen-expressing target cells. In order to examine the production of functional antibodies, cell culture supernatants of RNA-transfected cells were collected after 48 to 96 hours. Approximately 200.000 target cells expressing the respective antigen were incubated with either control antibodies (Herceptin, Erbitux, Mabthera) or cell culture supernatants. For detection of bound antibodies, cells were stained with biotinylated goat anti-human IgG antibody (Dianova) and PE-labelled streptavidin (Invitrogen). Cells were analysed on a FACSCalibur (BD).

Example 2: Effects of an mRNA encoding trastuzumab (Herceptin) in an *in vivo* tumor model

2.1 Preparation of mRNA

For the present example a DNA sequence encoding the Trastuzumab protein was prepared and used for subsequent *in vitro* transcription reactions as described in Example 1.

Briefly, a vector for *in vitro* transcription was constructed containing a T7 promoter and a GC-enriched sequence coding for the heavy and light chain of the Trastuzumab antibody, separated by the internal ribosomal entry site (IRES) from Encephalomyocarditis virus (EMCV). An α-globin 3'-UTR, followed by an A64 poly(A) sequence and a C30 sequence, was inserted 3' of the open reading frame (ORF). The C30 sequence was followed by a restriction site used for linearization of the vector before *in vitro* transcription. This DNA construct is shown in Figures 22 and 39 (SEQ ID NO: 61175). This vector was transcribed *in vitro* in the presence of a cap analog resulting in 5'-capped (m7G) mRNA ("R1965").

2.2 Animal study

Before the start of the experiment, 7 weeks old female BALB/c nu/nu mice (n = 14 per group) were subcutaneously implanted with slow-release estrogen pellets (0.72 mg 17β-estradiol) because the BT-474 cell line is estrogen receptor positive and estrogen enhances tumorigenicity. Mice were inoculated subcutaneously with 10 x 10^6 BT-474 tumour cells (100 µl of a cell/matrigel

suspension) per mouse on day 0. Treatment was started on day 11 when tumors became injectable. Mice were treated twice weekly for up to 3.5 weeks with a single dose of 50 µg of mRNA (R1965) in a 50 µl injection volume (Ringer Lactate buffer).

2.3 Statistical analysis

The statistical difference in survival was evaluated using Mantel-Cox ($p = 0.0499$) and Gehan-Breslow ($p = 0.0425$) tests, which assume the proportional hazards or give more weight to deaths at early time points, respectively.

2.4 Results

Results are shown in Figure 28. This experiment demonstrates the effectiveness of the mRNA-encoded antibody Trastuzumab with respect to enhancing survival of nude BALB/c mice harboring a human tumor cell xenograft (BT-474 breast cancer cell line). The Her-2 positive tumor cell line BT-474 was used to establish tumors which were then treated by intratumoral injections of mRNA encoding the anti-Her-2 antibody Trastuzumab. The effectiveness of treatment was demonstrated by prolonged survival of treated animals compared to untreated animals (Figure 28). The median survival time compared to untreated mice was increased by 5.5 days.

Example 3: *In vitro* and *in vivo* effects of an mRNA encoding cetuximab (Erbitux)

3.1 Preparation of mRNA

For the present example a DNA sequence encoding the Cetuximab protein was prepared and used for subsequent *in vitro* transcription reactions as described in Example 1.

Briefly, a vector for *in vitro* transcription was constructed containing a T7 promoter and a GC-enriched sequence coding for the heavy and light chain of the Cetuximab antibody, separated by the internal ribosomal entry site (IRES) from Encephalomyocarditis virus (EMCV). An α-globin 3'-UTR, followed by an A64 poly(A) sequence and a C30 sequence, was inserted 3' of the open reading frame (ORF). The C30 sequence was followed by a restriction site used for linearization of the vector before *in vitro* transcription. This DNA construct is shown in Figure 17 and 40 (SEQ ID NO: 61170). This vector was transcribed *in vitro*.After *in vitro* transcription, the mRNA was enzymatically capped and polyadenylated. The resulting mRNA was termed "R3578".

3.2 *In vitro* expression of the antibody cetuximab

The expression of functional antibodies by mRNA-encoded Cetuximab was evaluated *in vitro*. To this end, HEK293T cells were transfected with 1µg or 4µg of mRNA (R3578) using the

Lipofectamine2000 reagent. 24 hours after the transfection, the supernatant was collected and used for staining of A431 cells (EGFR-expressing cell line) and analysed by flow cytometry (FACS). The concentration of Cetuximab in the supernatant of the transfected cells was calculated using a standard curve generated with the commercially available Cetuximab protein. As shown in Figure 29, transfection with 4µg of mRNA (R3578) resulted in the production of functional antibodies at the concentration of approximately 40ng/ml.

3.3 Animal study

6-7 weeks old female BALB/c nu/nu mice (n=10) were inoculated subcutaneously in the right flank (near the dorsal region) with a cell suspension of about 5×10^6 SW48 cells (human colon cancer cell line; 100 µl of a cell/matrigel suspension). When the tumor reached a volume of 400-500 mm^3, the tumor tissue blocks were harvested for transplantation. SW48 tumor blocks (about 1.5 mm x 1.5 mm x 1.5 mm in size) were subcutaneously transplanted in the right flank (near the dorsal region) of 125 animals; eventually 40 tumor-bearing mice were enrolled in the study. The animals were weighed and randomized into treatment groups when the tumor size reached a volume of 100-150 mm^3. The date to start treatment was designated as day 0. All groups consisted of 10 animals each. The mRNA or Ringer lactate buffer was administered in a 50 µl volume intratumorally as shown in Table 14.

Table 14: Group designation and dosing schedule

Group	No. of animals	Treatment	Dose	Frequency and days of dosing (after randomization)
1	10	Untreated	-	-
2	10	Ringer Lactate	-	Every 3 days for a total number of 7 injections
3	10	R3578 (Cetuximab (Erbitux) SEQ ID NO: 61243)	100 µg	Every 3 days for a total number of 7 injections
4	10	R3578 (Cetuximab (Erbitux) SEQ ID NO: 61243)	50 µg	Every 3 days for a total number of 7 injections

Animals in a deteriorating condition with a body weight loss greater than 30% or bearing a tumor exceeding 2,000 mm^3 in size were euthanized.

Tumor volume, expressed in mm^3, was calculated using the following formula, in which "a" and "b" are the long and the short diameters of a tumor, respectively.

$$V\ (mm^3) = (a \times b^2)/2$$

Statistical analysis

The statistical difference in survival was evaluated using Mantel-Cox and Gehan-Breslow tests, which assume the proportional hazards or give more weight to deaths at early time points, respectively. The hazard ratio (logrank) as part of the survival analysis of two data sets was included in the results. Hazard is defined as the slope of the survival curve and the hazard ratio compares the rate of death between two groups. The statistical difference between groups was evaluated using Mann-Whitney test.

Results

This experiment demonstrates the efficacy of the mRNA-encoded antibody Cetuximab with respect to enhancing survival of nude BALB/c mice harboring a human tumor cell xenograft (SW48 human colon cancer cell line).

As shown in Figure 30, compared to the buffer-treated mice, the treatment with R3578 increased the time to the first death incident by 20% (7 days; first incident at day 42 compared to day 35 in RiLa-treated mice) in the group injected with 100µg of mRNA-encoded Cetuximab (Fig. 30A) and approximately 15% (5 days) in the group treated with 50µg of R3578 (Fig. 30B). Moreover, at day 51 all mice in the RiLa group were dead, whereas in total four mice treated with R3578 were still alive (one mouse in group treated with 100µg R3578 and three mice treated with 50µg R3578) were still alive. Consequently, the median survival time compared to RiLa-injected mice was increased in animals treated with 100µg or 50µg of mRNA-encoded Cetuximab.

To confirm the expression and functionality of mRNA-encoded Cetuximab *in vivo*, the sera from mice injected with 100µg and 50µg of R3578 were collected 24 hours after the third application and tested by flow cytometry (FACS) for the presence of functional antibodies as described above. The sera from untreated animals and mice injected with RiLa served as controls. As shown in Figure 31, Cetuximab antibodies were clearly detectable in both groups injected with R3578 confirming the *in vivo* expression and functionality (capability to bind to EGFR) of mRNA-encoded antibodies.

Example 4: Effects of an mRNA encoding a single chain, bispecific antibody (blinatumomab) in an *in vivo* tumor model

As a further example, mRNA coding for Blinatumomab was tested *in vivo* (a bispecific anti-CD3/anti-CD19 antibody).

4.1 Preparation of mRNA

For the present example a DNA sequence encoding the Blinatumomab antibody was prepared and used for subsequent *in vitro* transcription reactions in a similar manner as described in Example 1, except that the antibody encoded by the mRNA was Blinatumomab.

Briefly, a vector for *in vitro* transcription was constructed containing a T7 promoter and a GC-enriched sequence coding for Blinatumomab (a fusion protein consisting of the variable regions of two single-chain monoclonal antibodies (scFvs) – CD19 and CD3 – covalently linked by a non-immunogenic five-amino acid chain). An α-globin 3'-UTR, followed by an A64 poly(A) sequence and a C30 sequence, was inserted 3' of the open reading frame (ORF). The C30 sequence was followed by a restriction enzyme site used for linearization of the vector before *in vitro* transcription. The respective CDS sequence as well as the sequence of the mRNA can be retrieved from Table 12 (Example 1). This vector was transcribed *in vitro* in the presence of a cap analog resulting in 5'-capped (m7G) mRNA ("R3981").

4.2 Animal study

NOG female mice (n=6 per group) were inoculated subcutaneously in the right flank with a cell suspension consisting of 1×10^6 NALM-6 cells (human pre-B cell leukemia) and 1×10^8 freshly isolated human PBMCs (peripheral blood mononuclear cells). The NALM-6 cells were co-injected together with human peripheral mononuclear cells (PBMCs) as source of human T-cells because Blinatumomab as a bispecific antibody recognizes the CD19 protein on the human NALM-6 cells and the CD3 protein on the human T cells. One hour after cell inoculation mice were treated by peritumoral injections of the mRNA encoding Blinatumomab ("R3981"; 100 µg) or buffer (Ringer Lactate) as a control and this treatment was repeated on five consecutive days. The detailed group description is depicted in Table 15.

Table 15: Animal groups and dosing schedule.

Group	No. of animals	PBMCs	Treatment	Dose	Treatment schedule
1	6	---	Ringer Lactate	---	At five consecutive days beginning at day 0
2	6	+	Ringer Lactate	---	At five consecutive days beginning at day 0
3	6	+	R3981 (Blinatumomab SEQ ID NO: 61643)	100 µg	At five consecutive days beginning at day 0

The animal health status was checked daily. Animals in a deteriorating condition with a body weight loss greater than 20% or bearing a tumor exceeding 2 cm^3 in size were euthanized.

Tumor volume, expressed in cm^3, was calculated using the following formula, in which "a" and "b" are the long and the short diameters of a tumor, respectively.

$$V\ (cm^3) = (a \times b^2)/2$$

Statistical analysis

The statistical analysis of tumor growth curves was performed using 2-way ANOVA test with Bonferroni post test. The statistical analysis of differences in tumor volume at day 34 was performed using t-test with Welch's correction (the data were normally distributed as determined by Kolmogorov-Smirnov normality test). The statistical difference in survival was evaluated using Mantel-Cox test.

Results

This experiment shows the efficacy of the mRNA-encoded Blinatumomab antibody in terms of reduction of tumor growth and enhancing survival of NOG mice harboring a human cell xenograft (NALM-6 human pre-B leukemia cells).

Subcutaneously injected NALM-6 cells developed palpable tumors in control treated mice at day 25. Thereafter, the tumor rapidly increased in size in all buffer-treated animals (Figure 32). Contrary to the control group, only one of six mice in the cohort treated with the mRNA-encoded Blinatumomab developed a measurable tumor. As a result, a statistically significant inhibition of tumor growth in the group injected with R3981 in comparison to buffer-treated mice was observed.

To further demonstrate the impact of the mRNA-encoded Blinatumomab treatment on the growth of the subcutaneously injected NALM-6 cells the tumor volume of each mouse at day 34 was depicted (Figure 33). Day 34 was chosen for this analysis as the last day when all animals in all groups were still alive and therefore the mean tumor volumes can be compared. As shown in Figure 33, treatment with R3981 significantly inhibited tumor growth compared to the buffer control.

In addition to the effect on tumor growth, the difference in survival between the experiments groups was evaluated. As shown in Figure 34, treatment with the mRNA-encoded Blinatumomab significantly enhanced mice survival compared to the buffer-treated animals. At day 49, all animals in the R3981-treated group were alive (5/6 mice were completely tumor-free and only one mouse had a measurable tumor) compared to the control group where five of six animals

were already dead. Consequently, the R3981-treated group had an undefined median survival time (MS), whereas the buffer-treated group reached MS at 38.25 days. Thus treatment with the mRNA encoding Blinatumomab significantly enhanced the survival compared to the buffer-treated animals.

Example 5: *In vitro* expression of mRNA-encoded anti-BoNTx antibody

In this experiment the *in vitro* expression of mRNA-encoded anti-BoNTx antibody was evaluated.

5.1 Preparation of mRNA

For the present example DNA sequences encoding an antibody directed against the Botulinum neurotoxin (BoNTx) (Amersdorfer et al., 1997. Infect. Immun. 65(9):3743-52) were prepared and used for subsequent *in vitro* transcription reactions. Heavy (HC) and light (LC) chain of the antibody were encoded as separate entities and constructs differed regarding signal peptides used for protein secretion (Table 16).

Vectors for *in vitro* transcription were constructed containing a T7 promoter and a GC-enriched sequence coding for the heavy and light chain of the antibody, respectively. An α-globin 3'-UTR, followed by an A64 poly(A) sequence and a C30 sequence, was inserted 3' of the open reading frame (ORF). The C30 sequence was followed by a restriction site used for linearization of the vector before *in vitro* transcription. The respective CDS sequences as well as the sequences of the mRNA can be retrieved from Table 12 (Example 1). For capping of the mRNA, *in vitro* transcription was conducted in the presence of cap analog.

Table 16: mRNA constructs

mRNA	encoded antibody	signal peptide	RNA design
R5045 (any of SEQ ID NOs 61609-61611)/R5046 (any of SEQ ID NOs 61612-61614)	anti-BoNTx	HLA-2	HC and LC encoded on separate mRNA molecules
R4120 (any of SEQ ID NOs 61603-61605)/R4122 (any of SEQ ID NOs 61606-61608)	anti-BoNTx	immunoglobulin	HC and LC encoded on separate mRNA molecules

5.2 *In vitro* expression of the anti-BoNTx antibody evaluated by Western blot analysis

The expression of mRNA-encoded anti-BoNTx antibody was evaluated *in vitro*. To this end, BHK cells were transfected with 10 µg of mRNA using the Lipofectamine2000 reagent. 24 hours after

the transfection, cells and supernatants were collected for Western blot analysis to determine the expression of human antibodies.

5.3 Results

As shown in Figure 35, human antibodies were clearly detectable in lysates and supernatants of mRNA-transfected cells. The mRNA-transfected cells produced both, heavy and light chain, and gave rise to high and equivalent levels of both chains in the supernatant, thus strongly suggesting the production of correctly folded and assembled antibodies. Expression was specific as no antibodies were detected in the supernatants of mock-transfected cells.

Example 6: *In vitro* expression of mRNA-encoded anti-influenza (anti-HA) antibody

In these experiments the *in vitro* expression and binding to the native antigen of mRNA-encoded CR8033 (anti-HA: anti-hemagglutinin) antibody was evaluated.

6.1 Preparation of mRNA

For the present example DNA sequences encoding the CR8033 anti-hemagglutinin antibody (Dreyfus et al., 2012. Science 337(6100):1343-8) were prepared and used for subsequent *in vitro* transcription reactions. The antibody was represented by bi-cistronic sequences in which heavy chain (HC) and light chain (LC) were separated by the internal ribosomal entry site (IRES) from either Encephalomyocarditis (EMCV) or Foot-and-mouth disease (FMDV) virus. Moreover, sequences varied with respect to the order of heavy and light chain or utilized different signal peptides for the secretion of both chains (Table 17).

Vectors for *in vitro* transcription were constructed containing a T7 promoter and a GC-enriched sequence coding for the heavy and light chain of the antibody. An α-globin 3'-UTR, followed by an A64 poly(A) sequence and a C30 sequence, was inserted 3' of the open reading frame (ORF). The C30 sequence was followed by a restriction site used for linearization of the vector before *in vitro* transcription. The respective CDS sequences as well as the sequences of the mRNA can be retrieved from Table 12 (Example 1). For capping of the mRNA, *in vitro* transcription was conducted in the presence of cap analog.

Table 17: mRNA constructs

mRNA	encoded antibody	signal peptide	RNA design
R3996 (SEQ ID NO: 61465)	CR8033 (anti-HA)	immunoglobulin	HC:EMCV-IRES:LC

R4000 (SEQ ID NO: 61479, 61480)	CR8033 (anti-HA)	Albumin (ALB)	HC:EMCV-IRES:LC

6.2 *In vitro* expression of the CR8033 antibody evaluated by Western blot analysis

The expression of antibodies by mRNA-encoded CR8033 was evaluated *in vitro*. To this end, BHK cells were transfected with 10 µg of mRNA using the Lipofectamine2000 reagent. 24 hours after the transfection, cells and supernatants were collected for Western blot analysis to determine the expression of human antibodies.

6.3 *In vitro* expression of functional CR8033 antibody evaluated by flow cytometry

To confirm the functionality of the in vitro-produced mRNA-encoded antibody, the supernatant obtained after transfection of BHK cells (as described above) was used for staining of hemagglutinin (HA) expressing HeLa cells. To this end, HeLa cells were transfected with 1 µg of HA-expressing mRNA using the Lipofectamine2000 reagent and, after staining, analyzed by flow cytometry (FACS). The expression is presented as median fluorescence intensity.

6.4 Results

As shown in Figure 36, mRNA-transfected cells produced both, heavy and light chain, and gave rise to high and equivalent levels of both chains in the supernatant, thus strongly suggesting the production of correctly folded and assembled antibodies. Expression was specific as no antibodies were detected in the supernatants of mock-transfected cells.

As shown in Figure 37, all antibody-encoding mRNAs resulted in the production of functional antibodies.

Example 7: *In vitro* and *in vivo* expression of mRNA-encoded anti-rabies (anti-RAV G) antibody

In this experiment the *in vitro* expression and binding to the native antigen of mRNA-encoded anti-RAV G antibody was evaluated.

7.1 Preparation of mRNA

For the present example DNA sequences encoding an antibody directed against the Rabies virus glycoprotein (RAV G) (SO57 antibody; Prosniak et al., 2003. J. Infect. Dis. 188(1):53-6) were prepared and used for subsequent *in vitro* transcription reactions. Heavy (HC) and light (LC) chain of the antibody were either linked by the internal ribosomal entry site (IRES) from Encephalomyocarditis virus (EMCV) or encoded as separate entities (Table 18).

Vectors for *in vitro* transcription were constructed containing a T7 promoter and a GC-enriched sequence coding for the heavy and/or light chain of the antibody. An α-globin 3'-UTR, followed by an A64 poly(A) sequence and a C30 sequence, was inserted 3' of the open reading frame (ORF). The C30 sequence was followed by a restriction site used for linearization of the vector before *in vitro* transcription. The respective CDS sequences as well as the sequences of the mRNA can be retrieved from Table 12 (Example 1). For capping of the mRNA, *in vitro* transcription was conducted in the presence of cap analog.

Table 18: mRNA constructs

mRNA	encoded antibody	signal peptide	RNA design
R4116 (SEQ ID NO: 61410)/R4118 (SEQ ID NO: 61414)	anti-RAV G	immunoglobulin	HC and LC encoded on separate mRNA molecules
R3059 (SEQ ID NO: 614104/614105)	anti-RAV G	immunoglobulin	HC:EMCV-IRES:LC

7.2 *In vitro* expression of the functional anti-RAV G antibody evaluated by flow cytometry

To demonstrate functionality of in vitro-produced mRNA-encoded antibody, the supernatant obtained after transfection of BHK cells was used for staining of RAV G expressing HeLa cells. To this end, BHK cells were transfected with 10 µg of antibody-encoding mRNA and HeLa cells were transfected with 1 µg of RAV G-expressing mRNA, respectively, using the Lipofectamine2000 reagent. After staining, HeLa cells were analyzed by flow cytometry (FACS). The expression level of the anti-RAV G antibody is presented as median fluorescence intensity.

7.3 Results

As shown in Figure 38, all antibody-encoding mRNAs resulted in the production of functional antibodies. However, the antibody produced from mRNA molecules separately encoding heavy chain and light chain produced higher antibody levels as compared to the antibody produced from an mRNA molecule encoding both, heavy chain and light chain. All antibodies were functional as they recognized and bound RAV G antigen expressed on the surface of HeLa cells. Encoding heavy and light chain by separate mRNA molecules instead of a bi-cistronic construct strongly increased the amount of functional antibodies secreted by mRNA-transfected cells.

Example 8: *In vitro* expression of mRNA-encoded anti-HIV antibody

In this experiment the *in vitro* expression and neutralization activity to the HIV-1Ba-L HIV strain was tested for RNA-encoded antibodies.

8.1 Preparation of mRNA

For the present example DNA sequences encoding an antibody directed against the HIV (VRC01; Wu et al., Science 329(5993):856-861, 2010) were prepared and used for subsequent *in vitro* transcription reactions. Heavy (HC) and light (LC) chain of the antibody were encoded as separate entities (Table 19). For the heavy chains of VRC01, the sequence of the IgG constant region of SO57 and the sequence of an immunoglobulin kappa light chain constant region (GenBank: AGH70219.1) was used.

Vectors for in vitro transcription were constructed containing a T7 promoter and a GC-enriched sequence coding for the heavy and/or light chain of the antibody. An α-globin 3'-UTR, followed by an A64 poly(A) sequence and a C30 sequence, was inserted 3' of the open reading frame (ORF). The C30 sequence was followed by a restriction site used for linearization of the vector before in vitro transcription. The respective CDS sequences as well as the sequences of the mRNA can be retrieved from Table 12. For capping of the mRNA, in vitro transcription was conducted in the presence of cap analog. Cells were transfected with lipofectamin 2000 complexed mRNA.

Table 19: mRNA constructs

mRNA construct	encoded antibody	RNA design
R5319 (SEQ ID NO: 61372)/R5320 (SEQ ID NO: 61383)	VRC01	HC and LC encoded on separate mRNA molecules

8.2 *In vitro* expression of the functional anti-HIV antibody evaluated by IgG ELISA

To demonstrate expression of *in vitro*-produced mRNA-encoded antibody, the supernatant obtained after transfection of BHK cells was subjected to an IgG-specific ELISA where plates were coated with an anti-human IgG antibody. Antibody detection was obtained in a plate reader.

8.3 *In vitro* functionality of an anti-HIV antibody evaluated in MAGI-R5 cells - inhibitory Effect on HIV Infection

The inhibitory activity of the mRNA-encoded antibody of the invention on HIV infection is measured on the human MAGI R5 recombinant cell line coexpressing the human CCR5 receptor

and CD4 at their extracellular membrane. The cells used in the assay contain the HIV-1 LTR promoter that drives expression of β-gal upon infection (this driven by the interaction of tat and the LTR).

Consequently, to demonstrate the functionality of anti-HIV antibody, the supernatant obtained after transfection of BHK cells was subjected to the virus entry test using MAGI-R5 cells which report the entry of HIV by chemo luminescence (Magi R5-Tropic Antiviral Assay performed at Southern Research, Maryland, USA). Inhibition of virus entry correlates with reduced RLU (relative light units). Upon virus entry, the receptor (CCR5) fused to beta-gal is expressed which is detected by chemo-luminescence, thus, the lower the RLU values the more inhibition of virus entry is observed.

8.4 Results

As shown in Figure 42, mRNA encoding anti-HIV antibody expressed antibodies.

As shown in Figure 43, increasing concentrations of expressed anti-HIV antibody reduced virus entry in MAGI cells (CC = cell control containing cells only; VC = virus control containing also virus). Included as a control was commercially available recombinant VRC01 (Fig. 43C). mRNA-encoded VRC01 (Fig. 43B) inhibited the entry of HIV similar to recombinant VRC01 (Fig. 43C). Thus, the mRNA-encoded antibody of the invention is able to protect a human recombinant cell line (MAGI R5 cell) from the infection by a HIV virus.

Example 9: *In vitro* expression of mRNA-encoded Rituximab

In these experiments the *in vitro* expression of mRNA-encoded Rituximab and binding to its native antigen was evaluated.

9.1. Preparation of mRNA

For the present example a DNA sequence encoding the Rituximab protein was prepared and used for subsequent *in vitro* transcription reactions.

A vector for *in vitro* transcription was constructed containing a T7 promoter and a GC-enriched sequence coding for the heavy and light chain of the Rituximab antibody, separated by the internal ribosomal entry site (IRES) from Encephalomyocarditis virus (EMCV). An α-globin 3'-UTR, followed by an A64 poly(A) sequence and a C30 sequence, was inserted 3' of the open reading frame (ORF). The C30 sequence was followed by a restriction site used for linearization of the

vector before *in vitro* transcription. This vector was transcribed *in vitro* in the presence of a cap analog resulting in 5'-capped (m7G) mRNA (R3917; SEQ ID NO: 61337).

9.2 *In vitro* expression of the Rituximab antibody evaluated by ELISA

The expression of functional antibodies by mRNA-encoded Rituximab was evaluated *in vitro.* To this end, HEK293T cells were transfected with 1µg or 4µg of mRNA (R3917) using the Lipofectamine2000 reagent. 24 hours after the transfection, the supernatant was collected and used in ELISA to determine the expression of human antibodies.

9.3 *In vitro* expression of the functional Rituximab antibody evaluated by flow cytometry

To confirm the functionality of the in vitro-produced mRNA-encoded Rituximab, the supernatant obtained after transfection of HEK293T cells (as described above) was used for staining of Raji cells (the cell line expressing human CD20) and the cells were analysed by flow cytometry (FACS). The concentration of Rituximab in the supernatant of the transfected cells was calculated using a standard curve generated with the commercially available Rituximab protein.

9.4 Results

In these experiments the *in vitro* expression of mRNA-encoded Rituximab and binding to its native antigen was evaluated.

As shown in Figure 44, the concentration of over 10 ng/ml of human antibodies was detected in the supernatant of cells transfected with 4µg of R3917, the expression was dose-dependent and specific as no antibodies were detected in the supernatants of the sham-transfected cells. These antibodies were functional as they recognized and bound CD20 antigen expressed on the surface of Raji cells (Fig. 45). The estimated concentration of the antibodies using ELISA (here, a method that measures human antibodies) and flow cytometry (here, a method that measures only functional Rituximab) was similar suggesting that all antibodies detected in the supernatant are fully functional.

Example 10: *In vitro* expression of mRNA-encoded anti-RSV F antibody

In this experiment the *in vitro* expression of an mRNA-encoded antibody against *human respiratory syncytial virus F protein* (anti-RSV F antibody; Palivizumab) was investigated.

10.1 Preparation of mRNA

For the present example DNA sequences encoding an antibody directed against the human respiratory syncytial virus F protein (RSV F) (Synagis antibody) were prepared and used for subsequent *in vitro* transcription reactions. Heavy (HC) and light (LC) chain of the antibody were either linked by the internal ribosomal entry site (IRES) from Encephalomyocarditis virus (EMCV) or encoded as separate entities (Table 20). Vectors for *in vitro* transcription were constructed containing a T7 promoter and a GC-enriched sequence coding for the heavy and/or light chain of the antibody. An α-globin 3'-UTR, followed by an A64 poly(A) sequence and a C30 sequence, was inserted 3' of the open reading frame (ORF). The C30 sequence was followed by a restriction site used for linearization of the vector before *in vitro* transcription. For capping of the mRNA, *in vitro* transcription was conducted in the presence of cap analog.

Table 20: mRNA constructs

mRNA construct	encoded antibody		RNA design
R4179 (SEQ ID NO: 61677)/R4181 (SEQ ID NO: 61699)	anti-RSV F	immunoglobulin	HC and LC encoded on separate mRNA molecules
R4180 (SEQ ID NO: 61688)/R4182 (SEQ ID NO: 61710)	anti-RSV F	immunoglobulin	HC and LC encoded on separate mRNA molecules
R3060 (SEQ ID NO: 61666)	anti-RSV F	HLA-2	HC:EMCV-IRES:LC

10.2 *In vitro* expression of the anti-RSV-F antibodies evaluated by Western blot analysis

The expression of mRNA-encoded anti-RSV F antibody was evaluated *in vitro*. To this end, BHK cells were transfected with 10 µg of mRNA using the Lipofectamine2000 reagent. 24 hours after the transfection, cells and supernatants were collected for Western blot analysis to determine the expression of human antibodies.

10.3 Results

As shown in Fig. 46, human antibodies were clearly detectable in lysates and supernatants of mRNA-transfected cells. However, the antibody level was strongly dependent on the format of antibody representation. The mRNA-transfected cells produced both, heavy and light chain, while encoding heavy and light chain by separate mRNA molecules instead of a bi-cistronic construct strongly improved the ratio of heavy and light chain, thus giving rise to almost equivalent levels of both chains. Expression was specific as no antibodies were detected in the supernatants of mock-transfected cells.

Claims

1. RNA comprising at least one coding sequence, wherein the coding sequence comprises a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any one of said nucleic acid sequences.

2. The RNA according to claim 1, wherein the at least one coding sequence comprises a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NO: 7643-61136, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372,

61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant of any one of said nucleic acid sequences.

3. The RNA according to claim 1 or 2, wherein the at least one coding sequence encodes an antibody or a fragment or variant thereof, in particular an antigen-binding fragment or variant thereof.

4. The RNA according to claim 3, wherein the at least one coding sequence encodes a heavy chain and/or a light chain of an antibody, or a fragment or variant of a heavy chain and/or of a light chain of an antibody, in particular an antigen-binding fragment or variant of a heavy chain and/or of a light chain of an antibody.

5. The RNA according to any one of claims 1 to 4, wherein the at least one coding sequence encodes a heavy chain variable region and/or a light chain variable region of an antibody, or an antigen-binding fragment or variant of a heavy chain variable region and/or a light chain variable region of an antibody.

6. The RNA according to any of claims 1 to 5, wherein the at least one coding sequence encodes a complementarity determining region (CDR) of an antibody.

7. The RNA according to claim 6, wherein the CDR encoded by the at least one coding sequence comprises or consists of an amino acid sequence as set forth in any of SEQ ID NOs: 5601-7570.

8. The RNA according to claim 6 or 7, wherein the at least one coding sequence comprises or consists of a nucleic acid sequence as set forth in any of SEQ ID NOs: 13243-15212, 20885-22854, 28527-30496, 36169-38138, 43811-45780, 51453-53422, and 59095-61064.

9. The RNA according to any of claims 6 to 8, wherein the RNA comprises coding sequences encoding at least two CDRs of an antibody, preferably at least three CDRs of an antibody, more preferably at least four CDRs of an antibody, even more preferably at least five CDRs of an antibody, and most preferably six CDRs of an antibody.

10. The RNA according to any of claims 1 to 4, wherein the at least one coding sequence encodes a constant region of an antibody or a fragment or variant of constant region of an antibody.

11. The RNA according to claim 10, wherein the at least one coding sequence encodes a heavy chain constant region of an antibody or a fragment or variant of heavy chain constant region of an antibody.

12. The RNA according to claim 10, wherein the at least one coding sequence encodes a light chain constant region of an antibody or a fragment or variant of light chain constant region of an antibody.

13. The RNA according to any one of claims 10 - 12, wherein the constant region or the fragment or variant thereof encoded by the at least one coding sequence comprises or consists of an amino acid sequence as set forth in any of SEQ ID NOs: 7571-7642.

14. The RNA according to any one of claims 10 - 13, wherein the at least one coding sequence comprises or consists of a nucleic acid sequence as set forth in any of SEQ ID NOs: 15213-15284, 22855-22926, 30497-30568, 38139-38210, 45781-45852, 53423-53494, and 61065-61136.

15. The RNA according to any one of claims 1 - 14, wherein the RNA comprises (i) a coding sequence encoding a heavy chain variable region, or a fragment or variant thereof, and a heavy chain constant region, or a fragment or variant thereof; and/or (ii) a coding sequence encoding a light chain variable region, or a fragment or variant thereof, and a light chain constant region, or a fragment or variant thereof.

16. The RNA according to any of claims 1 to 15, wherein the antibody or the fragment thereof is chosen from monoclonal and polyclonal antibodies or fragments thereof, chimeric antibodies or fragments thereof, human antibodies or fragments thereof, humanized antibodies or fragments thereof, and intrabodies or fragments thereof.

17. The RNA according to any of claims 1 to 16, wherein the antibody or the fragment thereof is a monospecific or a multispecific antibody or antibody fragment.

18. The RNA according to claim 17, wherein the antibody or the fragment thereof is a bispecific or a trispecific antibody or antibody fragment.

19. The RNA according to any of claims 3 to 18, wherein the antibody fragment is chosen from a Nanobody; Nanobody-HAS; BiTE; Diabody; DART; TandAb; scDiabody; sc-Diabody-CH3; Diabody-CH3; Triple Body; Miniantibody; Minibody; TriBi minibody; scFv-CH3 KIH; Fab-scFv; scFv-CH-CL-scFv; F(ab')2; F(ab')2-scFv2; scFv-KIH; Fab-scFv-Fc; Tetravalent HCAb; scDiabody-Fc; Diabody-Fc; Tandem scFv-Fc; Fab; Fab'; Fc; Facb; pFc'; Fd; Fv or scFv antibody fragment.

20. The RNA according to any of claims 3 to 19, wherein the antibody or the fragment thereof comprises a binding site for an Fc receptor, in particular an Fc moiety.

21. The RNA according to any of claims 3 to 18 and 20, wherein the antibody has an IgG-like format.

22. The RNA according to any of claims 3 to 21, wherein the coded antibodies or antibody fragments specifically recognize and bind tumour-specific surface antigens chosen from (TSSA), 5T4, α5β1-integrin, 707-AP, AFP, ART-4, B7H4, BAGE, β-catenin/m, Bcr-abl, MN/C IX-antigen, CA125, CAMEL, CAP-1, CASP-8, β-catenin/m, CD4, CD19, CD20, CD22, CD25, CDC27/m, CD 30, CD33, CD52, CD56, CD80, CDK4/m, CEA, CT, Cyp-B, DAM, EGFR, ErbB3, ELF2M, EMMPRIN, EpCam, ETV6-AML1, G250, GAGE, GnT-V, Gp100, HAGE, HER-2/neu, HLA-A*0201-R170I, HPV-E7, HSP70-2M, HAST-2, hTERT (or hTRT), iCE, IGF-1R, IL-2R, IL-5, KIAA0205, LAGE, LDLR/FUT, MAGE, MART-1/Melan-A, MART-2/Ski, MC1R, myosin/m, MUC1, MUM-1, -2, -3, NA88-A, PAP, proteinase-3, p190 minor bcr-abl, Pml/RARα, PRAME, PSA, PSM, PSMA, RAGE, RU1 or RU2, SAGE, SART-1 or SART-3, survivin, TEL/AML1, TGFβ, TPI/m, TRP-1, TRP-2, TRP-2/INT2, VEGF and WT1, NY-Eso-1 and NY-Eso-B.

23. The RNA according to any of claims 3 to 22, wherein the at least one coding sequence encodes an antibody selected from the group consisting of AAB-003; Abagovomab; Abciximab; Abituzumab; Abrilumab; Actoxumab; Adalimumab; Aducanumab; Afasevikumab; Aflibercept; Afutuzuab; Afutuzumab; Alacizumab_pegol; Alemtuzumab; Alirocumab; ALX-0061; Amatuximab; Anetumab_ravtansine; Anifrolumab; Anrukinzumab; Apolizumab; Apomab; Aquaporumab; Arcitumomab_99tc; Ascrinvacumab; Aselizuab; Atezolizumab; Atinumab; Atlizuab; Aurograb; Avelumab; Bapineuzumab; Basiliximab; Bavituximab; Begelomab; Benralizumab; Betalutin; Bevacituzuab; Bevacizumab_154-aspartic_acid; Bevacizumab_154-substitution; Bevacizumab_180-serine; Bevacizumab_180-substitution; Bevacizumab_beta; Bevacizumab; Bevacizumab-rhuMAb-VEGF; Bezlotoxumab;

Bimagrumab; Bimekizumab; Bleselumab; Blinatumomab; Blinatumumab; Blontuvetmab; Blosozumab; Bococizumab; Brentuximab_vedotin; Briakinumab; Brodalumab; Brolucizumab; Brontictuzumab; BTT-1023; Burosumab; Canakinumab; Cantuzumab; Cantuzumab_mertansine; Cantuzumab_ravtansine; Caplacizumab; Carlumab; Cergutuzumab_amunaleukin; Certolizumab_pegol; Cetuximab; Citatuzumab_bogatox; Cixutumumab; Clazakizumab; Clivatuzumab_tetraxetan; Codrituzumab; Coltuximab_ravtansine; Conatumumab_CV; Conatumumab; Concizumab; Crenezumab; Crotedumab; Dacetuzumab; Dacliximab; Daclizumab; Dalotuzumab; Dapirolizumab_pegol; Daratumumab; Dectrekumab; Demcizumab; Denintuzumab_mafodotin; Denosumab; Depatuxizumab; Depatuxizumab_mafodotin; Dinutuximab_beta; Dinutuximab; Diridavumab; Domagrozumab; Drozituab; Drozitumab; Duligotumab; Duligotuzumab; Dupilumab; Durvalumab; Dusigitumab; Ecromeximab; Eculizumab; Efalizumab; Efungumab; Eldelumab; Elgemtumab; Elotuzumab; Emactuzumab; Emibetuzumab; Emicizumab; Enavatuzumab; Enfortumab; Enfortumab_vedotin; Enoblituzumab; Enokizumab; Enoticumab; Ensituximab; Entolimod; Epratuzumab; Eptacog_beta; Erlizuab; Etaracizumab; Etrolizuab; Etrolizumab; Evinacumab; Evolocumab; Exbivirumab; Farletuzumab; Fasinumab; Fezakinumab; FG-3019; Fibatuzumab; Ficlatuzumab; Figitumumab; Firivumab; Flanvotumab; Fletikumab; Fontolizumab; Foralumab; Foravirumab; Fresolimumab; Fulranumab; Futuximab; Galcanezumab; Galiximab; Ganitumab; Gantenerumab; Gemtuzumab; Gemtuzumab_ozogamicin; Gevokizumab; Girentuximab; Glembatumumab; Goilixiab; Guselkumab; HuMab-001; HuMab-005; HuMab-006; HuMab-019; HuMab-021; HuMab-025; HuMab-027; HuMab-032; HuMab-033; HuMab-035; HuMab-036; HuMab-041; HuMab-044; HuMab-049; HuMab-050; HuMab-054; HuMab-055; HuMab-059; HuMab-060; HuMab-067; HuMab-072; HuMab-084; HuMab-091; HuMab-093; HuMab-098; HuMab-100; HuMab-106; HuMab_10F8; HuMab-111; HuMab-123; HuMab-124; HuMab-125; HuMab-127; HuMab-129; HuMab-132; HuMab-143; HuMab-150; HuMab-152; HuMab-153; HuMab-159; HuMab-160; HuMab-162; HuMab-163; HuMab-166; HuMab-167; HuMab-169; HuMab-7D8; huMAb-anti-MSP10.1; huMAb-anti-MSP10.2; HUMAB-Clone_18; HUMAB-Clone_22; HuMab-L612; HuMab_LC5002-002; HuMab_LC5002-003; HuMab_LC5002-005; HuMab_LC5002-007; HuMab_LC5002-018; Ibalizumab; Ibritumomab_tiuxetan; Icrucumab; Idarucizumab; Igatuzuab; IGF-IR_HUMAB-1A; IGF-IR_HUMAB-23; IGF-IR_HUMAB-8; ImAb1; Imalumab; Imgatuzumab; Inclacumab; Indatuximab_ravtansine; Indusatumab_vedotin; Inebilizumab; Insulin_peglispro; Interferon_beta-1b; Intetumumab; Iodine_(124I)_Girentuximab; Iodine_(131I)_Derlotuxiab_biotin; Iodine_(131I)_Derlotuximab_biotin; Ipilimumab; Iratumumab; Isatuximab; Itolizumab; Ixekizumab; Labetuzumab_govitecan; Lambrolizumab; Lampalizumab; Lanadelumab; Landogrozumab; Laprituximab_emtansine; Lealesoab; Lebrikizumab; Lenercept_chain1; Lenzilumab; Lerdelimumab; Lexatumumab; Libivirumab;

Lifastuzumab; Lifastuzumab_vedotin; Ligelizumab; Lilotomab; Lintuzumab; Lirilumab; Lodelcizumab; Lokivetmab; Lorvotuzumab_mertansine; Lpathomab; Lucatumumab; Lulizumab_pegol; Lumiliximab; Lumretuzumab; Lutetium_(177Lu)_lilotomab_satetraxetan; Margetuximab; Marzeptacog_alfa; Matuzumab; Mavrilimumab; MDX-1303; Mepolizumab; Metelimumab; Milatuzumab; Mirvetuximab; Modotuximab; Mogamulizumab; Monalizumab; Motavizumab; Moxetumomab_pasudotox; Muromonab-CD3; Namilumab; Naptumomab_estafenatox; Narnatumab; Natalizumab; Navicixizumab; Navivumab; Ndimab-varB; Necitumumab; Neliximab; Nemolizumab; Nesvacumab; Neuradiab; Nimotuzumab; Nivolumab; Obiltoxaximab; Obinutuzumab; Ocaratuzumab; Ocrelizumab; Ofatumumab; Olaratumab; Olizuab; Olokizumab; Omalizumab; Onartuzumab; Ontuxizumab; Opicinumab; Oportuzumab_monatox; Oreptacog_alfa; Orticumab; Otelixizumab; Otlertuzumab; Oxelumab; Ozanezumab; Ozoralizumab; Palivizumab; Pamrevlumab; Panitumumab; Pankoab; PankoMab; Panobacumab; Parsatuzumab; Pascolizumab; Pasotuxizumab; Pateclizumab; Patritumab; Pembrolizumab; Perakizumab; Pertuzuab; Pertuzumab; Pexelizumab_h5g1.1-scFv; Pexelizumab; PF-05082566; PF-05082568; Pidilizumab; Pinatuzumab_vedotin; Placulumab; Plozalizumab; Pogalizumab; Polatuzumab_vedotin; Ponezumab; Pritoxaximab; Pritumumab; Quilizumab; Racotumomab; Radretumab; Rafivirumab; Ralpancizumab; Ramucirumab; Ranibiziuab; Ranibizumab; Refanezumab; REGN2810; rhuMab_HER2(9CI); rhuMab_HER2; rhuMAb-VEGF; Rilotumumab; Rinucumab; Risankizumab; Rituximab; Rivabazumab_pegol; Robatumumab; Roledumab; Romosozumab; Rontalizuab; Rontalizumab; Rovalpituzumab_tesirine; Rovelizumab; Ruplizumab; Sacituzumab_govitecan; Samalizumab; Sarilumab; Satumomab_pendetide; Secukinumab; Seribantumab; Setoxaximab; Sifalimumab; Siltuximab; Simtuzumab; Sirukumab; Sofituzumab_vedotin; Solanezumab; Solitomab; Sonepcizumab; Stamulumab; Suptavumab; Suvizumab; Tabalumab; Tacatuzuab; Tadocizumab; Talizumab; Tamtuvetmab; Tanezumab; Tarextumab; Tefibazumab; Tenatumomab; Teneliximab; Teplizumab; Teprotumumab; Tesidolumab; Tezepelumab; ThioMAb-chMA79b-HC(A118C); ThioMab-hu10A8.v1-HC(A118C); ThioMab-hu10A8.v1-HC(V205C); ThioMab-hu10A8.v1-LC(A118C); ThioMab-hu10A8.v1-LC(V205C); ThioMAb-huMA79b.v17-HC(A118C); ThioMAb-huMA79b.v18-HC(A118C); ThioMAb-huMA79b.v28-HC(A118C); ThioMAb-huMA79b.v28-LC(V205C); Ticiliuab; Tigatuzumab; Tildrakizumab; Tisotumab_vedotin; Tocilizumab; Tosatoxumab; Tositumomab; Tovetumab; Tralokinumab; Trastuzuab; Trastuzumab_emtansine; Trastuzumab; TRC-105; Tregalizumab; Tremelimumab; Trevogrumab; Tucotuzumab_celmoleukin; Ublituximab; Ulocuplumab; Urelumab; Urtoxazumab; Ustekinumab; Vadastuximab_talirine; Vandortuzumab_vedotin; Vantictumab; Vanucizumab; Varlilumab; Vatelizumab; Vedolizumab; Veltuzumab; Vesencumab;

Visilizumab; Volociximab; Vorsetuzumab; Vorsetuzumab_mafodotin; Yttrium_(90Y)_clivatuzumab_tetraxetan; Yttrium_Y_90_epratuzumab_tetraxetan; Yttrium_Y_90_epratuzumab; Zalutumumab; Zanolimumab; Zatuximab; Andecaliximab; Aprutumab; Azintuxizumab; Brazikumab; Cabiralizumab; Camrelizumab; Cosfroviximab; Crizanlizumab; Dezamizumab; Duvortuxizumab; Elezanumab; Emapalumab; Eptinezumab; Erenumab; Fremanezumab; Frunevetmab; Gatipotuzumab; Gedivumab; Gemetuzumab; Gilvetmab; Ifabotuzumab; Lacnotuzumab; Larcaviximab; Lendalizumab; Lesofavumab; Letolizumab; Losatuxizumab; Lupartumab; Lutikizumab; Oleclumab; Porgaviximab; Prezalumab; Ranevetmab; Remtolumab; Rosmantuzumab; Rozanolixizumab; Sapelizumab; Selicrelumab; Suvratoxumab; Tavolixizumab; Telisotuzumab; Telisotuzumab_vedotin; Timigutuzumab; Timolumab; Tomuzotuximab; Trastuzumab_duocarmazine; Varisacumab; Vunakizumab; Xentuzumab; anti-rabies_SO57; anti-rabies_SOJB; anti-rabies_SOJA; anti-rabies; anti-RSV_5ITB; anti-alpha-toxin_4U6V; anti-IsdB_5D1Q; anti-IsdB_5D1X; anti-IsdB_5D1Z; anti-HIV_b12; anti-HIV_2G12; anti-HIV_4E10; anti-HIV_VRC01; anti-HIV_PG9; anti-HIV_VRC07; anti-HIV_3BNC117; anti-HIV_10-1074; anti-HIV_PGT121; anti-HIV_PGDM1400; anti-HIV_N6; anti-HIV_10E8; anti-HIV_12A12; anti-HIV_12A21; anti-HIV_35022; anti-HIV_3BC176; anti-HIV_3BNC55; anti-HIV_3BNC60; anti-HIV_447-52D; anti-HIV_5H/I1-BMV-D5; anti-HIV_8ANC195; anti-HIV_CAP256-VRC26.01; anti-HIV_CAP256-VRC26.02; anti-HIV_CAP256-VRC26.03; anti-HIV_CAP256-VRC26.04; anti-HIV_CAP256-VRC26.05; anti-HIV_CAP256-VRC26.06; anti-HIV_CAP256-VRC26.07; anti-HIV_CAP256-VRC26.08; anti-HIV_CAP256-VRC26.09; anti-HIV_CAP256-VRC26.10; anti-HIV_CAP256-VRC26.11; anti-HIV_CAP256-VRC26.12; anti-HIV_CAP256-VRC26.I1; anti-HIV_CAP256-VRC26.I2; anti-HIV_CAP256-VRC26.UCA; anti-HIV_CH01; anti-HIV_CH02; anti-HIV_CH03; anti-HIV_CH04; anti-HIV_CH103; anti-HIV_M66.6; anti-HIV_NIH45-46; anti-HIV_PG16; anti-HIV_PGT122; anti-HIV_PGT123; anti-HIV_PGT125; anti-HIV_PGT126; anti-HIV_PGT127; anti-HIV_PGT128; anti-HIV_PGT130; anti-HIV_PGT131; anti-HIV_PGT135; anti-HIV_PGT136; anti-HIV_PGT137; anti-HIV_PGT141; anti-HIV_PGT142; anti-HIV_PGT143; anti-HIV_PGT144; anti-HIV_PGT145; anti-HIV_PGT151; anti-HIV_PGT152; anti-HIV_VRC-CH30; anti-HIV_VRC-CH31; anti-HIV_VRC-CH32; anti-HIV_VRC-CH33; anti-HIV_VRC-CH34; anti-HIV_VRC-PG04; anti-HIV_VRC-PG04b; anti-HIV_VRC-PG20; anti-HIV_VRC02; anti-HIV_VRC03; anti-HIV_VRC23; anti-HIV_5CCK; anti-HIV_5AWN; anti-HIV_3QEG; anti-HIV_1N0X; anti-HIV_3QEH; anti-HIV_2B1H; anti-HIV_3TNM; anti-HIV_3UJJ; anti-HIV_3UJI; anti-HIV_2QSC; anti-HIV_3MLZ; anti-HIV_3MLX; anti-HIV_3MLW; anti-HIV_3MLV; anti-HIV_3MLU; anti-HIV_3MLT; anti-HIV_3GO1; anti-HIV_4XCY; anti-HIV_4YBL; anti-HIV_4R4N; anti-HIV_4R4B; anti-HIV_3JUY; anti-HIV_4KG5; anti-HIV-1; anti-HIV_V3; anti-HIV_CD4bs; anti-HIV_V2; anti-HIV_C38-VRC18.02; anti-HIV_44-VRC13.02; anti-HIV_45;

anti-HIV_cap256-206-252885; anti-HIV_cap256-206-249183; anti-HIV_cap256-206-220956; anti-HIV_cap256-206-220629; anti-HIV_cap256-206-200599; anti-HIV_cap256-206-186347; anti-HIV_cap256-206-186226; anti-HIV_cap256-206-179686; anti-HIV_cap256-206-173707; anti-HIV_cap256-206-173339; anti-HIV_cap256-206-172689; anti-HIV_cap256-206-162744; anti-HIV_cap256-206-146057; anti-HIV_cap256-206-139519; anti-HIV_cap256-206-136316; anti-HIV_cap256-206-116098; anti-HIV_cap256-206-115862; anti-HIV_cap256-206-107018; anti-HIV_cap256-206-098644; anti-HIV_cap256-206-098135; anti-HIV_cap256-206-096276; anti-HIV_cap256-206-092794; anti-HIV_cap256-206-086817; anti-HIV_cap256-206-086446; anti-HIV_cap256-206-086180; anti-HIV_cap256-206-083708; anti-HIV_cap256-206-079556; anti-HIV_cap256-206-078657; anti-HIV_cap256-206-075802; anti-HIV_cap256-206-069097; anti-HIV_cap256-206-067758; anti-HIV_cap256-206-057019; anti-HIV_cap256-206-055385; anti-HIV_cap256-206-053187; anti-HIV_cap256-206-053139; anti-HIV_cap256-206-050350; anti-HIV_cap256-206-046207; anti-HIV_cap256-206-043389; anti-HIV_cap256-206-042555; anti-HIV_cap256-206-029720; anti-HIV_cap256-206-028848; anti-HIV_cap256-206-027652; anti-HIV_cap256-206-024075; anti-HIV_cap256-206-008748; anti-HIV_cap256-206-008530; anti-HIV_cap256-176-723043; anti-HIV_cap256-176-600049; anti-HIV_cap256-176-531926; anti-HIV_cap256-176-504134; anti-HIV_cap256-119-186229; anti-HIV_cap256-119-183891; anti-HIV_cap256-119-183631; anti-HIV_cap256-119-182676; anti-HIV_cap256-119-180772; anti-HIV_cap256-119-180508; anti-HIV_cap256-119-180260; anti-HIV_cap256-119-180173; anti-HIV_cap256-119-179839; anti-HIV_cap256-119-179262; anti-HIV_cap256-119-178995; anti-HIV_cap256-119-178455; anti-HIV_cap256-119-177993; anti-HIV_cap256-119-177727; anti-HIV_cap256-119-176746; anti-HIV_cap256-119-176241; anti-HIV_cap256-119-175215; anti-HIV_cap256-119-173928; anti-HIV_cap256-119-173495; anti-HIV_cap256-119-172882; anti-HIV_cap256-119-172429; anti-HIV_cap256-119-172223; anti-HIV_cap256-119-171838; anti-HIV_cap256-119-171587; anti-HIV_cap256-119-169596; anti-HIV_cap256-119-169523; anti-HIV_cap256-119-169462; anti-HIV_cap256-119-169092; anti-HIV_cap256-119-168680; anti-HIV_cap256-119-166385; anti-HIV_cap256-119-165943; anti-HIV_cap256-119-165738; anti-HIV_cap256-119-164913; anti-HIV_cap256-119-164167; anti-HIV_cap256-119-163558; anti-HIV_cap256-119-162043; anti-HIV_cap256-119-161718; anti-HIV_cap256-119-161675; anti-HIV_cap256-119-161053; anti-HIV_cap256-119-159499; anti-HIV_cap256-119-159114; anti-HIV_cap256-119-156751; anti-HIV_cap256-119-155656; anti-HIV_cap256-119-154420; anti-HIV_cap256-119-153954; anti-HIV_cap256-119-153864; anti-HIV_cap256-119-153793; anti-HIV_cap256-119-153462; anti-HIV_cap256-119-153124; anti-HIV_cap256-119-153025; anti-HIV_cap256-119-152713; anti-HIV_cap256-119-151794; anti-HIV_cap256-119-

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24. The RNA according to any of claims 3 to 23, wherein the at least one coding sequence encodes an antibody or a fragment or variant thereof comprising an amino acid sequence selected from the group consisting of amino acid sequences according to SEQ ID NOs: 1-7642, 61212-61214, 61236-61238, 61245-61247, 61269-61271, 61279-61281, 61303-61305, 61312, 61320, 61324, 61332, 61338, 61346, 61349, 61357, 61362, 61370, 61373, 61381, 61384, 61385, 61400, 61401, 61418, 61426, 61429, 61437, 61440, 61441, 61456, 61457, 61469, 61470, 61475, 61476, 61481, 61482, 61487, 61488, 61493, 61494, 61499, 61500, 61515, 61516, 61521, 61522, 61537, 61538, 61543, 61544, 61559, 61560, 61565, 61573, 61576, 61584, 61587, 61588, 61603, 61606, 61609, 61612, 61618, 61619, 61634, 61635, 61639, 61640, 61644, 61645, 61660, 61661, 61667, 61675, 61678, 61686, 61689,

61697, 61700, 61708, 61711, 61719, 61722, and 61730; or a fragment or variant of any one of said amino acid sequences.

25. The RNA according to any one of claims 1 to 24, wherein the RNA is mono-, bi-, or multicistronic.

26. The RNA according to any one of claims 1 to 25, wherein the RNA is an mRNA, a viral RNA or a replicon RNA.

27. The RNA according to any one of claims 1 to 26, wherein the RNA is a modified RNA, preferably a stabilized RNA.

28. The RNA according to any one of claims 1 to 27, wherein
the G/C content of the at least one coding sequence of the RNA is increased compared to the G/C content of the corresponding coding sequence of the corresponding wild-type RNA, and/or wherein
the C content of the at least one coding sequence of the RNA is increased compared to the C content of the corresponding coding sequence of the corresponding wild-type RNA, and/or wherein
the codons in the at least one coding sequence of the RNA are adapted to human codon usage, wherein the codon adaptation index (CAI) is preferably increased or maximised in the at least one coding sequence of the RNA, wherein the amino acid sequence encoded by the RNA is preferably not being modified compared to the amino acid sequence encoded by the corresponding wild-type RNA.

29. The RNA according to any one of claims 1 to 28, which comprises a 5'-CAP structure and/or at least one 3'-untranslated region element (3'-UTR element).

30. The RNA according to any one of claims 1 to 29, which comprises at least one histone stem-loop.

31. The RNA according to claim 30, wherein the at least one histone stem-loop comprises a nucleic acid sequence according to the following formulae (I) or (II):

formula (I) (stem-loop sequence without stem bordering elements):

$$\underbrace{[N_{0-2}GN_{3-5}]}_{\text{stem1}}\ \underbrace{[N_{0-4}(U/T)N_{0-4}]}_{\text{loop}}\ \underbrace{[N_{3-5}CN_{0-2}]}_{\text{stem2}}$$

formula (II) (stem-loop sequence with stem bordering elements):

$$\underbrace{N_{1-6}}_{\text{stem1}}\ \underbrace{[N_{0-2}GN_{3-5}]}_{\text{stem1}}\ \underbrace{[N_{0-4}(U/T)N_{0-4}]}_{\text{loop}}\ \underbrace{[N_{3-5}CN_{0-2}]}_{\text{stem2}}\ \underbrace{N_{1-6}}_{\text{stem2}}$$

bordering element bordering element

wherein:

stem1 or stem2 bordering elements N_{1-6} is a consecutive sequence of 1 to 6, preferably of 2 to 6, more preferably of 2 to 5, even more preferably of 3 to 5, most preferably of 4 to 5 or 5 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C, or a nucleotide analogue thereof;

stem1 $[N_{0-2}GN_{3-5}]$ is reverse complementary or partially reverse complementary with element stem2, and is a consecutive sequence between of 5 to 7 nucleotides;

wherein N_{0-2} is a consecutive sequence of 0 to 2, preferably of 0 to 1, more preferably of 1 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C or a nucleotide analogue thereof;

wherein N_{3-5} is a consecutive sequence of 3 to 5, preferably of 4 to 5, more preferably of 4 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C or a nucleotide analogue thereof, and

wherein G is guanosine or an analogue thereof, and may be optionally replaced by a cytidine or an analogue thereof, provided that its complementary nucleotide cytidine in stem2 is replaced by guanosine;

loop sequence [N_{0-4}(U/T)N_{0-4}] is located between elements stem1 and stem2, and is a consecutive sequence of 3 to 5 nucleotides, more preferably of 4 nucleotides;

wherein each N_{0-4} is independent from another a consecutive sequence of 0 to 4, preferably of 1 to 3, more preferably of 1 to 2 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C or a nucleotide analogue thereof; and

wherein U/T represents uridine, or optionally thymidine;

stem2 [$N_{3-5}CN_{0-2}$] is reverse complementary or partially reverse complementary with element stem1, and is a consecutive sequence between of 5 to 7 nucleotides;

wherein N_{3-5} is a consecutive sequence of 3 to 5, preferably of 4 to 5, more preferably of 4 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C or a nucleotide analogue thereof;

wherein N_{0-2} is a consecutive sequence of 0 to 2, preferably of 0 to 1, more preferably of 1 N, wherein each N is independently from another selected from a nucleotide selected from A, U, T, G and C or a nucleotide analogue thereof; and

wherein C is cytidine or an analogue thereof, and may be optionally replaced by a guanosine or an analogue thereof provided that its complementary nucleotide guanosine in stem1 is replaced by cytidine;

wherein
stem1 and stem2 are capable of base pairing with each other
forming a reverse complementary sequence, wherein base pairing may occur between stem1 and stem2, or
forming a partially reverse complementary sequence, wherein an incomplete base pairing may occur between stem1 and stem2.

32. The RNA according to claim 30 or 31, wherein the at least one histone stem-loop comprises a nucleic acid sequence according to the following formulae (Ia) or (IIa):

formula (Ia) (stem-loop sequence without stem bordering elements):

$$\underbrace{[N_{0-1}GN_{3-5}]}_{\text{stem1}}\ \underbrace{[N_{1-3}(U/T)N_{0-2}]}_{\text{loop}}\ \underbrace{[N_{3-5}CN_{0-1}]}_{\text{stem2}}$$

formula (IIa) (stem-loop sequence with stem bordering elements):

$$\underbrace{N_{2-5}}_{\text{stem1}}\ \underbrace{[N_{0-1}GN_{3-5}]}_{\text{stem1}}\ \underbrace{[N_{1-3}(U/T)N_{0-2}]}_{\text{loop}}\ \underbrace{[N_{3-5}CN_{0-1}]}_{\text{stem2}}\ \underbrace{N_{2-5}}_{\text{stem2}}$$

bordering element bordering element

33. The RNA according to any one of claims 30 to 32, wherein the at least one histone stem loop comprises a nucleic acid sequence according to SEQ ID NO: 61157 and most preferably a RNA sequence according to SEQ ID NO: 61158.

34. The RNA according to any one of claims 1 to 33, wherein the at least one RNA comprises a poly(A) sequence, preferably comprising 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides, and/or a poly(C) sequence, preferably comprising 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides.

35. The RNA according to any one of claims 1 to 34, which comprises, preferably in 5' to 3' direction, the following elements:
a) a 5'-CAP structure, preferably m7GpppN,

b) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, 61734; or a fragment or variant thereof,

c) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

d) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

e) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

36. The RNA according to claim 35, which comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,

b) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NO: 7643-61136, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-

61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

c) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

d) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

e) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

37. The RNA according to any one of claims 29 to 36, which comprises a 3'-UTR element and wherein the 3'-UTR element comprises a nucleic acid sequence derived from a 3'-UTR of a gene, which preferably encodes a stable mRNA, or from a homolog, a fragment or a variant of said gene.

38. The RNA according to claim 37, wherein the 3'-UTR element comprises a nucleic acid sequence derived from a 3'-UTR of a gene selected from the group consisting of an albumin gene, an α-globin gene, a β-globin gene, a tyrosine hydroxylase gene, a lipoxygenase gene, and a collagen alpha gene, or from a homolog, a fragment or a variant thereof.

39. The RNA according to claim 37 or 38, wherein the 3'-UTR element comprises a nucleic acid sequence derived from a 3'UTR of an α-globin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61150, a homolog, a fragment, or a variant thereof.

40. The RNA according to any of claims 1 to 39, which comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,

b) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of nucleic acids according to SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

c) a 3'-UTR element comprising a nucleic acid sequence, which is derived from an α-globin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof,

d) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

e) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

f) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

41. The RNA according to any of claims 1 to 40, which comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,

b) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of nucleic acids according to SEQ ID NO: 7643-61136, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

c) a 3'-UTR element comprising a nucleic acid sequence, which is derived from an α-globin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof,

d) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

e) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

f) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

42. The RNA according to any one of claims 37 or 38, wherein the at least one 3'-UTR element comprises a nucleic acid sequence, which is derived from the 3'-UTR of a vertebrate albumin gene or from a variant thereof, preferably from the 3'-UTR of a mammalian albumin gene or from a variant thereof, more preferably from the 3'-UTR of a human albumin gene or from a variant thereof, even more preferably from the 3'-UTR of the human albumin gene according to GenBank Accession number NM_000477.5, or from a fragment or variant thereof.

43. The RNA according to claim 42, wherein the 3-'UTR element is derived from a nucleic acid sequence according to SEQ ID NO: 61154 or from a nucleic acid sequence according to SEQ ID NO: 61156, or a homolog, a fragment or a variant thereof.

44. The RNA according to any one of claims 1 to 43, wherein the RNA comprises a 5'-UTR element.

45. The RNA according to claim 44, wherein the 5'-UTR element comprises a nucleic acid sequence, which is derived from the 5'-UTR of a TOP gene, preferably from a corresponding RNA sequence, or a homolog, a fragment, or a variant thereof, preferably lacking the 5'TOP motif.

46. The RNA according to claim 45, wherein the 5'-UTR element comprises a nucleic acid sequence, which is derived from a 5'-UTR of a TOP gene encoding a ribosomal protein, preferably from a corresponding RNA sequence, or from a homolog, a fragment or a variant thereof, preferably lacking the 5'TOP motif.

47. The RNA according to claim 45 or 46, wherein the 5'-UTR element comprises a nucleic acid sequence, which is derived from a 5'-UTR of a TOP gene encoding a ribosomal Large protein (RPL), or from a homolog, a fragment or variant thereof, preferably lacking the 5'TOP motif.

48. The RNA according to any one of claims 45 to 47, wherein the 5'-UTR element comprises an RNA sequence according to SEQ ID NO: 61138, or a homolog, a fragment or a variant thereof.

49. The RNA according to any one of claims 1 to 48, which comprises, preferably in 5' to 3' direction, the following elements:
    a) a 5'-CAP structure, preferably m7GpppN,
    b) a 5'-UTR element, which comprises or consists of a nucleic acid sequence, which is derived from the 5'-UTR of a TOP gene, preferably comprising an RNA sequence according to SEQ ID NO: 61138, or a homolog, a fragment or a variant thereof,
    c) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360,

61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

d) a 3'-UTR element comprising a nucleic acid sequence, which is derived from an α-globin gene, preferably comprising the the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof; and/or
a 3'-UTR element comprising a nucleic acid sequence, which is derived from an albumin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61154, or a homolog, a fragment or a variant thereof or the RNA sequence according to SEQ ID NO: 61156, or a homolog, a fragment or a variant thereof,

e) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

f) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

g) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

50. The RNA according to any one of claims 1 to 49, which comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,

b) a 5'-UTR element, which comprises or consists of a nucleic acid sequence, which is derived from the 5'-UTR of a TOP gene, preferably comprising an RNA sequence according to SEQ ID NO: 61138, or a homolog, a fragment or a variant thereof,

c) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NO: 7643-61136, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

d) a 3'-UTR element comprising a nucleic acid sequence, which is derived from an α-globin gene, preferably comprising the the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof; and/or

a 3'-UTR element comprising a nucleic acid sequence, which is derived from an albumin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61154, or a homolog, a fragment or a variant thereof or the RNA sequence according to SEQ ID NO: 61156, or a homolog, a fragment or a variant thereof,

e) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

f) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

g) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

51. The RNA according to any one of claims 45 to 47, wherein the 5'-UTR element comprises an RNA sequence according to SEQ ID NO: 61142, or a homolog, a fragment or a variant thereof.

52. The RNA according to any one of claims 1 to 51, which comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,

b) a 5'-UTR element, which comprises or consists of a nucleic acid sequence, which is derived from the 5'-UTR of a TOP gene, preferably comprising an RNA sequence according to SEQ ID NO: 61142, or a homolog, a fragment or a variant thereof,

c) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

d) a 3'-UTR element comprising a nucleic acid sequence, which is derived from an α-globin gene, preferably comprising the the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof; and/or

a 3'-UTR element comprising a nucleic acid sequence, which is derived from an albumin gene, preferably comprising the RNA sequence according to SEQ ID NO:

61154, or a homolog, a fragment or a variant thereof or the RNA sequence according to SEQ ID NO: 61156, or a homolog, a fragment or a variant thereof,

e) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

f) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

g) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

53. The RNA according to any one of claims 1 to 52, which comprises, preferably in 5' to 3' direction, the following elements:

a) a 5'-CAP structure, preferably m7GpppN,

b) a 5'-UTR element, which comprises or consists of a nucleic acid sequence, which is derived from the 5'-UTR of a TOP gene, preferably comprising an RNA sequence according to SEQ ID NO: 61142, or a homolog, a fragment or a variant thereof,

c) at least one coding sequence comprising or consisting of a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NO: 7643-61136, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734; or a fragment or variant thereof,

d) a 3'-UTR element comprising a nucleic acid sequence, which is derived from an α-globin gene, preferably comprising the the RNA sequence according to SEQ ID NO: 61150, or a homolog, a fragment or a variant thereof; and/or
a 3'-UTR element comprising a nucleic acid sequence, which is derived from an albumin gene, preferably comprising the RNA sequence according to SEQ ID NO: 61154, or a homolog, a fragment or a variant thereof or the RNA sequence according to SEQ ID NO: 61156, or a homolog, a fragment or a variant thereof,

e) a poly(A) tail, preferably consisting of 10 to 200, 10 to 100, 40 to 80 or 50 to 70 adenosine nucleotides,

f) a poly(C) tail, preferably consisting of 10 to 200, 10 to 100, 20 to 70, 20 to 60 or 10 to 40 cytosine nucleotides, and

g) a histone stem-loop, preferably comprising the RNA sequence according to SEQ ID NO: 61158.

54. The RNA according to any one of claims 1 to 53, wherein the at least one coding sequence comprises or consists of a nucleic acid sequence, which is at least 80% identical to a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NOs: 7643-61136, 61161-61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734.

55. The RNA according to any one of claims 1 to 54, wherein the at least one coding sequence comprises or consists of a nucleic acid sequence, which is at least 80% identical to a nucleic

acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NO: 7643-61136, 61162, 61164, 61165, 61167, 61169, 61170, 61172, 61174, 61175, 61209-61211, 61215-61235, 61239-61242, 61248-61268, 61272-61275, 61282-61302, 61306-61309, 61313-61319, 61321, 61325-61331, 61333, 61336, 61339-61345, 61347, 61350-61356, 61358, 61360, 61363-61369, 61371, 61374-61380, 61382, 61386-61399, 61402-61404, 61416, 61419-61425, 61427, 61430-61436, 61438, 61442-61455, 61458, 61459, 61464, 61467, 61471-61473, 61477-61479, 61483-61485, 61489-61491, 61495-61497, 61501-61514, 61517-61519, 61523-61536, 61539-61541, 61545-61558, 61561-61563, 61566-61572, 61574, 61577-61583, 61585, 61589-61602, 61604, 61607, 61610, 61613, 61615, 61620-61633, 61636, 61637, 61641, 61642, 61646-61659, 61662-61664, 61668-61674, 61676, 61679-61685, 61687, 61690-61696, 61698, 61701-61707, 61709, 61712-61718, 61720, 61723-61729, 61731, 61733, 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734.

56. The RNA according to any one of claims 1 to 55, wherein the at least one coding sequence encodes a an antibody or a fragment or variant thereof comprising an amino acid sequence, which is identical or at least 80% identical to an amino acid sequence selected from the group consisting of amino acid sequences according to SEQ ID NOs: 1-7642 and 61212-61214, 61236-61238, 61245-61247, 61269-61271, 61279-61281, 61303-61305, 61312, 61320, 61324, 61332, 61338, 61346, 61349, 61357, 61362, 61370, 61373, 61381, 61384, 61385, 61400, 61401, 61418, 61426, 61429, 61437, 61440, 61441, 61456, 61457, 61469, 61470, 61475, 61476, 61481, 61482, 61487, 61488, 61493, 61494, 61499, 61500, 61515, 61516, 61521, 61522, 61537, 61538, 61543, 61544, 61559, 61560, 61565, 61573, 61576, 61584, 61587, 61588, 61603, 61606, 61609, 61612, 61618, 61619, 61634, 61635, 61639, 61640, 61644, 61645, 61660, 61661, 61667, 61675, 61678, 61686, 61689, 61697, 61700, 61708, 61711, 61719, 61722, and 61730.

57. The RNA according to any one of claims 1 to 56, wherein the RNA additionally codes a tag for purification chosen from the group consisting of a hexahistidine tag (HIS tag, polyhistidine tag), a streptavidin tag (Strep tag), an SBP tag (streptavidin-binding tag) or a GST (glutathione S-transferase) tag, or codes for a tag for purification via an antibody epitope

chosen from the group consisting of antibody-binding tags, a Myc tag, a Swa11 epitope, a FLAG tag or an HA tag.

58. The RNA according to any one of claims 1 to 57, wherein the RNA additionally encodes a signal peptide and/or a localization sequence, in particular a secretion sequence.

59. The RNA according to claim 58, wherein the localization sequence is chosen from one of the sequences according to SEQ ID NO: 61176 to 61208.

60. The RNA according to any one of claims 1 to 59, wherein the RNA comprises a nucleic acid sequence selected from the group consisting of nucleic acid sequences according to SEQ ID NOs: 61243, 61244, 61276, 61277, 61278, 61310, 61311, 61322, 61323, 61334, 61335, 61337, 61348, 61359, 61361, 61372, 61383, 61404, 61405, 61406, 61407, 61410, 61411, 61414, 61415, 61416, 61417, 61428, 61439, 61460, 61461, 61462, 61463, 61465, 61466, 61467, 61468, 61473, 61474, 61479, 61480, 61485, 61486, 61491, 61492, 61497, 61498, 61520, 61542, 61564, 61575, 61586, 61603, 61604, 61605, 61606, 61607, 61608, 61609, 61610, 61611, 61612, 61613, 61614, 61615, 61616, 61617, 61638, 61643, 61665, 61666, 61677, 61688, 61699, 61710, 61721, 61732, 61733, and 61734.

61. The RNA according to any one of claims 1 to 60, wherein the antibody or the fragment thereof is a single-chain antibody or a single-chain antibody fragment.

62. The RNA according to any one of claims 1 to 60, wherein the antibody or the fragment thereof is a multiple-chain antibody or a multiple-chain antibody fragment.

63. A combination of at least two distinct RNA's according to any of claims 1 to 62, preferably for use in medicine.

64. The combination according to claim 63, wherein one RNA encodes a heavy chain variable region of an antibody or a fragment thereof and another RNA encodes the corresponding light chain variable region of the antibody or the fragment thereof.

65. The combination according to claim 64, wherein one RNA encodes a heavy chain of an antibody and another RNA encodes the corresponding light chain of the antibody.

66. The combination according to any of claims 63 to 65, wherein the RNA encoding the heavy chain variable region or a fragment thereof and the RNA encoding the light chain variable

region or a fragment thereof comprise identical 5'UTR elements and/or identical 3'UTR elements.

67. The combination according to any of claims 63 to 66, wherein the at least two RNA's are administered at about the same time.

68. The combination according to any of claims 63 to 66, wherein the at least two RNA's are administered consecutively.

69. The combination according to any of claims 63 to 68, wherein the at least two RNA's are administered via the same route of administration.

70. The combination according to any of claims 63 to 68, wherein the at least two RNA's are administered via distinct routes of administration.

71. The combination according to any of claims 63 to 70, wherein the at least two RNA's are provided in distinct compositions.

72. The combination according to any of claims 63 to 66, wherein the at least two RNA's are provided in the same composition.

73. Composition comprising the RNA according to any one of claims 1 to 62 and a pharmaceutically acceptable carrier.

74. The composition according to claim 73, wherein the RNA is complexed with one or more cationic or polycationic compounds, preferably with cationic or polycationic polymers, cationic or polycationic polysaccharides, cationic or polycationic lipids and/or cationic or polycationic peptides or proteins, e.g. protamine.

75. The composition according to claim 74, wherein the N/P ratio of the RNA to the one or more cationic or polycationic peptides or proteins is in the range of about 0.1 to 10, including a range of about 0.3 to 4, of about 0.5 to 2, of about 0.7 to 2 and of about 0.7 to 1.5.

76. The composition according to any one of claims 73 to 75 comprising at least one RNA, which is complexed with one or more cationic or polycationic compounds, and at least one free RNA.

77. The composition according to claim 76, wherein the at least one complexed RNA is identical to the at least one free RNA.

78. The composition according to claim 76 or 77, wherein the molar ratio of the complexed RNA to the free RNA is selected from a molar ratio of about 0.001:1 to about 1:0.001, including a ratio of about 1:1.

79. The composition according to any one of claims 73 to 78, wherein the RNA is complexed with one or more lipids, thereby forming liposomes, lipid nanoparticles and/or lipoplexes.

80. The composition according to any one of claims 73 to 79 comprising at least two distinct RNA's according to any one of claims 1 to 62.

81. The composition according to claim 80, wherein one RNA encodes a heavy chain variable region of an antibody or a fragment thereof and another RNA encodes the corresponding light chain variable region of the antibody or the fragment thereof.

82. The composition according to claim 81, wherein one RNA encodes a heavy chain of an antibody and another RNA encodes the corresponding light chain of the antibody.

83. The composition according to claim 81 or 82, wherein the RNA encoding the heavy chain variable region or a fragment thereof and the RNA encoding the light chain variable region or a fragment thereof comprise identical 5'UTR elements and/or identical 3'UTR elements.

84. Vaccine comprising the RNA according to any one of claims 1 to 62 and a pharmaceutically acceptable carrier, or comprising the composition according to any one of claims 73 to 83.

85. Kit, preferably kit of parts, comprising the RNA according to any one of claims 1 to 62, the composition according to any one of claims 73 to 83 or the vaccine according to claim 84, and optionally a liquid vehicle for solubilising and optionally technical instructions with information on the administration and dosage of the RNA, the composition and/or the vaccine.

86. The kit according to claim 85, wherein the kit contains as a part Ringer-Lactate solution.

87. The kit according to claim 85 or 86, wherein the kit contains as a part at least one modulator of an inhibitory and/or a stimulatory checkpoint molecule, such as an inhibitor of an inhibitory checkpoint molecule.

88. The kit according to any of claims 85 to 87, wherein the kit comprises at least two distinct RNA's according to any of claims 1 to 62.

89. The kit according to claim 88, wherein one RNA encodes a heavy chain variable region of an antibody or a fragment thereof and another RNA encodes the corresponding light chain variable region of the antibody or the fragment thereof.

90. The kit according to claim 89, wherein one RNA encodes a heavy chain of an antibody and another RNA encodes the corresponding light chain of the antibody.

91. The kit according to claim 89 or 90, wherein the RNA encoding the heavy chain variable region or a fragment thereof and the RNA encoding the light chain variable region or a fragment thereof comprise identical 5'UTR elements and/or identical 3'UTR elements.

92. The RNA according to any one of claims 1 to 62, the composition according to any one of claims 73 to 83, the vaccine according to claim 84, or the kit according to any one of claims 85 to 91 for use in the treatment or prophylaxis of cancer, cardiovascular diseases, neurological diseases, infectious diseases, autoimmune diseases, virus diseases or monogenetic diseases.

93. The RNA according to any one of claims 1 to 62, the composition according to any one of claims 73 to 83, the vaccine according to claim 84, or the kit according to any one of claims 85 to 91 for use in the treatment or prophylaxis of cancer or infectious diseases.

94. The RNA, the composition, the vaccine, or the kit for use according to claim 92 or 93, wherein the cancer is selected from the group consisting of Acute Lymphoblastic Leukemia, Adult; Acute Lymphoblastic Leukemia, Childhood; Acute Myeloid Leukemia, Adult; Adrenocortical Carcinoma; Adrenocortical Carcinoma, Childhood; AIDS-Related Lymphoma; AIDS-Related Malignancies; Anal Cancer; Astrocytoma, Childhood Cerebellar; Astrocytoma, Childhood Cerebral; Bile Duct Cancer, Extrahepatic; Bladder Cancer; Bladder Cancer, Childhood; Bone Cancer, Osteosarcoma/Malignant Fibrous Histiocytoma; Brain Stem Glioma, Childhood; Brain Tumor, Adult; Brain Tumor, Brain Stem Glioma, Childhood; Brain Tumor, Cerebellar Astrocytoma, Childhood; Brain Tumor, Cerebral Astrocytoma/Malignant Glioma, Childhood; Brain Tumor, Ependymoma, Childhood; Brain Tumor, Medulloblastoma, Childhood; Brain Tumor, Supratentorial Primitive Neuroectodermal Tumors, Childhood; Brain Tumor, Visual Pathway and Hypothalamic Glioma, Childhood; Brain Tumor, Childhood (Other); Breast

Cancer; Breast Cancer and Pregnancy; Breast Cancer, Childhood; Breast Cancer, Male; Bronchial Adenomas/Carcinoids, Childhood: Carcinoid Tumor, Childhood; Carcinoid Tumor, Gastrointestinal; Carcinoma, Adrenocortical; Carcinoma, Islet Cell; Carcinoma of Unknown Primary; Central Nervous System Lymphoma, Primary; Cerebellar Astrocytoma, Childhood; Cerebral Astrocytoma/Malignant Glioma, Childhood; Cervical Cancer; Childhood Cancers; Chronic Lymphocytic Leukemia; Chronic Myelogenous Leukemia; Chronic Myeloproliferative Disorders; Clear Cell Sarcoma of Tendon Sheaths; Colon Cancer; Colorectal Cancer, Childhood; Cutaneous T-Cell Lymphoma; Endometrial Cancer; Ependymoma, Childhood; Epithelial Cancer, Ovarian; Esophageal Cancer; Esophageal Cancer, Childhood; Ewing's Family of Tumors; Extracranial Germ Cell Tumor, Childhood; Extragonadal Germ Cell Tumor; Extrahepatic Bile Duct Cancer; Eye Cancer, Intraocular Melanoma; Eye Cancer, Retinoblastoma; Gallbladder Cancer; Gastric (Stomach) Cancer; Gastric (Stomach) Cancer, Childhood; Gastrointestinal Carcinoid Tumor; Germ Cell Tumor, Extracranial, Childhood; Germ Cell Tumor, Extragonadal; Germ Cell Tumor, Ovarian; Gestational Trophoblastic Tumor; Glioma. Childhood Brain Stem; Glioma. Childhood Visual Pathway and Hypothalamic; Hairy Cell Leukemia; Head and Neck Cancer; Hepatocellular (Liver) Cancer, Adult (Primary); Hepatocellular (Liver) Cancer, Childhood (Primary); Hodgkin's Lymphoma, Adult; Hodgkin's Lymphoma, Childhood; Hodgkin's Lymphoma During Pregnancy; Hypopharyngeal Cancer; Hypothalamic and Visual Pathway Glioma, Childhood; Intraocular Melanoma; Islet Cell Carcinoma (Endocrine Pancreas); Kaposi's Sarcoma; Kidney Cancer; Laryngeal Cancer; Laryngeal Cancer, Childhood; Leukemia, Acute Lymphoblastic, Adult; Leukemia, Acute Lymphoblastic, Childhood; Leukemia, Acute Myeloid, Adult; Leukemia, Acute Myeloid, Childhood; Leukemia, Chronic Lymphocytic; Leukemia, Chronic Myelogenous; Leukemia, Hairy Cell; Lip and Oral Cavity Cancer; Liver Cancer, Adult (Primary); Liver Cancer, Childhood (Primary); Lung Cancer, Non-Small Cell; Lung Cancer, Small Cell; Lymphoblastic Leukemia, Adult Acute; Lymphoblastic Leukemia, Childhood Acute; Lymphocytic Leukemia, Chronic; Lymphoma, AIDS— Related; Lymphoma, Central Nervous System (Primary); Lymphoma, Cutaneous T-Cell; Lymphoma, Hodgkin's, Adult; Lymphoma, Hodgkin's; Childhood; Lymphoma, Hodgkin's During Pregnancy; Lymphoma, Non-Hodgkin's, Adult; Lymphoma, Non-Hodgkin's, Childhood; Lymphoma, Non-Hodgkin's During Pregnancy; Lymphoma, Primary Central Nervous System; Macroglobulinemia, Waldenstrom's; Male Breast Cancer; Malignant Mesothelioma, Adult; Malignant Mesothelioma, Childhood; Malignant Thymoma; Medulloblastoma, Childhood; Melanoma; Melanoma, Intraocular; Merkel Cell Carcinoma; Mesothelioma, Malignant; Metastatic Squamous Neck Cancer with Occult Primary; Multiple Endocrine Neoplasia Syndrome, Childhood; Multiple Myeloma/Plasma Cell Neoplasm; Mycosis Fungoides; Myelodysplasia Syndromes; Myelogenous Leukemia, Chronic; Myeloid Leukemia, Childhood Acute;

Myeloma, Multiple; Myeloproliferative Disorders, Chronic; Nasal Cavity and Paranasal Sinus Cancer; Nasopharyngeal Cancer; Nasopharyngeal Cancer, Childhood; Neuroblastoma; Neurofibroma; Non-Hodgkin's Lymphoma, Adult; Non- Hodgkin's Lymphoma, Childhood; Non-Hodgkin's Lymphoma During Pregnancy; Non- Small Cell Lung Cancer; Oral Cancer, Childhood; Oral Cavity and Lip Cancer; Oropharyngeal Cancer; Osteosarcoma/Malignant Fibrous Histiocytoma of Bone; Ovarian Cancer, Childhood; Ovarian Epithelial Cancer; Ovarian Germ Cell Tumor; Ovarian Low Malignant Potential Tumor; Pancreatic Cancer; Pancreatic Cancer, Childhood', Pancreatic Cancer, Islet Cell; Paranasal Sinus and Nasal Cavity Cancer; Parathyroid Cancer; Penile Cancer; Pheochromocytoma; Pineal and Supratentorial Primitive Neuroectodermal Tumors, Childhood; Pituitary Tumor; Plasma Cell Neoplasm/Multiple Myeloma; Pleuropulmonary Blastoma; Pregnancy and Breast Cancer; Pregnancy and Hodgkin's Lymphoma; Pregnancy and Non-Hodgkin's Lymphoma; Primary Central Nervous System Lymphoma; Primary Liver Cancer, Adult; Primary Liver Cancer, Childhood; Prostate Cancer; Rectal Cancer; Renal Cell (Kidney) Cancer; Renal Cell Cancer, Childhood; Renal Pelvis and Ureter, Transitional Cell Cancer; Retinoblastoma; Rhabdomyosarcoma, Childhood; Salivary Gland Cancer; Salivary Gland'Cancer, Childhood; Sarcoma, Ewing's Family of Tumors; Sarcoma, Kaposi's; Sarcoma (Osteosarcoma)/Malignant Fibrous Histiocytoma of Bone; Sarcoma, Rhabdomyosarcoma, Childhood; Sarcoma, Soft Tissue, Adult; Sarcoma, Soft Tissue, Childhood; Sezary Syndrome; Skin Cancer; Skin Cancer, Childhood; Skin Cancer (Melanoma); Skin Carcinoma, Merkel Cell; Small Cell Lung Cancer; Small Intestine Cancer; Soft Tissue Sarcoma, Adult; Soft Tissue Sarcoma, Childhood; Squamous Neck Cancer with Occult Primary, Metastatic; Stomach (Gastric) Cancer; Stomach (Gastric) Cancer, Childhood; Supratentorial Primitive Neuroectodermal Tumors, Childhood; T-Cell Lymphoma, Cutaneous; Testicular Cancer; Thymoma, Childhood; Thymoma, Malignant; Thyroid Cancer; Thyroid Cancer, Childhood; Transitional Cell Cancer of the Renal Pelvis and Ureter; Trophoblastic Tumor, Gestational; Unknown Primary Site, Cancer of, Childhood; Unusual Cancers of Childhood; Ureter and Renal Pelvis, Transitional Cell Cancer; Urethral Cancer; Uterine Sarcoma; Vaginal Cancer; Visual Pathway and Hypothalamic Glioma, Childhood; Vulvar Cancer; Waldenstrom's Macro globulinemia; and Wilms' Tumor.

95. The RNA, the composition, the vaccine, or the kit for use according to claim 92 or 93, wherein the infectious disease is selected from the group consisting of influenza, malaria, SARS, yellow fever, AIDS, Lyme borreliosis, leishmaniasis, anthrax, meningitis, viral infectious diseases, such as AIDS, condyloma acuminata, molluscum contagiosum, dengue fever, three-day fever, Ebola virus, colds, early summer meningoencephalitis (ESME), influenza, shingles, hepatitis, herpes simplex type I, herpes simplex type II, herpes zoster, influenza,

Japanese encephalitis, Lassa fever, Marburg virus, measles, foot and mouth disease, mononucleosis, mumps, Norwalk virus infection, Pfeiffer's glandular fever, smallpox, polio (poliomyelitis), pseuodcroup, infectious erythema, rabies, warts, West Nile fever, chicken-pox, cytomegalovirus (CMV), bacterial infectious diseases, such as abortion (infectious, septic), prostatitis (prostate inflammation), anthrax, appendicitis (inflammation of the caecum), borreliosis, botulism, Campylobacter, Chlamydia trachomatis (inflammation of the urethra, conjunctiva), cholera, diphtheria, donavonosis, epiglottitis, louse-borne typhus, typhoid fever, gas gangrene, gonorrhoea, hare plague, Helicobacter pylori, whooping-cough, climatic bubo, osteomyelitis, legionnaires' disease, leprosy, listeriosis, pneumonia, meningitis, bacterial meningitis, anthrax, inflammation of the middle ear, Mycoplasma hominis, neonatal sepsis (chorioamnionitis), noma, paratyphoid fever, plague, Reiter's syndrome, Rocky Mountain spotted fever, Salmonella paratyphoid fever, Salmonella typhoid fever, scarlet fever, syphilis, tetanus, gonorrhoea, tsutsugamushi fever, tuberculosis, typhus, vaginitis (colpitis), soft chancre, and infectious diseases caused by parasites, protozoa or fungi, such as amoebic dysentery, bilharziosis, Chagas' disease, Echinococcus, fish tapeworm, ichthyotoxism (ciguatera), fox tapeworm, mycosis pedis, dog tapeworm, candiosis, ptyriasis, the itch (scabies), cutaneous leishmaniasis, lamblian dysentery (giadiasis), lice, malaria, onchocercosis (river blindness), fungal diseases, beef tapeworm, schistosomiasis, sleeping sickness, pork tapeworm, toxoplasmosis, trichomoniasis, trypanosomiasis (sleeping sickness), visceral leishmaniasis, nappy dermatitis, or infections caused by the dwarf tapeworm.

96. The RNA, the composition, the vaccine, or the kit for use according to claim 92, wherein the cardiovascular disease is selected from the group consisting of coronary heart disease, arteriosclerosis, apoplexy and hypertension, and neurological diseases chosen from Alzheimer's disease, amyotrophic lateral sclerosis, dystonia, epilepsy, multiple sclerosis and Parkinson's disease.

97. The RNA, the composition, the vaccine, or the kit for use according to claim 92, wherein the autoimmune disease is selected from the group consisting of autoimmune type I diseases or autoimmune type II diseases or autoimmune type III diseases or autoimmune type IV diseases, such as, for example, multiple sclerosis (MS), rheumatoid arthritis, diabetes, diabetes type I (diabetes mellitus), systemic lupus erythematosus (SLE), chronic polyarthritis, Basedow's disease, autoimmune forms of chronic hepatitis, colitis ulcerosa, allergy type I diseases, allergy type II diseases, allergy type III diseases, allergy type IV diseases, fibromyalgia, hair loss, Bechterew's disease, Crohn's disease, myasthenia gravis,

neurodermatitis, polymyalgia rheumatica, progressive systemic sclerosis (PSS), psoriasis, Reiter's syndrome, rheumatic arthritis, psoriasis or vasculitis.

98. The RNA, the composition, the vaccine, or the kit for use according to any of claims 92 to 97, wherein the RNA, the composition, the vaccine or the pharmaceutically active component of the kit is administered by injection, preferably by needle-less injection, more preferably by jet injection.

99. The RNA, the composition, the vaccine, or the kit for use according to any of claims 92 to 98, wherein the treatment or prophylaxis comprises the administration of a further pharmaceutical compound.

100. The RNA, the composition, the vaccine, or the kit for use according to claim 99, wherein the further pharmaceutical compound is a chemotherapeutic agent or a kinase inhibitor.

101. The RNA, the composition, the vaccine, or the kit for use according to claim 93 or 94, wherein the treatment or prophylaxis further comprises radiation therapy.

102. The RNA, the composition, the vaccine, or the kit for use according to any of claims 92 to 101, wherein the treatment or prophylaxis further comprises the administration of at least one modulator of an inhibitory and/or a stimulatory checkpoint molecule, such as an inhibitor of an inhibitory checkpoint molecule.

103. Method of treating or preventing a disorder, wherein the method comprises administering to a subject in need thereof an effective amount of the RNA according to any one of claims 1 to 62, the composition according to any one of claims 73 to 83, the vaccine according to claim 84, or the kit according to any one of claims 85 to 91.

104. The method according to claim 103, wherein the disorder is a cancer, a cardiovascular disease, an infectious disease, an autoimmune disease, a virus disease or a monogenetic disease.

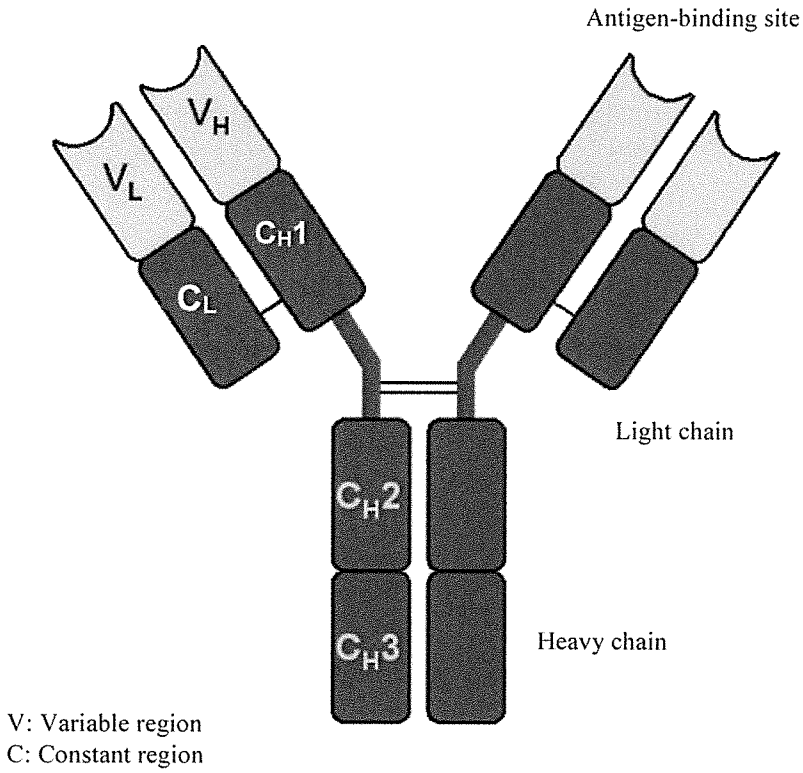

Antigen-binding site
V_H
V_L
C_H1
C_L
Light chain
C_H2
C_H3
Heavy chain
V: Variable region
C: Constant region

Fig. 1

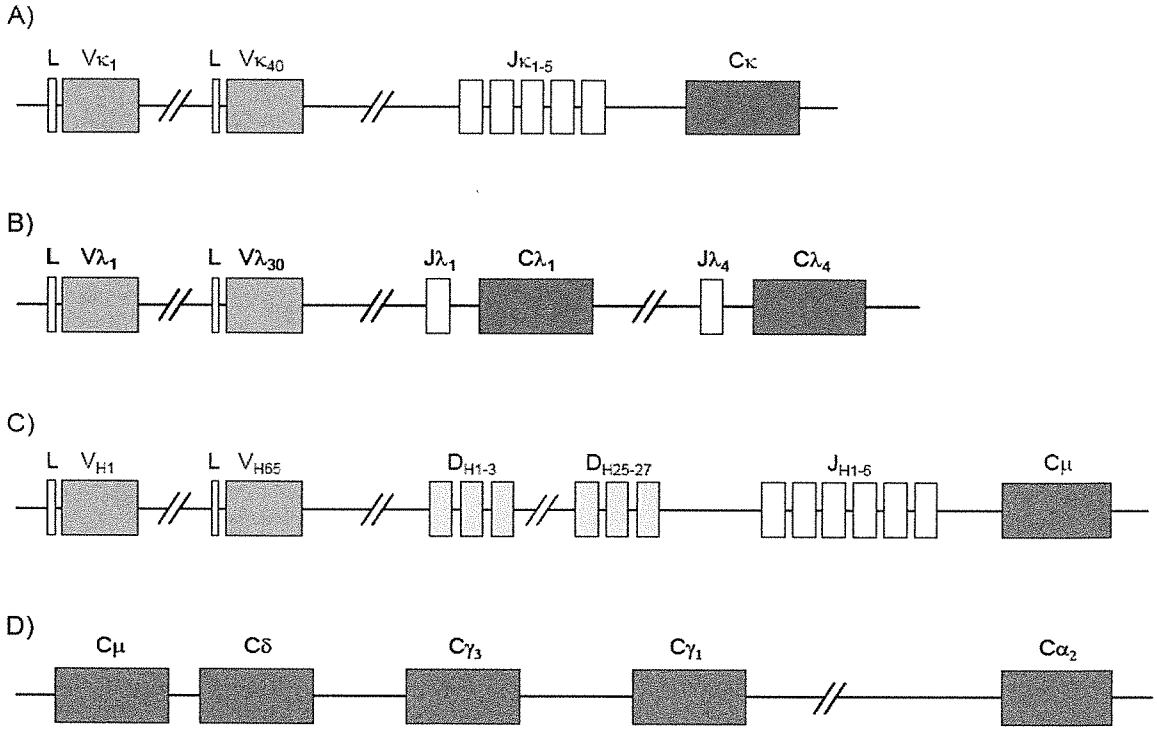

A)
L Vκ1
L Vκ40
Jκ1-5
Cκ
B)
L Vλ1
L Vλ30
Jλ1
Cλ1
Jλ4
Cλ4
C)
L VH1
L VH65
DH1-3
DH25-27
JH1-6
Cμ
D)
Cμ
Cδ
Cγ3
Cγ1
Cα2

Fig. 2

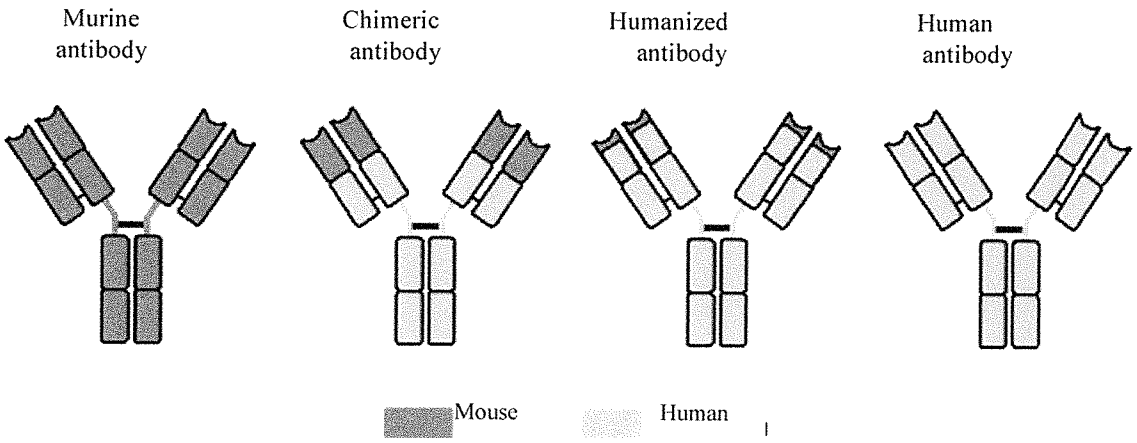

Murine antibody
Chimeric antibody
Humanized antibody
Human antibody
Mouse
Human

Fig. 3

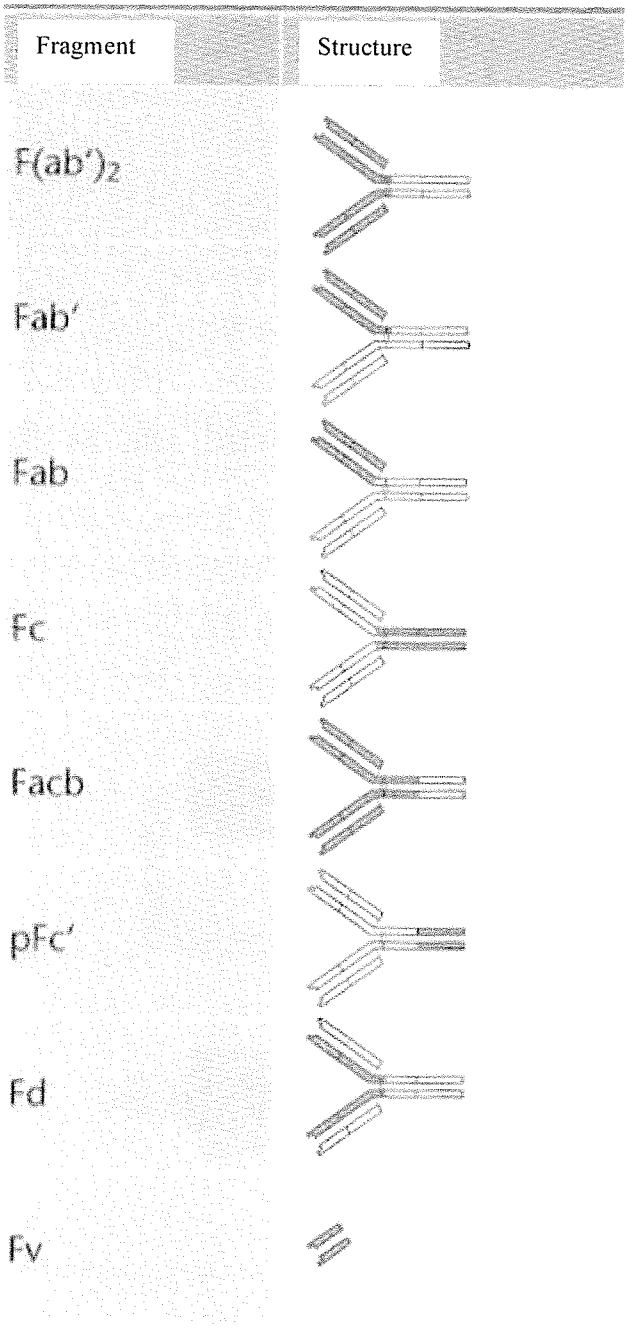


Fig. 4

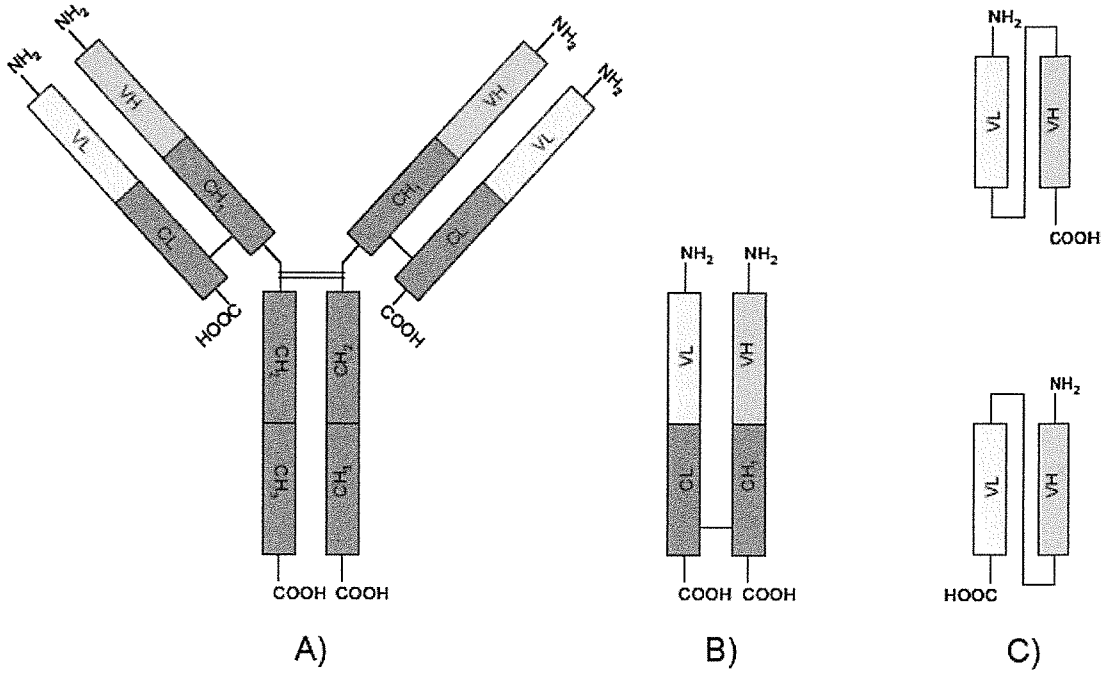
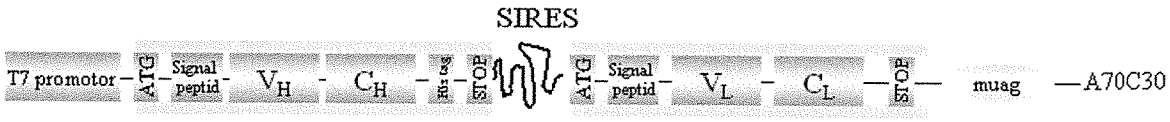


Fig. 5



Signal peptid = Signal peptide

Fig. 6

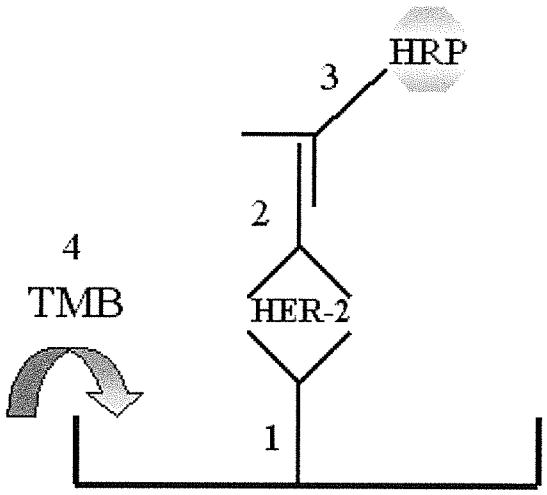


Fig. 7

CAG GCG TAT CTG CAG CAG AGC GGC GCG GAA CTG GTG CGC CCG GGC GCG
AGC GTG AAA ATG AGC TGC AAA GCG AGC GGC TAT ACC TTT ACC AGC TAT
AAC ATG CAT TGG GTG AAA CAG ACC CCG CGC CAG GGC CTG GAA TGG ATT
GGC GCG ATT TAT CCG GGC AAC GGC GAT ACC AGC TAT AAC CAG AAA TTT
AAA GGC AAA GCG ACC CTG ACC GTG GAT AAA AGC AGC AGC ACC GCG TAT
ATG CAG CTG AGC AGC CTG ACC AGC GAA GAT AGC GCG GTG TAT TTT TGC
GCG CGC GTG GTG TAT TAT AGC AAC AGC TAT TGG TAT TTT GAT GTG TGG
GGC ACC GGC ACC ACC GTG ACC GTG AGC GGC CCG AGC GTG TTT CCG CTG
GCG CCG AGC AGC AAA AGC ACC AGC GGC GGC ACC GCG GCG CTG GGC TGC
CTG GTG AAA GAT TAT TTT CCG GAA CCG GTG ACC GTG AGC TGG AAC AGC
GGC GCG CTG ACC AGC GGC GTG CAT ACC TTT CCG GCG GTG CTG CAG AGC
AGC GGC CTG TAT AGC CTG AGC AGC GTG GTG ACC GTG CCG AGC AGC AGC
CTG GGC ACC CAG ACC TAT ATT TGC AAC GTG AAC CAT AAA CCG AGC AAC
ACC AAA GTG GAT AAA AAA GCG GAA CCG AAA AGC TGC GAT AAA ACC CAT
ACC TGC CCG CCG TGC CCG GCG CCG GAA CTG CTG GGC GGC CCG AGC GTG
TTT CTG TTT CCG CCG AAA CCG AAA GAT ACC CTG ATG ATT AGC CGC ACC
CCG GAA GTG ACC TGC GTG GTG GTG GAT GTG AGC CAT GAA GAT CCG GAA
GTG AAA TTT AAC TGG TAT GTG GAT GGC GTG GAA GTG CAT AAC GCG AAA
ACC AAA CCG CGC GAA GAA CAG TAT AAC AGC ACC TAT CGC GTG GTG AGC
GTG CTG ACC GTG CTG CAT CAG GAT TGG CTG AAC GGC AAA GAA TAT AAA
TGC AAA GTG AGC AAC AAA GCG CTG CCG GCG CCG ATT GAA AAA ACC ATT
AGC AAA GCG AAA GGC CAG CCG CGC GAA CCG CAG GTG TAT ACC CTG CCG
CCG AGC CGC GAT GAA CTG ACC AAA AAC CAG GTG AGC CTG ACC TGC CTG
GTG AAA GGC TTT TAT CCG AGC GAT ATT GCG GTG GAA TGG GAA AGC AAC
GGC CAG CCG GAA AAC AAC TAT AAA ACC ACC CCG CCG GTG CTG GAT AGC
GAT GGC AGC TTT TTT CTG TAT AGC AAA CTG ACC GTG GAT AAA AGC CGC
TGG CAG CAG GGC AAC GTG TTT AGC TGC AGC GTG ATG CAT GAA GCG CTG
CAT AAC CAT TAT ACC CAG AAA AGC CTG AGC CTG AGC CCG GGC AAA TAA

Fig. 8

CAG GCC TAC CTG CAG CAG AGC GGC GCG GAG CTC GTG CGG CCG GGG GCC
TCG GTC AAG ATG AGC TGC AAG GCC AGC GGC TAC ACC TTC ACG AGC TAC
AAC ATG CAC TGG GTG AAG CAG ACC CCG CGC CAG GGG CTG GAG TGG ATC
GGC GCC ATC TAC CCC GGG AAC GGC GAC ACC AGC TAC AAC CAG AAG TTC
AAG GGC AAG GCG ACC CTG ACG GTG GAC AAG TCG AGC AGC ACC GCC TAC
ATG CAG CTC AGC AGC CTG ACC TCG GAG GAC AGC GCC GTC TAC TTC TGC
GCC CGG GTG GTG TAC TAC AGC AAC AGC TAC TGG TAC TTC GAC GTC TGG
GGG ACC GGC ACG ACC GTG ACC GTG AGC GGG CCC AGC GTC TTC CCC CTG
GCC CCC TCG AGC AAG AGC ACC AGC GGC GGC ACG GCG GCC CTC GGG TGC
CTG GTG AAG GAC TAC TTC CCC GAG CCC GTG ACC GTC AGC TGG AAC TCG
GGC GCC CTG ACC AGC GGG GTG CAC ACC TTC CCG GCC GTG CTC CAG AGC
AGC GGC CTG TAC AGC CTG AGC TCG GTC GTG ACG GTG CCC AGC AGC AGC
CTC GGG ACC CAG ACC TAC ATC TGC AAC GTC AAC CAC AAG CCC AGC AAC
ACC AAG GTG GAC AAG AAG GCG GAG CCC AAG TCG TGC GAC AAG ACG CAC
ACC TGC CCG CCC TGC CCC GCC CCC GAG CTG CTG GGC GGC CCG AGC GTG
TTC CTC TTC CCG CCC AAG CCC AAG GAC ACC CTG ATG ATC AGC CGC ACC
CCC GAG GTC ACG TGC GTG GTG GTC GAC GTG AGC CAC GAG GAC CCC GAG
GTG AAG TTC AAC TGG TAC GTC GAC GGG GTG GAG GTG CAC AAC GCC AAG
ACC AAG CCC CGG GAG GAG CAG TAC AAC AGC ACC TAC CGC GTC GTG AGC
GTG CTG ACC GTC CTC CAC CAG GAC TGG CTG AAC GGC AAG GAG TAC AAG
TGC AAG GTG TCG AAC AAG GCC CTG CCG GCC CCC ATC GAG AAG ACG ATC
AGC AAG GCG AAG GGG CAG CCC CGG GAG CCC CAG GTG TAC ACC CTC CCG
CCC AGC CGC GAC GAG CTG ACC AAG AAC CAG GTC AGC CTG ACC TGC CTC
GTG AAG GGC TTC TAC CCC AGC GAC ATC GCC GTG GAG TGG GAG TCG AAC
GGG CAG CCC GAG AAC AAC TAC AAG ACG ACC CCG CCC GTC CTG GAC AGC
GAC GGC AGC TTC TTC CTG TAC AGC AAG CTC ACC GTG GAC AAG AGC CGG
TGG CAG CAG GGC AAC GTG TTC AGC TGC TCG GTC ATG CAC GAG GCC CTG
CAC AAC CAC TAC ACC CAG AAG AGC CTG AGC CTC AGC CCC GGG AAG TGA

Fig. 9

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CAG ATT GTG CTG AGC CAG AGC CCG GCG ATT CTG AGC GCG AGC CCG GGC
GAA AAA GTG ACC ATG ACC TGC CGC GCG AGC AGC AGC GTG AGC TAT ATG
CAT TGG TAT CAG CAG AAA CCG GGC AGC AGC CCG AAA CCG TGG ATT TAT
GCG CCG AGC AAC CTG GCG AGC GGC GTG CCG GCG CGC TTT AGC GGC AGC
GGC AGC GGC ACC AGC TAT AGC CTG ACC ATT AGC CGC GTG GAA GCG GAA
GAT GCG GCG ACC TAT TAT TGC CAG CAG TGG AGC TTT AAC CCG CCG ACC
TTT GGC GCG GGC ACC AAA CTG GAA CTG AAA CGC ACC GTG GCG GCG CCG
AGC GTG TTT ATT TTT CCG CCG AGC GAT GAA CAG CTG AAA AGC GGC ACC
GCG AGC GTG GTG TGC CTG CTG AAC AAC TTT TAT CCG CGC GAA GCG AAA
GTG CAG TGG AAA GTG GAT AAC GCG CTG CAG AGC GGC AAC AGC CAG GAA
AGC GTG ACC GAA CAG GAT AGC AAA GAT AGC ACC TAT AGC CTG AGC AGC
ACC CTG ACC CTG AGC AAA GCG GAT TAT GAA AAA CAT AAA GTG TAT GCG
TGC GAA GTG ACC CAT CAG GGC CTG AGC AGC CCG GTG ACC AAA AGC TTT
AAC CGC TAA
```

Fig. 10

CAG ATC GTG CTG AGC CAG TCG CCG GCC ATC CTC AGC GCG AGC CCC GGC
GAG AAG GTC ACC ATG ACG TGC CGG GCC AGC AGC TCG GTG AGC TAC ATG
CAC TGG TAC CAG CAG AAG CCC GGG AGC AGC CCC AAG CCG TGG ATC TAC
GCC CCC AGC AAC CTG GCC TCG GGC GTG CCC GCG CGC TTC AGC GGG AGC
GGC AGC GGG ACC AGC TAC AGC CTG ACC ATC TCG CGG GTC GAG GCC GAG
GAC GCC GCC ACC TAC TAC TGC CAG CAG TGG AGC TTC AAC CCG CCC ACG
TTC GGC GCC GGC ACC AAG CTC GAG CTG AAG CGC ACC GTG GCG GCC CCC
AGC GTG TTC ATC TTC CCG CCC AGC GAC GAG CAG CTG AAG AGC GGG ACC
GCC TCG GTC GTG TGC CTC CTG AAC AAC TTC TAC CCC CGG GAG GCC AAG
GTG CAG TGG AAG GTC GAC AAC GCG CTG CAG AGC GGC AAC AGC CAG GAG
AGC GTG ACG GAG CAG GAC AGC AAG GAC AGC ACC TAC TCG CTC AGC AGC
ACC CTG ACC CTG AGC AAG GCC GAC TAC GAG AAG CAC AAG GTG TAC GCC
TGC GAG GTC ACG CAC CAG GGG CTC AGC TCG CCC GTG ACC AAG AGC TTC
AAC CGC TGA

Fig. 11

AAGCTTACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCT
GACGCAGACCTGGGCCGGGCAGGCCTACCTGCAGCAGAGCGGCGCGGAGCTCGTGCGGCCGGGGG
CCTCGGTCAAGATGAGCTGCAAGGCCAGCGGCTACACCTTCACGAGCTACAACATGCACTGGGTG
AAGCAGACCCCGCGCCAGGGGCTGGAGTGGATCGGCGCCATCTACCCCGGGAACGGCGACACCAG
CTACAACCAGAAGTTCAAGGGCAAGGCGACCCTGACGGTGGACAAGTCGAGCAGCACCGCCTACA
TGCAGCTCAGCAGCCTGACCTCGGAGGACAGCGCCGTCTACTTCTGCGCCCGGGTGGTGTACTAC
AGCAACAGCTACTGGTACTTCGACGTCTGGGGGACCGGCACGACCGTGACCGTGAGCGGGCCCAG
CGTCTTCCCCCTGGCCCCCTCGAGCAAGAGCACCAGCGGCGGCACGGCGGCCCTCGGGTGCCTGG
TGAAGGACTACTTCCCCGAGCCCGTGACCGTCAGCTGGAACTCGGGCGCCCTGACCAGCGGGGTG
CACACCTTCCCGGCCGTGCTCCAGAGCAGCGGCCTGTACAGCCTGAGCTCGGTCGTGACGGTGCC
CAGCAGCAGCCTCGGGACCCAGACCTACATCTGCAACGTCAACCACAAGCCCAGCAACACCAAGG
TGGACAAGAAGGCGGAGCCCAAGTCGTGCGACAAGACGCACACCTGCCCGCCCTGCCCCGCCCCC
GAGCTGCTGGGCGGCCCGAGCGTGTTCCTCTTCCCGCCCAAGCCCAAGGACACCCTGATGATCAG
CCGCACCCCCGAGGTCACGTGCGTGGTGGTCGACGTGAGCCACGAGGACCCCGAGGTGAAGTTCA
ACTGGTACGTCGACGGGGTGGAGGTGCACAACGCCAAGACCAAGCCCCGGGAGGAGCAGTACAAC
AGCACCTACCGCGTCGTGAGCGTGCTGACCGTCCTCCACCAGGACTGGCTGAACGGCAAGGAGTA
CAAGTGCAAGGTGTCGAACAAGGCCCTGCCGGCCCCCATCGAGAAGACGATCAGCAAGGCGAAGG
GGCAGCCCCGGGAGCCCCAGGTGTACACCCTCCCGCCCAGCCGCGACGAGCTGACCAAGAACCAG
GTCAGCCTGACCTGCCTCGTGAAGGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGTCGAA
CGGGCAGCCCGAGAACAACTACAAGACGACCCCGCCCGTCCTGGACAGCGACGGCAGCTTCTTCC
TGTACAGCAAGCTCACCGTGGACAAGAGCCGGTGGCAGCAGGGCAACGTGTTCAGCTGCTCGGTC
ATGCACGAGGCCCTGCACAACCACTACACCCAGAAGAGCCTGAGCCTCAGCCCCGGGAAGCATCA
TCATCATCATCATTGACC**AGATCTTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTG**
ACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATATGCATACC***ATG***GCCG
TGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCTGACGCAGACCTGGGCC
*GGG*CAGATCGTGCTGAGCCAGTCGCCGGCCATCCTCAGCGCGAGCCCCGGCGAGAAGGTCACCAT
GACGTGCCGGGCCAGCAGCTCGGTGAGCTACATGCACTGGTACCAGCAGAAGCCCGGGAGCAGCC
CCAAGCCGTGGATCTACGCCCCCAGCAACCTGGCCTCGGGCGTGCCCGCGCGCTTCAGCGGGAGC
GGCAGCGGGACCAGCTACAGCCTGACCATCTCGCGGGTCGAGGCCGAGGACGCCGCCACCTACTA
CTGCCAGCAGTGGAGCTTCAACCCGCCCACGTTCGGCGCCGGCACCAAGCTCGAGCTGAAGCGCA
CCGTGGCGGCCCCCAGCGTGTTCATCTTCCCGCCCAGCGACGAGCAGCTGAAGAGCGGGACCGCC
TCGGTCGTGTGCCTCCTGAACAACTTCTACCCCCGGGAGGCCAAGGTGCAGTGGAAGGTCGACAA
CGCGCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACGGAGCAGGACAGCAAGGACAGCACCTACT
CGCTCAGCAGCACCCTGACCCTGAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAG
GTCACGCACCAGGGGCTCAGCTCGCCCGTGACCAAGAGCTTCAACCGCTGACCACTAGT

Fig. 12

CAG GTG CAG CTG AAA CAG AGC GGC CCG GGC CTG GTG CAG CCG AGC CAG
AGC CTG AGC ATT ACC TGC ACC GTG AGC GGC TTT AGC CTG ACC AAC TAT
GGC GTG CAT TGG GTG CGC CAG AGC CCG GGC AAA GGC CTG GAA TGG CTG
GGC GTG ATT TGG AGC GGC GGC AAC ACC GAT TAT AAC ACC CCG TTT ACC
AGC CGC CTG AGC ATT AAC AAA GAT AAC AGC AAA AGC CAG GTG TTT TTT
AAA ATG AAC AGC CTG CAG AGC AAC GAT ACC GCG ATT TAT TAT TGC GCG
CGC GCG CTG ACC TAT TAT GAT TAT GAA TTT GCG TAT TGG GGC CAG GGC
ACC CTG GTG ACC GTG AGC GCG GCG AGC ACC AAA GGC CCG AGC GTG TTT
CCG CTG GCG CCG AGC AGC AAA AGC ACC AGC GGC GGC ACC GCG GCG CTG
GGC TGC CTG GTG AAA GAT TAT TTT CCG GAA CCG GTG ACC GTG AGC TGG
AAC AGC GGC GCG CTG ACC AGC GGC GTG CAT ACC TTT CCG GCG GTG CTG
CAG AGC AGC GGC CTG TAT AGC CTG AGC AGC GTG GTG ACC GTG CCG AGC
AGC AGC CTG GGC ACC CAG ACC TAT ATT TGC AAC GTG AAC CAT AAA CCG
AGC AAC ACC AAA GTG GAT AAA CGC GTG GAA CCG AAA AGC CCG AAA AGC
TGC GAT AAA ACC CAT ACC TGC CCG CCG TGC CCG GCG CCG GAA CTG CTG
GGC GGC CCG AGC GTG TTT CTG TTT CCG CCG AAA CCG AAA GAT ACC CTG
ATG ATT AGC CGC ACC CCG GAA GTG ACC TGC GTG GTG GTG GAT GTG AGC
CAT GAA GAT CCG GAA GTG AAA TTT AAC TGG TAT GTG GAT GGC GTG GAA
GTG CAT AAC GCG AAA ACC AAA CCG CGC GAA GAA CAG TAT AAC AGC ACC
TAT CGC GTG GTG AGC GTG CTG ACC GTG CTG CAT CAG GAT TGG CTG AAC
GGC AAA GAA TAT AAA TGC AAA GTG AGC AAC AAA GCG CTG CCG GCG CCG
ATT GAA AAA ACC ATT AGC AAA GCG AAA GGC CAG CCG CGC GAA CCG CAG
GTG TAT ACC CTG CCG CCG AGC CGC GAT GAA CTG ACC AAA AAC CAG GTG
AGC CTG ACC TGC CTG GTG AAA GGC TTT TAT CCG AGC GAT ATT GCG GTG
GAA TGG GAA AGC AAC GGC CAG CCG GAA AAC AAC TAT AAA ACC ACC CCG
CCG GTG CTG GAT AGC GAT GGC AGC TTT TTT CTG TAT AGC AAA CTG ACC
GTG GAT AAA AGC CGC TGG CAG CAG GGC AAC GTG TTT AGC TGC AGC GTG
ATG CAT GAA GCG CTG CAT AAC CAT TAT ACC CAG AAA AGC CTG AGC CTG
AGC CCG GGC AAA TAA

Fig. 13

CAG GTG CAG CTG AAG CAG AGC GGC CCG GGG CTC GTC CAG CCC TCG CAG
AGC CTG AGC ATC ACC TGC ACG GTG AGC GGC TTC AGC CTG ACC AAC TAC
GGG GTG CAC TGG GTC CGG CAG TCG CCC GGC AAG GGG CTC GAG TGG CTG
GGC GTG ATC TGG AGC GGC GGG AAC ACC GAC TAC AAC ACC CCC TTC ACG
AGC CGC CTG AGC ATC AAC AAG GAC AAC AGC AAG TCG CAG GTG TTC TTC
AAG ATG AAC AGC CTC CAG AGC AAC GAC ACC GCC ATC TAC TAC TGC GCG
CGG GCC CTG ACC TAC TAC GAC TAC GAG TTC GCC TAC TGG GGC CAG GGG
ACC CTG GTC ACG GTG AGC GCC GCG AGC ACC AAG GGC CCG AGC GTG TTC
CCC CTC GCC CCC TCG AGC AAG AGC ACC AGC GGC GGG ACC GCC GCC CTG
GGC TGC CTG GTC AAG GAC TAC TTC CCC GAG CCG GTG ACG GTG AGC TGG
AAC TCG GGG GCC CTC ACC AGC GGC GTC CAC ACC TTC CCC GCG GTG CTG
CAG AGC AGC GGG CTG TAC AGC CTC AGC TCG GTG GTC ACC GTG CCC AGC
AGC AGC CTG GGC ACG CAG ACC TAC ATC TGC AAC GTG AAC CAC AAG CCC
AGC AAC ACC AAG GTC GAC AAG CGC GTG GAG CCG AAG TCG CCC AAG AGC
TGC GAC AAG ACC CAC ACG TGC CCG CCC TGC CCC GCC CCC GAG CTG CTC
GGC GGG CCC AGC GTG TTC CTG TTC CCG CCC AAG CCC AAG GAC ACC CTG
ATG ATC AGC CGG ACC CCC GAG GTC ACC TGC GTG GTG GTC GAC GTG AGC
CAC GAG GAC CCG GAG GTG AAG TTC AAC TGG TAC GTC GAC GGC GTG GAG
GTG CAC AAC GCC AAG ACG AAG CCC CGC GAG GAG CAG TAC AAC AGC ACC
TAC CGG GTC GTG TCG GTG CTC ACC GTC CTG CAC CAG GAC TGG CTG AAC
GGG AAG GAG TAC AAG TGC AAG GTG AGC AAC AAG GCC CTC CCC GCG CCC
ATC GAG AAG ACC ATC AGC AAG GCC AAG GGC CAG CCG CGC GAG CCC CAG
GTG TAC ACG CTG CCC CCC AGC CGG GAC GAG CTG ACC AAG AAC CAG GTC
AGC CTC ACC TGC CTG GTG AAG GGG TTC TAC CCG TCG GAC ATC GCC GTG
GAG TGG GAG AGC AAC GGC CAG CCC GAG AAC AAC TAC AAG ACC ACG CCC
CCG GTC CTG GAC AGC GAC GGC AGC TTC TTC CTC TAC AGC AAG CTG ACC
GTG GAC AAG AGC CGC TGG CAG CAG GGG AAC GTG TTC TCG TGC AGC GTC
ATG CAC GAG GCC CTG CAC AAC CAC TAC ACC CAG AAG AGC CTC AGC CTG
AGC CCC GGC AAG TGA

Fig. 14

GAT ATT CTG CTG ACC CAG AGC CCG GTG ATT CTG AGC GTG AGC CCG GGC
GAA CGC GTG AGC TTT AGC TGC CGC GCG AGC CAG AGC ATT GGC ACC AAC
ATT CAT TGG TAT CAG CAG CGC ACC AAC GGC AGC CCG CGC CTG CTG ATT
AAA TAT GCG AGC GAA AGC ATT AGC GGC ATT CCG AGC CGC TTT AGC GGC
AGC GGC AGC GGC ACC GAT TTT ACC CTG AGC ATT AAC AGC GTG GAA AGC
GAA GAT ATT GCG GAT TAT TAT TGC CAG CAG AAC AAC AAC TGG CCG ACC
ACC TTT GGC GCG GGC ACC AAA CTG GAA CTG AAA CGC ACC GTG GCG GCG
CCG AGC GTG TTT ATT TTT CCG CCG AGC GAT GAA CAG CTG AAA AGC GGC
ACC GCG AGC GTG GTG TGC CTG CTG AAC AAC TTT TAT CCG CGC GAA GCG
AAA GTG CAG TGG AAA GTG GAT AAC GCG CTG CAG AGC GGC AAC AGC CAG
GAA AGC GTG ACC GAA CAG GAT AGC AAA GAT AGC ACC TAT AGC CTG AGC
AGC ACC CTG ACC CTG AGC AAA GCG GAT TAT GAA AAA CAT AAA GTG TAT
GCG TGC GAA GTG ACC CAT CAG GGC CTG AGC AGC CCG GTG ACC AAA AGC
TTT AAC CGC GGC GCG TAA

Fig. 15

GAC ATC CTG CTC ACC CAG AGC CCG GTG ATC CTG TCG GTC AGC CCC GGC
GAG CGG GTG AGC TTC AGC TGC CGC GCC AGC CAG TCG ATC GGG ACG AAC
ATC CAC TGG TAC CAG CAG CGG ACC AAC GGC AGC CCC CGC CTG CTC ATC
AAG TAC GCG AGC GAG AGC ATC AGC GGG ATC CCC TCG CGG TTC AGC GGC
AGC GGG AGC GGC ACC GAC TTC ACC CTG AGC ATC AAC AGC GTG GAG TCG
GAG GAC ATC GCC GAC TAC TAC TGC CAG CAG AAC AAC AAC TGG CCG ACG
ACC TTC GGC GCC GGG ACC AAG CTG GAG CTC AAG CGC ACC GTC GCC GCG
CCC AGC GTG TTC ATC TTC CCG CCC AGC GAC GAG CAG CTG AAG AGC GGC
ACG GCC AGC GTG GTC TGC CTG CTC AAC AAC TTC TAC CCC CGG GAG GCC
AAG GTG CAG TGG AAG GTG GAC AAC GCC CTG CAG TCG GGG AAC AGC CAG
GAG AGC GTC ACC GAG CAG GAC AGC AAG GAC AGC ACC TAC AGC CTG TCG
AGC ACC CTC ACG CTG AGC AAG GCC GAC TAC GAG AAG CAC AAG GTG TAC
GCG TGC GAG GTG ACC CAC CAG GGC CTG AGC AGC CCC GTC ACC AAG TCG
TTC AAC CGC GGC GCC TGA

Fig. 16

AAGCTTACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCT
GACGCAGACCTGGGCCGGGCAGGTGCAGCTGAAGCAGAGCGGCCCGGGGCTCGTCCAGCCCTCGC
AGAGCCTGAGCATCACCTGCACGGTGAGCGGCTTCAGCCTGACCAACTACGGGGTGCACTGGGTC
CGGCAGTCGCCCGGCAAGGGGCTCGAGTGGCTGGGCGTGATCTGGAGCGGCGGGAACACCGACTA
CAACACCCCCTTCACGAGCCGCCTGAGCATCAACAAGGACAACAGCAAGTCGCAGGTGTTCTTCA
AGATGAACAGCCTCCAGAGCAACGACACCGCCATCTACTACTGCGCGCGGGCCCTGACCTACTAC
GACTACGAGTTCGCCTACTGGGGCCAGGGGACCCTGGTCACGGTGAGCGCCGCGAGCACCAAGGG
CCCGAGCGTGTTCCCCCTCGCCCCCTCGAGCAAGAGCACCAGCGGCGGGACCGCCGCCCTGGGCT
GCCTGGTCAAGGACTACTTCCCCGAGCCGGTGACGGTGAGCTGGAACTCGGGGGCCCTCACCAGC
GGCGTCCACACCTTCCCCGCGGTGCTGCAGAGCAGCGGGCTGTACAGCCTCAGCTCGGTGGTCAC
CGTGCCCAGCAGCAGCCTGGGCACGCAGACCTACATCTGCAACGTGAACCACAAGCCCAGCAACA
CCAAGGTCGACAAGCGCGTGGAGCCGAAGTCGCCCAAGAGCTGCGACAAGACCCACACGTGCCCG
CCCTGCCCCGCCCCCGAGCTGCTCGGCGGGCCCAGCGTGTTCCTGTTCCCGCCCAAGCCCAAGGA
CACCCTGATGATCAGCCGGACCCCCGAGGTCACCTGCGTGGTGGTCGACGTGAGCCACGAGGACC
CGGAGGTGAAGTTCAACTGGTACGTCGACGGCGTGGAGGTGCACAACGCCAAGACGAAGCCCCGC
GAGGAGCAGTACAACAGCACCTACCGGGTCGTGTCGGTGCTCACCGTCCTGCACCAGGACTGGCT
GAACGGGAAGGAGTACAAGTGCAAGGTGAGCAACAAGGCCCTCCCCGCGCCCATCGAGAAGACCA
TCAGCAAGGCCAAGGGCCAGCCGCGCGAGCCCCAGGTGTACACGCTGCCCCCCAGCCGGGACGAG
CTGACCAAGAACCAGGTCAGCCTCACCTGCCTGGTGAAGGGGTTCTACCCGTCGGACATCGCCGT
GGAGTGGGAGAGCAACGGCCAGCCCGAGAACAACTACAAGACCACGCCCCCGGTCCTGGACAGCG
ACGGCAGCTTCTTCCTCTACAGCAAGCTGACCGTGGACAAGAGCCGCTGGCAGCAGGGGAACGTG
TTCTCGTGCAGCGTCATGCACGAGGCCCTGCACAACCACTACACCCAGAAGAGCCTCAGCCTGAG
CCCCGGCAAGCATCATCATCATCATCATTGACC**AGATCTTTCTGACATTTCTGACATTTCTGACA**
TTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATA
TGCATACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCTG
ACGCAGACCTGGGCCGGGGACATCCTGCTCACCCAGAGCCCGGTGATCCTGTCGGTCAGCCCCGG
CGAGCGGGTGAGCTTCAGCTGCCGCGCCAGCCAGTCGATCGGGACGAACATCCACTGGTACCAGC
AGCGGACCAACGGCAGCCCCCGCCTGCTCATCAAGTACGCGAGCGAGAGCATCAGCGGGATCCCC
TCGCGGTTCAGCGGCAGCGGGAGCGGCACCGACTTCACCCTGAGCATCAACAGCGTGGAGTCGGA
GGACATCGCCGACTACTACTGCCAGCAGAACAACAACTGGCCGACGACCTTCGGCGCCGGGACCA
AGCTGGAGCTCAAGCGCACCGTCGCCGCGCCCAGCGTGTTCATCTTCCCGCCCAGCGACGAGCAG
CTGAAGAGCGGCACGGCCAGCGTGGTCTGCCTGCTCAACAACTTCTACCCCCGGGAGGCCAAGGT
GCAGTGGAAGGTGGACAACGCCCTGCAGTCGGGGAACAGCCAGGAGAGCGTCACCGAGCAGGACA
GCAAGGACAGCACCTACAGCCTGTCGAGCACCCTCACGCTGAGCAAGGCCGACTACGAGAAGCAC
AAGGTGTACGCGTGCGAGGTGACCCACCAGGGCCTGAGCAGCCCCGTCACCAAGTCGTTCAACCG
CGGCGCCTGACCACTAGT

Fig. 17

GAA GTG CAG CTG GTG GAA AGC GGC GGC GGC CTG GTG CAG CCG GGC GGC
AGC CTG CGC CTG AGC TGC GCG GCG AGC GGC TTT AAC ATT AAA GAT ACC
TAT ATT CAT TGG GTG CGC CAG GCG CCG GGC AAA GGC CTG GAA TGG GTG
GCG CGC ATT TAT CCG ACC AAC GGC TAT ACC CGC TAT GCG GAT AGC GTG
AAA GGC CGC TTT ACC ATT AGC GCG GAT ACC AGC AAA AAC ACC GCG TAT
CTG CAG ATG AAC AGC CTG CGC GCG GAA GAT ACC GCG GTG TAT TAT TGC
AGC CGC TGG GGC GGC GAT GGC TTT TAT GCG ATG GAT TAT TGG GGC CAG
GGC ACC CTG GTG ACC GTG AGC AGC GCG AGC ACC AAA GGC CCG AGC GTG
TTT CCG CTG GCG CCG AGC AGC AAA AGC ACC AGC GGC GGC ACC GCG GCG
CTG GGC TGC CTG GTG AAA GAT TAT TTT CCG GAA CCG GTG ACC GTG AGC
TGG AAC AGC GGC GCG CTG ACC AGC GGC GTG CAT ACC TTT CCG GCG GTG
CTG CAG AGC AGC GGC CTG TAT AGC CTG AGC AGC GTG GTG ACC GTG CCG
AGC AGC AGC CTG GGC ACC CAG ACC TAT ATT TGC AAC GTG AAC CAT AAA
CCG AGC AAC ACC AAA GTG GAT AAA AAA GTG GAA CCG CCG AAA AGC TGC
GAT AAA ACC CAT ACC TGC CCG CCG TGC CCG GCG CCG GAA CTG CTG GGC
GGC CCG AGC GTG TTT CTG TTT CCG CCG AAA CCG AAA GAT ACC CTG ATG
ATT AGC CGC ACC CCG GAA GTG ACC TGC GTG GTG GTG GAT GTG AGC CAT
GAA GAT CCG GAA GTG AAA TTT AAC TGG TAT GTG GAT GGC GTG GAA GTG
CAT AAC GCG AAA ACC AAA CCG CGC GAA GAA CAG TAT AAC AGC ACC TAT
CGC GTG GTG AGC GTG CTG ACC GTG CTG CAT CAG GAT TGG CTG AAC GGC
AAA GAA TAT AAA TGC AAA GTG AGC AAC AAA GCG CTG CCG GCG CCG ATT
GAA AAA ACC ATT AGC AAA GCG AAA GGC CAG CCG CGC GAA CCG CAG GTG
TAT ACC CTG CCG CCG AGC CGC GAT GAA CTG ACC AAA AAC CAG GTG AGC
CTG ACC TGC CTG GTG AAA GGC TTT TAT CCG AGC GAT ATT GCG GTG GAA
TGG GAA AGC AAC GGC CAG CCG GAA AAC AAC TAT AAA ACC ACC CCG CCG
GTG CTG GAT AGC GAT GGC AGC TTT TTT CTG TAT AGC AAA CTG ACC GTG
GAT AAA AGC CGC TGG CAG CAG GGC AAC GTG TTT AGC TGC AGC GTG ATG
CAT GAA GCG CTG CAT AAC CAT TAT ACC CAG AAA AGC CTG AGC CTG AGC
CCG GGC AAA TAA

Fig. 18

GAG GTG CAG CTG GTC GAG AGC GGC GGG GGC CTC GTG CAG CCG GGC GGG
TCG CTG CGG CTG AGC TGC GCC GCG AGC GGG TTC AAC ATC AAG GAC ACC
TAC ATC CAC TGG GTG CGC CAG GCC CCC GGC AAG GGC CTC GAG TGG GTC
GCC CGG ATC TAC CCC ACG AAC GGG TAC ACC CGC TAC GCC GAC AGC GTG
AAG GGC CGG TTC ACC ATC AGC GCG GAC ACC TCG AAG AAC ACG GCC TAC
CTG CAG ATG AAC AGC CTG CGC GCC GAG GAC ACC GCC GTG TAC TAC TGC
AGC CGG TGG GGC GGC GAC GGG TTC TAC GCC ATG GAC TAC TGG GGG CAG
GGC ACC CTC GTC ACC GTG AGC AGC GCG TCG ACG AAG GGG CCC AGC GTG
TTC CCG CTG GCC CCC AGC AGC AAG AGC ACC AGC GGC GGG ACC GCC GCC
CTG GGC TGC CTC GTC AAG GAC TAC TTC CCC GAG CCC GTG ACC GTG TCG
TGG AAC AGC GGC GCG CTG ACG AGC GGG GTC CAC ACC TTC CCG GCC GTG
CTG CAG AGC AGC GGC CTC TAC TCG CTG AGC AGC GTG GTC ACC GTG CCC
AGC AGC AGC CTG GGG ACC CAG ACG TAC ATC TGC AAC GTG AAC CAC AAG
CCC TCG AAC ACC AAG GTC GAC AAG AAG GTG GAG CCC CCG AAG AGC TGC
GAC AAG ACC CAC ACC TGC CCG CCC TGC CCC GCC CCC GAG CTC CTG GGC
GGG CCC AGC GTG TTC CTG TTC CCG CCC AAG CCC AAG GAC ACG CTC ATG
ATC AGC CGC ACC CCC GAG GTC ACC TGC GTG GTG GTC GAC GTG AGC CAC
GAG GAC CCC GAG GTG AAG TTC AAC TGG TAC GTC GAC GGC GTG GAG GTG
CAC AAC GCC AAG ACC AAG CCG CGG GAG GAG CAG TAC AAC TCG ACG TAC
CGC GTC GTG AGC GTG CTG ACC GTC CTG CAC CAG GAC TGG CTC AAC GGC
AAG GAG TAC AAG TGC AAG GTG AGC AAC AAG GCC CTG CCC GCG CCC ATC
GAG AAG ACC ATC AGC AAG GCC AAG GGG CAG CCC CGG GAG CCG CAG GTG
TAC ACC CTG CCC CCC AGC CGC GAC GAG CTC ACG AAG AAC CAG GTC AGC
CTG ACC TGC CTG GTG AAG GGC TTC TAC CCC TCG GAC ATC GCC GTG GAG
TGG GAG AGC AAC GGG CAG CCG GAG AAC AAC TAC AAG ACC ACC CCG CCC
GTC CTC GAC AGC GAC GGC AGC TTC TTC CTG TAC AGC AAG CTG ACG GTG
GAC AAG TCG CGG TGG CAG CAG GGC AAC GTG TTC AGC TGC AGC GTC ATG
CAC GAG GCC CTC CAC AAC CAC TAC ACC CAG AAG AGC CTG AGC CTG AGC
CCC GGG AAG TGA

Fig. 19

GAT ATT CAG ATG ACC CAG AGC CCG AGC AGC CTG AGC GCG AGC GTG GGC
GAT CGC GTG ACC ATT ACC TGC CGC GCG AGC CAG GAT GTG AAC ACC GCG
GTG GCG TGG TAT CAG CAG AAA CCG GGC AAA GCG CCG AAA CTG CTG ATT
TAT AGC GCG AGC TTT CTG TAT AGC GGC GTG CCG AGC CGC TTT AGC GGC
AGC CGC AGC GGC ACC GAT TTT ACC CTG ACC ATT AGC AGC CTG CAG CCG
GAA GAT TTT GCG ACC TAT TAT TGC CAG CAG CAT TAT ACC ACC CCG CCG
ACC TTT GGC CAG GGC ACC AAA GTG GAA ATT AAA CGC ACC GTG GCG GCG
CCG AGC GTG TTT ATT TTT CCG CCG AGC GAT GAA CAG CTG AAA AGC GGC
ACC GCG AGC GTG GTG TGC CTG CTG AAC AAC TTT TAT CCG CGC GAA GCG
AAA GTG CAG TGG AAA GTG GAT AAC GCG CTG CAG AGC GGC AAC AGC CAG
GAA AGC GTG ACC GAA CAG GAT AGC AAA GAT AGC ACC TAT AGC CTG AGC
AGC ACC CTG ACC CTG AGC AAA GCG GAT TAT GAA AAA CAT AAA GTG TAT
GCG TGC GAA GTG ACC CAT CAG GGC CTG AGC AGC CCG GTG ACC AAA AGC
TTT AAC CGC GGC GAA TGC TAA

Fig. 20

GAC ATC CAG ATG ACC CAG AGC CCG TCG AGC CTG AGC GCC AGC GTG GGC
GAC CGG GTC ACG ATC ACC TGC CGC GCG AGC CAG GAC GTG AAC ACC GCC
GTG GCC TGG TAC CAG CAG AAG CCC GGG AAG GCC CCC AAG CTC CTG ATC
TAC TCG GCG AGC TTC CTG TAC AGC GGC GTC CCC AGC CGG TTC AGC GGG
TCG CGC AGC GGC ACC GAC TTC ACG CTC ACC ATC AGC AGC CTG CAG CCG
GAG GAC TTC GCC ACC TAC TAC TGC CAG CAG CAC TAC ACC ACG CCC CCC
ACC TTC GGG CAG GGC ACC AAG GTG GAG ATC AAG CGG ACC GTG GCC GCC
CCC AGC GTC TTC ATC TTC CCG CCC AGC GAC GAG CAG CTG AAG TCG GGC
ACG GCC AGC GTG GTG TGC CTC CTG AAC AAC TTC TAC CCC CGC GAG GCG
AAG GTC CAG TGG AAG GTG GAC AAC GCC CTG CAG AGC GGG AAC AGC CAG
GAG AGC GTG ACC GAG CAG GAC TCG AAG GAC AGC ACC TAC AGC CTC AGC
AGC ACC CTG ACG CTG AGC AAG GCC GAC TAC GAG AAG CAC AAG GTC TAC
GCC TGC GAG GTG ACC CAC CAG GGG CTC TCG AGC CCC GTG ACC AAG AGC
TTC AAC CGG GGC GAG TGC TGA

Fig. 21

AAGCTTACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCT
GACGCAGACCTGGGCCGGGGAGGTGCAGCTGGTCGAGAGCGGCGGGGGCCTCGTGCAGCCGGGCG
GGTCGCTGCGGCTGAGCTGCGCCGCGAGCGGGTTCAACATCAAGGACACCTACATCCACTGGGTG
CGCCAGGCCCCCGGCAAGGGCCTCGAGTGGGTCGCCCGGATCTACCCCACGAACGGGTACACCCG
CTACGCCGACAGCGTGAAGGGCCGGTTCACCATCAGCGCGGACACCTCGAAGAACACGGCCTACC
TGCAGATGAACAGCCTGCGCGCCGAGGACACCGCCGTGTACTACTGCAGCCGGTGGGGCGGCGAC
GGGTTCTACGCCATGGACTACTGGGGGCAGGGCACCCTCGTCACCGTGAGCAGCGCGTCGACGAA
GGGGCCCAGCGTGTTCCCGCTGGCCCCCAGCAGCAAGAGCACCAGCGGCGGGACCGCCGCCCTGG
GCTGCCTCGTCAAGGACTACTTCCCCGAGCCCGTGACCGTGTCGTGGAACAGCGGCGCGCTGACG
AGCGGGGTCCACACCTTCCCGGCCGTGCTGCAGAGCAGCGGCCTCTACTCGCTGAGCAGCGTGGT
CACCGTGCCCAGCAGCAGCCTGGGGACCCAGACGTACATCTGCAACGTGAACCACAAGCCCTCGA
ACACCAAGGTCGACAAGAAGGTGGAGCCCCCGAAGAGCTGCGACAAGACCCACACCTGCCCGCCC
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GCTCATGATCAGCCGCACCCCCGAGGTCACCTGCGTGGTGGTCGACGTGAGCCACGAGGACCCCG
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GAGCAGTACAACTCGACGTACCGCGTCGTGAGCGTGCTGACCGTCCTGCACCAGGACTGGCTCAA
CGGCAAGGAGTACAAGTGCAAGGTGAGCAACAAGGCCCTGCCCGCGCCCATCGAGAAGACCATCA
GCAAGGCCAAGGGGCAGCCCCGGGAGCCGCAGGTGTACACCCTGCCCCCCAGCCGCGACGAGCTC
ACGAAGAACCAGGTCAGCCTGACCTGCCTGGTGAAGGGCTTCTACCCCTCGGACATCGCCGTGGA
GTGGGAGAGCAACGGGCAGCCGGAGAACAACTACAAGACCACCCCGCCCGTCCTCGACAGCGACG
GCAGCTTCTTCCTGTACAGCAAGCTGACGGTGGACAAGTCGCGGTGGCAGCAGGGCAACGTGTTC
AGCTGCAGCGTCATGCACGAGGCCCTCCACAACCACTACACCCAGAAGAGCCTGAGCCTGAGCCC
CGGGAAGCATCATCATCATCATCATTGACC**AGATCTTTCTGACATTTCTGACATTTCTGACATTT**
CTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATATGC
ATACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCTGACG
CAGACCTGGGCCGGGGACATCCAGATGACCCAGAGCCCGTCGAGCCTGAGCGCCAGCGTGGGCGA
CCGGGTCACGATCACCTGCCGCGCGAGCCAGGACGTGAACACCGCCGTGGCCTGGTACCAGCAGA
AGCCCGGGAAGGCCCCCAAGCTCCTGATCTACTCGGCGAGCTTCCTGTACAGCGGCGTCCCCAGC
CGGTTCAGCGGGTCGCGCAGCGGCACCGACTTCACGCTCACCATCAGCAGCCTGCAGCCGGAGGA
CTTCGCCACCTACTACTGCCAGCAGCACTACACCACGCCCCCCACCTTCGGGCAGGGCACCAAGG
TGGAGATCAAGCGGACCGTGGCCGCCCCCAGCGTCTTCATCTTCCCGCCCAGCGACGAGCAGCTG
AAGTCGGGCACGGCCAGCGTGGTGTGCCTCCTGAACAACTTCTACCCCCGCGAGGCGAAGGTCCA
GTGGAAGGTGGACAACGCCCTGCAGAGCGGGAACAGCCAGGAGAGCGTGACCGAGCAGGACTCGA
AGGACAGCACCTACAGCCTCAGCAGCACCCTGACGCTGAGCAAGGCCGACTACGAGAAGCACAAG
GTCTACGCCTGCGAGGTGACCCACCAGGGGCTCTCGAGCCCCGTGACCAAGAGCTTCAACCGGGG
CGAGTGCTGATGACCACTAG

Fig. 22

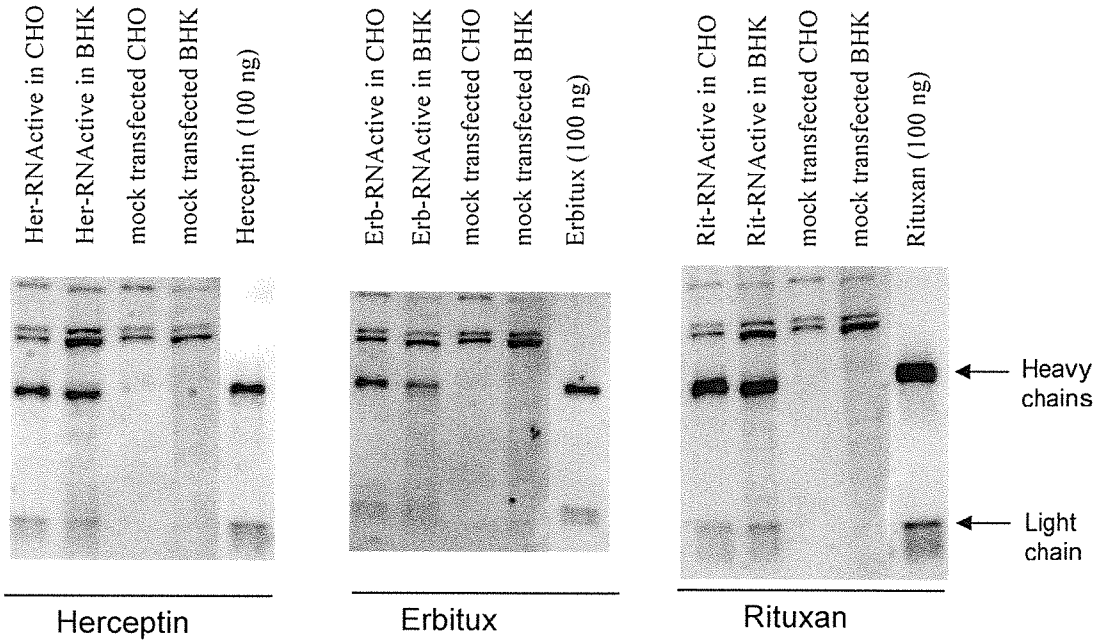

Her-RNActive in CHO
Her-RNActive in BHK
mock transfected CHO
mock transfected BHK
Herceptin (100 ng)
Erb-RNActive in CHO
Erb-RNActive in BHK
mock transfected CHO
mock transfected BHK
Erbitux (100 ng)
Rit-RNActive in CHO
Rit-RNActive in BHK
mock transfected CHO
mock transfected BHK
Rituxan (100 ng)
Heavy chains
Light chain
Herceptin
Erbitux
Rituxan

Fig. 23

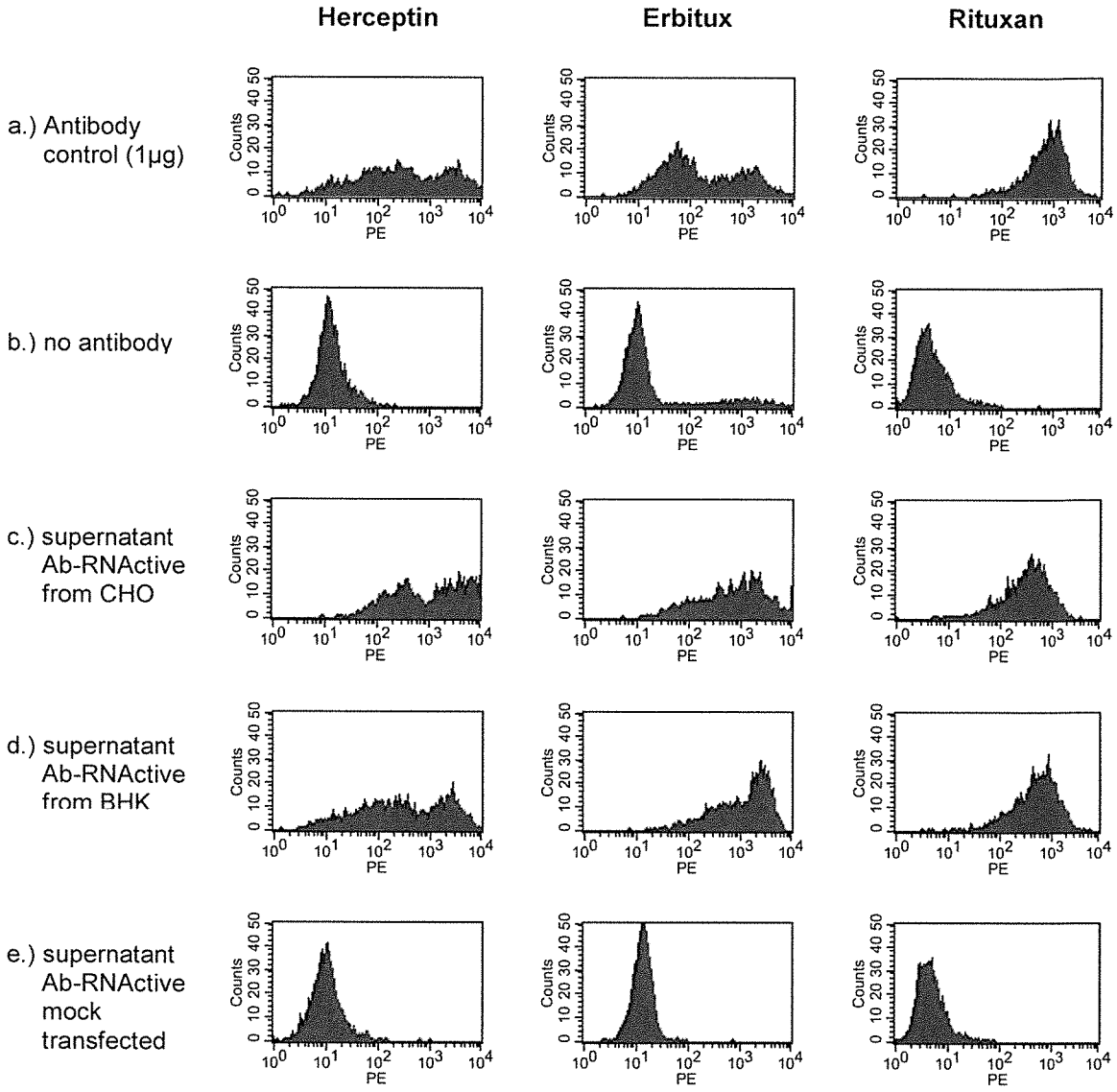

Herceptin
Erbitux
Rituxan
a.) Antibody control (1µg)
b.) no antibody
c.) supernatant Ab-RNActive from CHO
d.) supernatant Ab-RNActive from BHK
e.) supernatant Ab-RNActive mock transfected
Counts
PE

Fig. 24

AAGCTTACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCT
GACGCAGACCTGGGCCGGGCAGGCCTACCTGCAGCAGAGCGGCGCGGAGCTCGTGCGGCCGGGGG
CCTCGGTCAAGATGAGCTGCAAGGCCAGCGGCTACACCTTCACGAGCTACAACATGCACTGGGTG
AAGCAGACCCCGCGCCAGGGGCTGGAGTGGATCGGCGCCATCTACCCCGGGAACGGCGACACCAG
CTACAACCAGAAGTTCAAGGGCAAGGCGACCCTGACGGTGGACAAGTCGAGCAGCACCGCCTACA
TGCAGCTCAGCAGCCTGACCTCGGAGGACAGCGCCGTCTACTTCTGCGCCCGGGTGGTGTACTAC
AGCAACAGCTACTGGTACTTCGACGTCTGGGGGACCGGCACGACCGTGACCGTGAGCGGGCCCAG
CGTCTTCCCCCTGGCCCCCTCGAGCAAGAGCACCAGCGGCGGCACGGCGGCCCTCGGGTGCCTGG
TGAAGGACTACTTCCCCGAGCCCGTGACCGTCAGCTGGAACTCGGGCGCCCTGACCAGCGGGGTG
CACACCTTCCCGGCCGTGCTCCAGAGCAGCGGCCTGTACAGCCTGAGCTCGGTCGTGACGGTGCC
CAGCAGCAGCCTCGGGACCCAGACCTACATCTGCAACGTCAACCACAAGCCCAGCAACACCAAGG
TGGACAAGAAGGCGGAGCCCAAGTCGTGCGACAAGACGCACACCTGCCCGCCCTGCCCCGCCCCC
GAGCTGCTGGGCGGCCCGAGCGTGTTCCTCTTCCCGCCCAAGCCCAAGGACACCCTGATGATCAG
CCGCACCCCCGAGGTCACGTGCGTGGTGGTCGACGTGAGCCACGAGGACCCCGAGGTGAAGTTCA
ACTGGTACGTCGACGGGGTGGAGGTGCACAACGCCAAGACCAAGCCCCGGGAGGAGCAGTACAAC
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CAAGTGCAAGGTGTCGAACAAGGCCCTGCCGGCCCCCATCGAGAAGACGATCAGCAAGGCGAAGG
GGCAGCCCCGGGAGCCCCAGGTGTACACCCTCCCGCCCAGCCGCGACGAGCTGACCAAGAACCAG
GTCAGCCTGACCTGCCTCGTGAAGGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGTCGAA
CGGGCAGCCCGAGAACAACTACAAGACGACCCCGCCCGTCCTGGACAGCGACGGCAGCTTCTTCC
TGTACAGCAAGCTCACCGTGGACAAGAGCCGGTGGCAGCAGGGCAACGTGTTCAGCTGCTCGGTC
ATGCACGAGGCCCTGCACAACCACTACACCCAGAAGAGCCTGAGCCTCAGCCCCGGGAAGCATCA
TCATCATCATCATTGACC**ATGCATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTG**
ACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATAGATCTACC***ATG***GCCG
TGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCTGACGCAGACCTGGGCC
GGGCAGATCGTGCTGAGCCAGTCGCCGGCCATCCTCAGCGCGAGCCCCGGCGAGAAGGTCACCAT
GACGTGCCGGGCCAGCAGCTCGGTGAGCTACATGCACTGGTACCAGCAGAAGCCCGGGAGCAGCC
CCAAGCCGTGGATCTACGCCCCCAGCAACCTGGCCTCGGGCGTGCCCGCGCGCTTCAGCGGGAGC
GGCAGCGGGACCAGCTACAGCCTGACCATCTCGCGGGTCGAGGCCGAGGACGCCGCCACCTACTA
CTGCCAGCAGTGGAGCTTCAACCCGCCCACGTTCGGCGCCGGCACCAAGCTCGAGCTGAAGCGCA
CCGTGGCGGCCCCCAGCGTGTTCATCTTCCCGCCCAGCGACGAGCAGCTGAAGAGCGGGACCGCC
TCGGTCGTGTGCCTCCTGAACAACTTCTACCCCCGGGAGGCCAAGGTGCAGTGGAAGGTCGACAA
CGCGCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACGGAGCAGGACAGCAAGGACAGCACCTACT
CGCTCAGCAGCACCCTGACCCTGAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAG
GTCACGCACCAGGGGCTCAGCTCGCCCGTGACCAAGAGCTTCAACCGCTGACCACTAGT

Fig. 25

AAGCTTACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCT
GACGCAGACCTGGGCCGGGCAGGTGCAGCTGAAGCAGAGCGGCCCGGGGCTCGTCCAGCCCTCGC
AGAGCCTGAGCATCACCTGCACGGTGAGCGGCTTCAGCCTGACCAACTACGGGGTGCACTGGGTC
CGGCAGTCGCCCGGCAAGGGGCTCGAGTGGCTGGGCGTGATCTGGAGCGGCGGGAACACCGACTA
CAACACCCCCTTCACGAGCCGCCTGAGCATCAACAAGGACAACAGCAAGTCGCAGGTGTTCTTCA
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GACTACGAGTTCGCCTACTGGGGCCAGGGGACCCTGGTCACGGTGAGCGCCGCGAGCACCAAGGG
CCCGAGCGTGTTCCCCCTCGCCCCCTCGAGCAAGAGCACCAGCGGCGGGACCGCCGCCCTGGGCT
GCCTGGTCAAGGACTACTTCCCCGAGCCGGTGACGGTGAGCTGGAACTCGGGGGCCCTCACCAGC
GGCGTCCACACCTTCCCCGCGGTGCTGCAGAGCAGCGGGCTGTACAGCCTCAGCTCGGTGGTCAC
CGTGCCCAGCAGCAGCCTGGGCACGCAGACCTACATCTGCAACGTGAACCACAAGCCCAGCAACA
CCAAGGTCGACAAGCGCGTGGAGCCGAAGTCGCCCAAGAGCTGCGACAAGACCCACACGTGCCCG
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CACCCTGATGATCAGCCGGACCCCCGAGGTCACCTGCGTGGTGGTCGACGTGAGCCACGAGGACC
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GAGGAGCAGTACAACAGCACCTACCGGGTCGTGTCGGTGCTCACCGTCCTGCACCAGGACTGGCT
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TCAGCAAGGCCAAGGGCCAGCCGCGCGAGCCCCAGGTGTACACGCTGCCCCCCAGCCGGGACGAG
CTGACCAAGAACCAGGTCAGCCTCACCTGCCTGGTGAAGGGGTTCTACCCGTCGGACATCGCCGT
GGAGTGGGAGAGCAACGGCCAGCCCGAGAACAACTACAAGACCACGCCCCCGGTCCTGGACAGCG
ACGGCAGCTTCTTCCTCTACAGCAAGCTGACCGTGGACAAGAGCCGCTGGCAGCAGGGGAACGTG
TTCTCGTGCAGCGTCATGCACGAGGCCCTGCACAACCACTACACCCAGAAGAGCCTCAGCCTGAG
CCCCGGCAAGCATCATCATCATCATCATT**GACCATGCATTTCTGACATTTCTGACATTTCTGACA**
TTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATA
GATCTACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCTG
ACGCAGACCTGGGCCGGGGACATCCTGCTCACCCAGAGCCCGGTGATCCTGTCGGTCAGCCCCGG
CGAGCGGGTGAGCTTCAGCTGCCGCGCCAGCCAGTCGATCGGGACGAACATCCACTGGTACCAGC
AGCGGACCAACGGCAGCCCCCGCCTGCTCATCAAGTACGCGAGCGAGAGCATCAGCGGGATCCCC
TCGCGGTTCAGCGGCAGCGGGAGCGGCACCGACTTCACCCTGAGCATCAACAGCGTGGAGTCGGA
GGACATCGCCGACTACTACTGCCAGCAGAACAACAACTGGCCGACGACCTTCGGCGCCGGGACCA
AGCTGGAGCTCAAGCGCACCGTCGCCGCGCCCAGCGTGTTCATCTTCCCGCCCAGCGACGAGCAG
CTGAAGAGCGGCACGGCCAGCGTGGTCTGCCTGCTCAACAACTTCTACCCCCGGGAGGCCAAGGT
GCAGTGGAAGGTGGACAACGCCCTGCAGTCGGGGAACAGCCAGGAGAGCGTCACCGAGCAGGACA
GCAAGGACAGCACCTACAGCCTGTCGAGCACCCTCACGCTGAGCAAGGCCGACTACGAGAAGCAC
AAGGTGTACGCGTGCGAGGTGACCCACCAGGGCCTGAGCAGCCCCGTCACCAAGTCGTTCAACCG
CGGCGCCTGACCACTAGT

Fig. 26

AAGCTTACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCT
GACGCAGACCTGGGCCGGGGAGGTGCAGCTGGTCGAGAGCGGCGGGGGCCTCGTGCAGCCGGGCG
GGTCGCTGCGGCTGAGCTGCGCCGCGAGCGGGTTCAACATCAAGGACACCTACATCCACTGGGTG
CGCCAGGCCCCCGGCAAGGGCCTCGAGTGGGTCGCCCGGATCTACCCCACGAACGGGTACACCCG
CTACGCCGACAGCGTGAAGGGCCGGTTCACCATCAGCGCGGACACCTCGAAGAACACGGCCTACC
TGCAGATGAACAGCCTGCGCGCCGAGGACACCGCCGTGTACTACTGCAGCCGGTGGGGCGGCGAC
GGGTTCTACGCCATGGACTACTGGGGGCAGGGCACCCTCGTCACCGTGAGCAGCGCGTCGACGAA
GGGGCCCAGCGTGTTCCCGCTGGCCCCCAGCAGCAAGAGCACCAGCGGCGGGACCGCCGCCCTGG
GCTGCCTCGTCAAGGACTACTTCCCCGAGCCCGTGACCGTGTCGTGGAACAGCGGCGCGCTGACG
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CACCGTGCCCAGCAGCAGCCTGGGGACCCAGACGTACATCTGCAACGTGAACCACAAGCCCTCGA
ACACCAAGGTCGACAAGAAGGTGGAGCCCCCGAAGAGCTGCGACAAGACCCACACCTGCCCGCCC
TGCCCCGCCCCCGAGCTCCTGGGCGGGCCCAGCGTGTTCCTGTTCCCGCCCAAGCCCAAGGACAC
GCTCATGATCAGCCGCACCCCCGAGGTCACCTGCGTGGTGGTCGACGTGAGCCACGAGGACCCCG
AGGTGAAGTTCAACTGGTACGTCGACGGCGTGGAGGTGCACAACGCCAAGACCAAGCCGCGGGAG
GAGCAGTACAACTCGACGTACCGCGTCGTGAGCGTGCTGACCGTCCTGCACCAGGACTGGCTCAA
CGGCAAGGAGTACAAGTGCAAGGTGAGCAACAAGGCCCTGCCCGCGCCCATCGAGAAGACCATCA
GCAAGGCCAAGGGGCAGCCCCGGGAGCCGCAGGTGTACACCCTGCCCCCCAGCCGCGACGAGCTC
ACGAAGAACCAGGTCAGCCTGACCTGCCTGGTGAAGGGCTTCTACCCCTCGGACATCGCCGTGGA
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GCAGCTTCTTCCTGTACAGCAAGCTGACGGTGGACAAGTCGCGGTGGCAGCAGGGCAACGTGTTC
AGCTGCAGCGTCATGCACGAGGCCCTCCACAACCACTACACCCAGAAGAGCCTGAGCCTGAGCCC
CGGGAAGCATCATCATCATCATCATTGACC**ATGCATTTCTGACATTTCTGACATTTCTGACATTT**
CTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATTTCTGACATAGAT
CTACC***ATG***GCCGTGATGGCGCCGCGGACCCTGGTCCTCCTGCTGAGCGGCGCCCTCGCCCTGACG
CAGACCTGGGCCGGGGACATCCAGATGACCCAGAGCCCGTCGAGCCTGAGCGCCAGCGTGGGCGA
CCGGGTCACGATCACCTGCCGCGCGAGCCAGGACGTGAACACCGCCGTGGCCTGGTACCAGCAGA
AGCCCGGGAAGGCCCCCAAGCTCCTGATCTACTCGGCGAGCTTCCTGTACAGCGGCGTCCCCAGC
CGGTTCAGCGGGTCGCGCAGCGGCACCGACTTCACGCTCACCATCAGCAGCCTGCAGCCGGAGGA
CTTCGCCACCTACTACTGCCAGCAGCACTACACCACGCCCCCCACCTTCGGGCAGGGCACCAAGG
TGGAGATCAAGCGGACCGTGGCCGCCCCCAGCGTCTTCATCTTCCCGCCCAGCGACGAGCAGCTG
AAGTCGGGCACGGCCAGCGTGGTGTGCCTCCTGAACAACTTCTACCCCCGCGAGGCGAAGGTCCA
GTGGAAGGTGGACAACGCCCTGCAGAGCGGGAACAGCCAGGAGAGCGTGACCGAGCAGGACTCGA
AGGACAGCACCTACAGCCTCAGCAGCACCCTGACGCTGAGCAAGGCCGACTACGAGAAGCACAAG
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CGAGTGCTGATGACCACTAG

Fig. 27

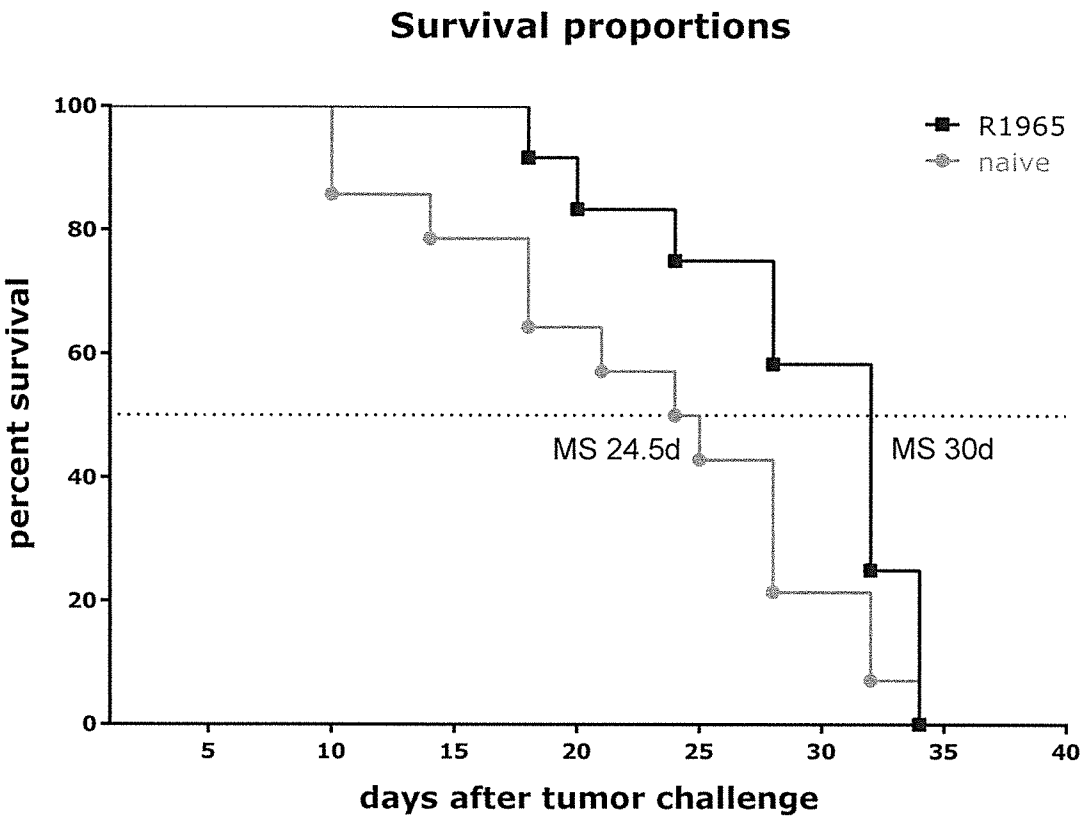

Survival proportions
R1965
naive
MS 24.5d
MS 30d
percent survival
days after tumor challenge
100
80
60
40
20
0
5
10
15
20
25
30
35
40

Fig. 28

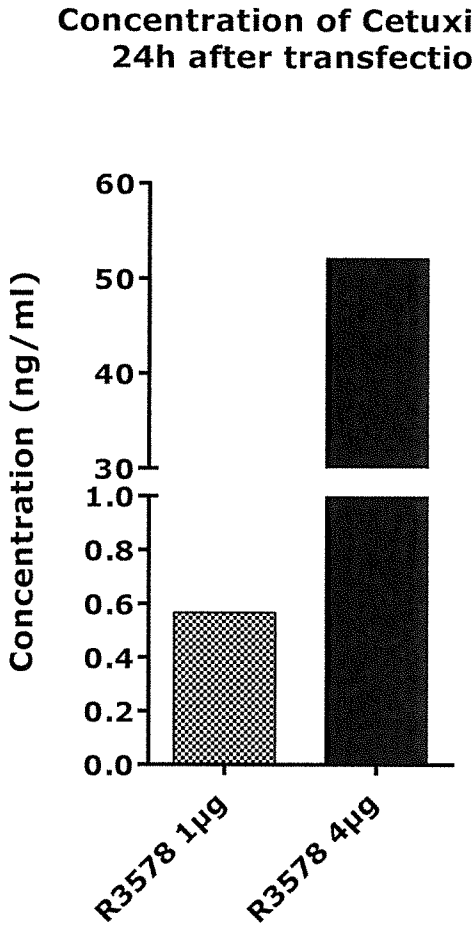
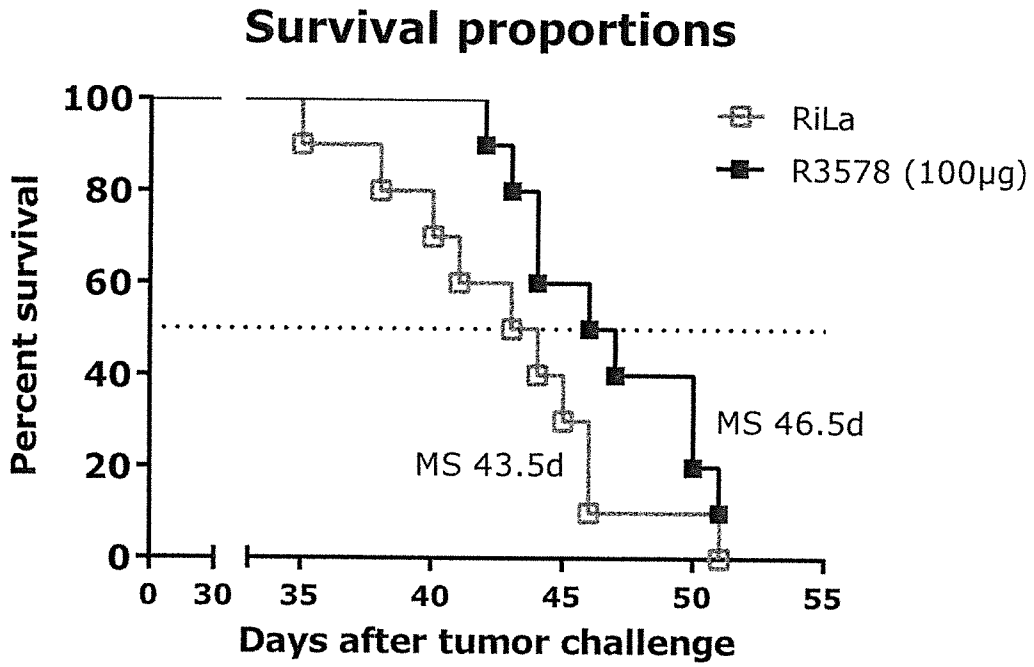

Concentration of Cetuximab
24h after transfection
Concentration (ng/ml)
60
50
40
30
1.0
0.8
0.6
0.4
0.2
0.0
R3578 1µg
R3578 4µg

Fig. 29

A


Survival proportions
Percent survival
100
80
60
40
20
0
0 30 35 40 45 50 55
Days after tumor challenge
RiLa
R3578 (100µg)
MS 46.5d
MS 43.5d

B

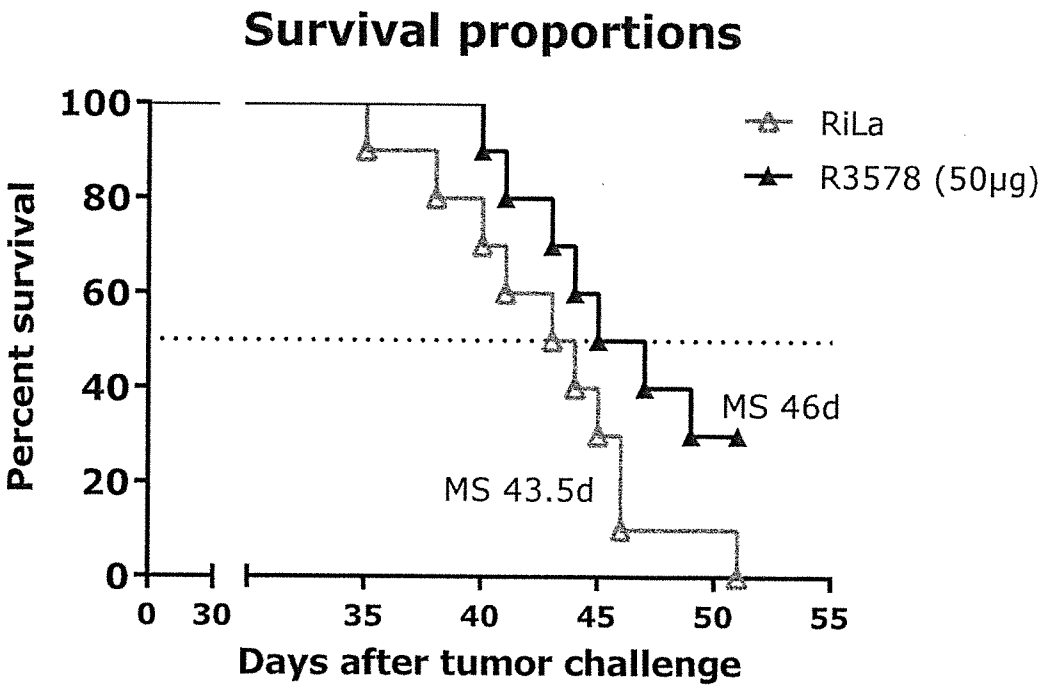

Survival proportions
Percent survival
100
80
60
40
20
0
0 30 35 40 45 50 55
Days after tumor challenge
RiLa
R3578 (50µg)
MS 46d
MS 43.5d

Fig. 30

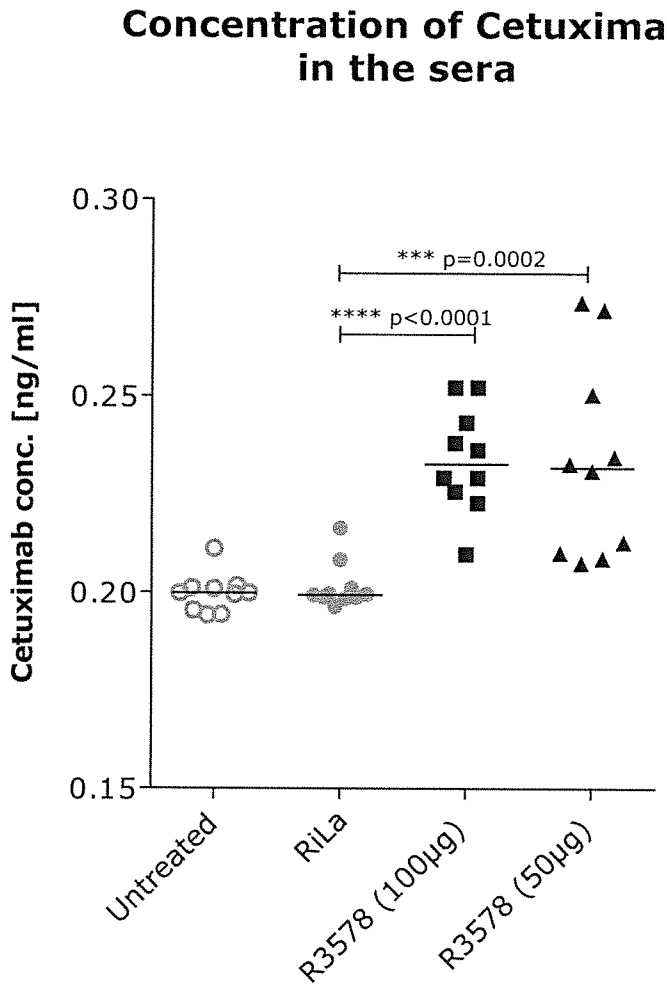

Concentration of Cetuximab in the sera
Cetuximab conc. [ng/ml]
0.30
0.25
0.20
0.15
*** p=0.0002
**** p<0.0001
Untreated
RiLa
R3578 (100µg)
R3578 (50µg)

Fig. 31

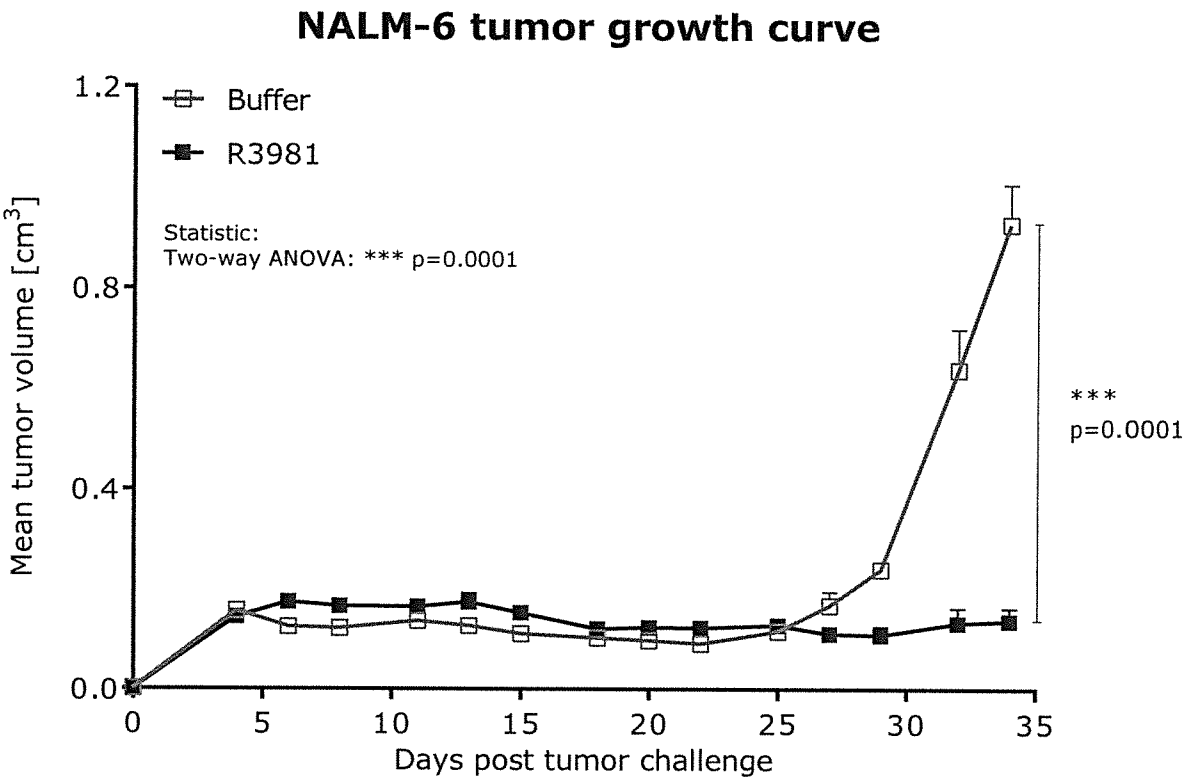

NALM-6 tumor growth curve
Buffer
R3981
Statistic:
Two-way ANOVA: *** p=0.0001
Mean tumor volume [cm3]
1.2
0.8
0.4
0.0
0
5
10
15
20
25
30
35
Days post tumor challenge
***
p=0.0001

Fig. 32

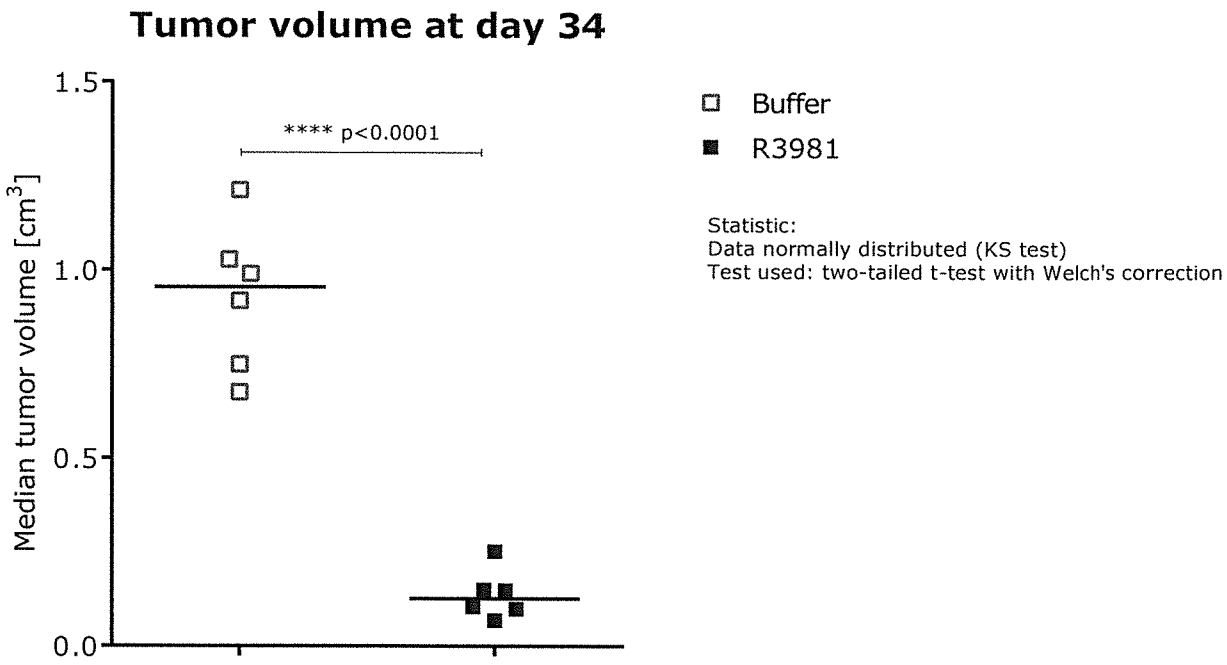

Tumor volume at day 34
Median tumor volume [cm3]
1.5
1.0
0.5
0.0
**** p<0.0001
Buffer
R3981
Statistic:
Data normally distributed (KS test)
Test used: two-tailed t-test with Welch's correction

Fig. 33

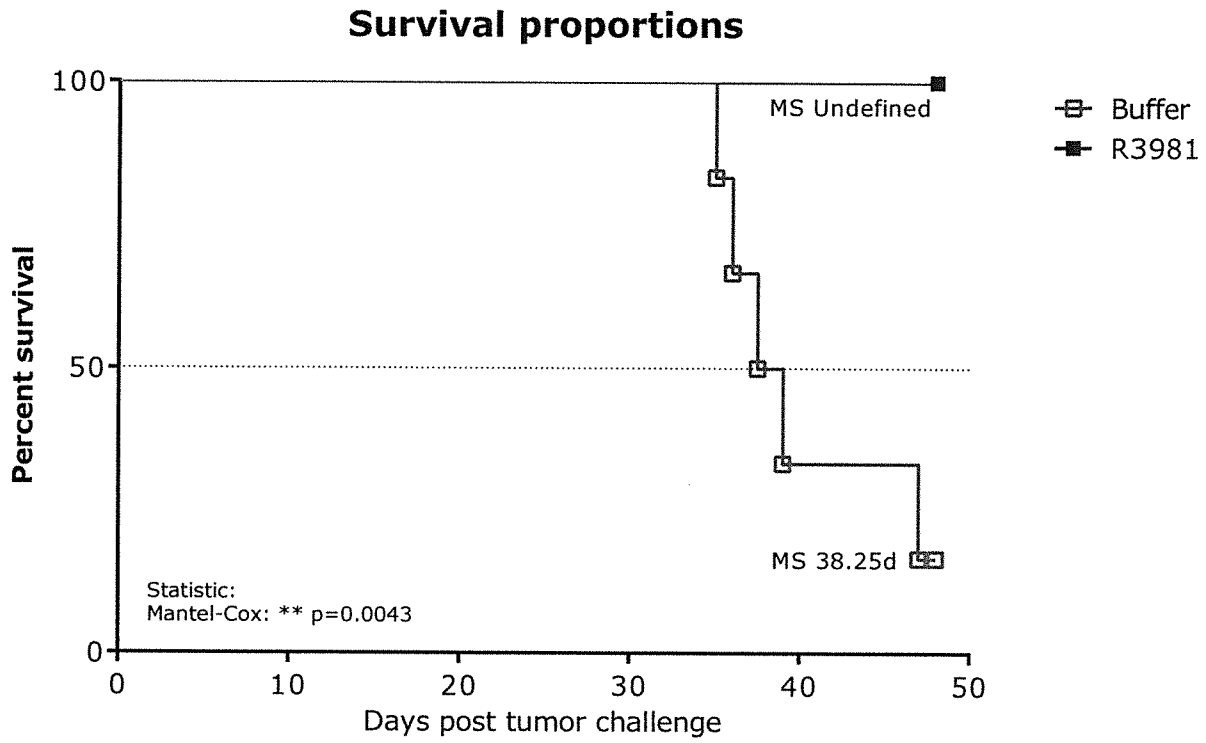

Survival proportions
100
50
0
Percent survival
MS Undefined
MS 38.25d
Statistic:
Mantel-Cox: ** p=0.0043
0
10
20
30
40
50
Days post tumor challenge
Buffer
R3981

Fig. 34

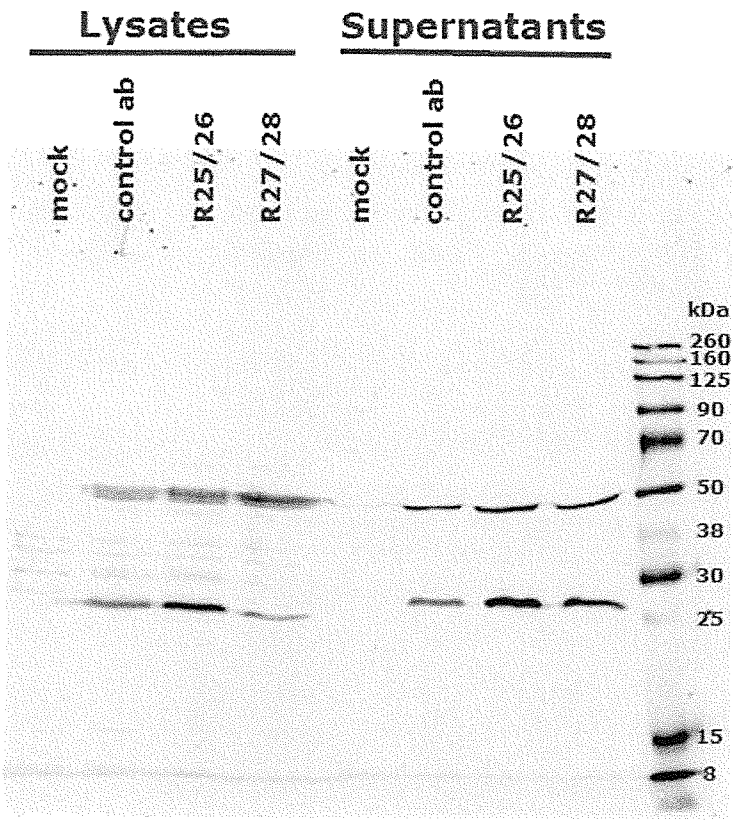

Lysates
Supernatants
mock
control ab
R25/26
R27/28
mock
control ab
R25/26
R27/28
kDa
260
160
125
90
70
50
38
30
25
15
8

Fig. 35

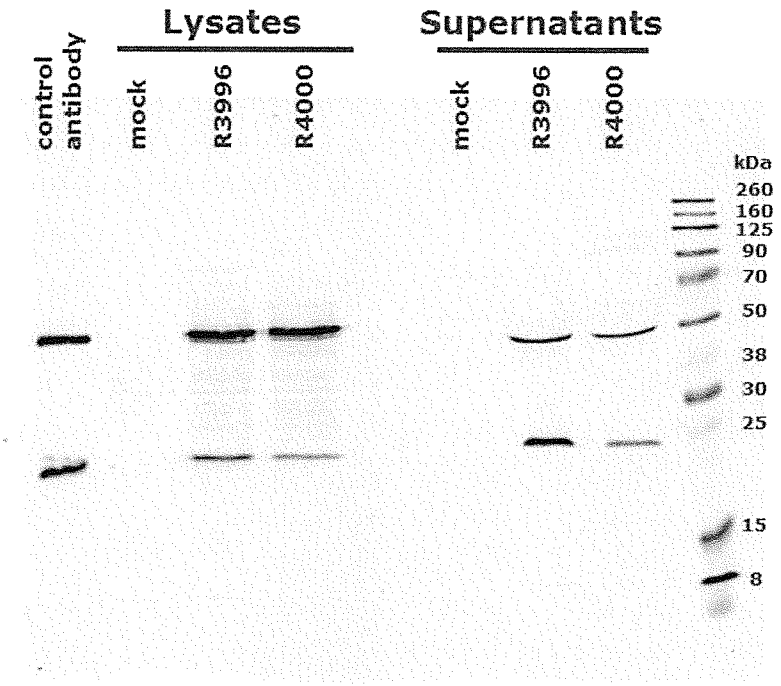

Lysates
Supernatants
control antibody
mock
R3996
R4000
mock
R3996
R4000
kDa
260
160
125
90
70
50
38
30
25
15
8

Fig. 36

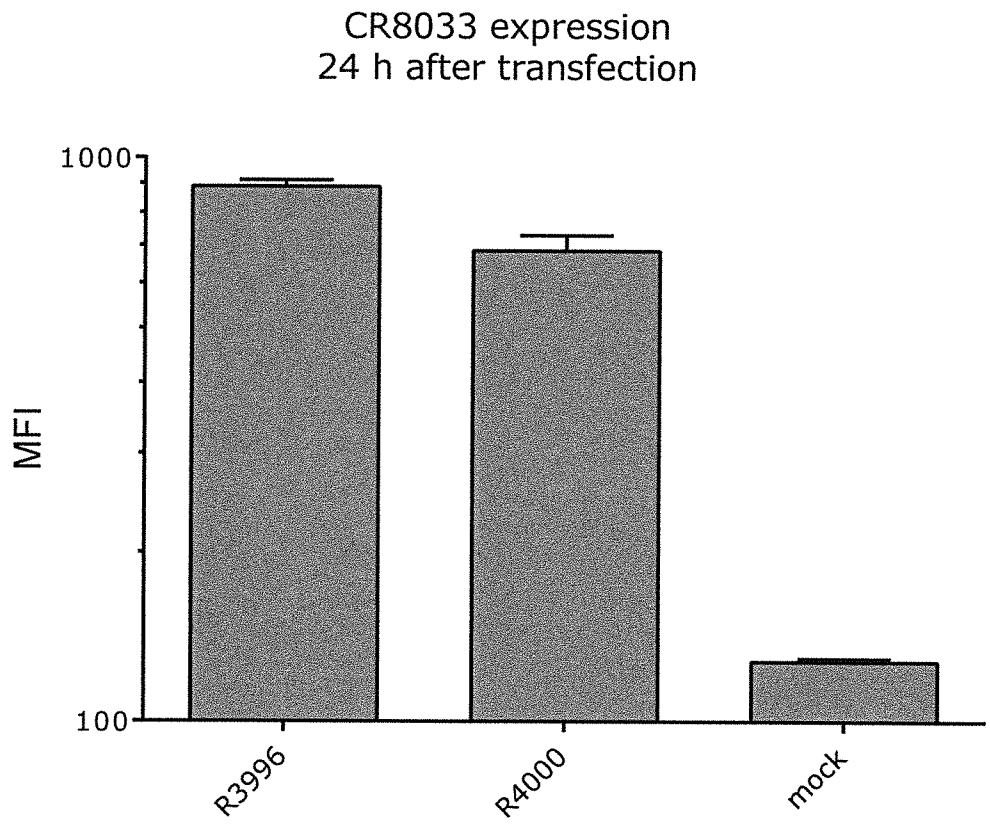

CR8033 expression
24 h after transfection
1000
100
MFI
R3996
R4000
mock

Fig. 37

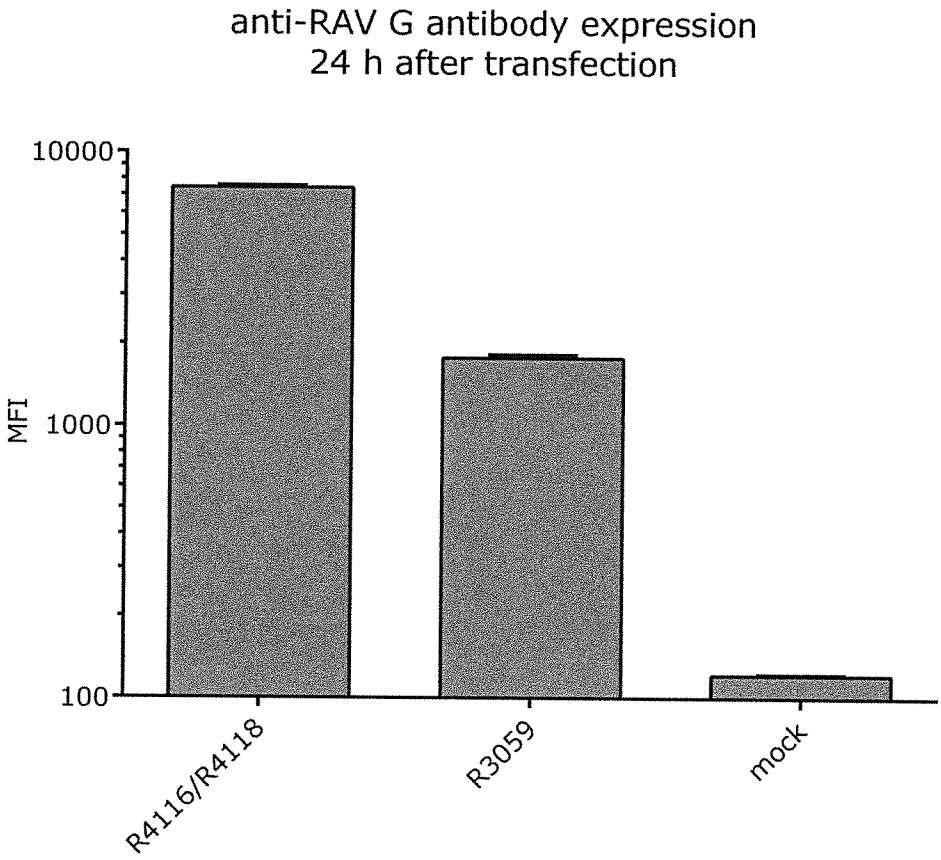

anti-RAV G antibody expression
24 h after transfection
MFI
10000
1000
100
R4116/R4118
R3059
mock

Fig. 38

R1965

GGGAGAAAGCUUACCAUGGCCGUGAUGGCGCCGCGGACCCUGGUCCUCCUGCUGAGCGGC
GCCCUCGCCCUGACGCAGACCUGGGCCGGGGAGGUGCAGCUGGUCGAGAGCGGCGGGGGC
CUCGUGCAGCCGGGCGGGUCGCUGCGGCUGAGCUGCGCCGCGAGCGGGUUCAACAUCAAG
GACACCUACAUCCACUGGGUGCGCCAGGCCCCCGGCAAGGGCCUCGAGUGGGUCGCCCGG
AUCUACCCCACGAACGGGUACACCCGCUACGCCGACAGCGUGAAGGGCCGGUUCACCAUC
AGCGCGGACACCUCGAAGAACACGGCCUACCUGCAGAUGAACAGCCUGCGCGCCGAGGAC
ACCGCCGUGUACUACUGCAGCCGGUGGGGCGGCGACGGGUUCUACGCCAUGGACUACUGG
GGGCAGGGCACCCUCGUCACCGUGAGCAGCGCGUCGACGAAGGGGCCCAGCGUGUUCCCG
CUGGCCCCCAGCAGCAAGAGCACCAGCGGCGGGACCGCCGCCCUGGGCUGCCUCGUCAAG
GACUACUUCCCCGAGCCCGUGACCGUGUCGUGGAACAGCGGCGCGCUGACGAGCGGGGUC
CACACCUUCCCGGCCGUGCUGCAGAGCAGCGGCCUCUACUCGCUGAGCAGCGUGGUCACC
GUGCCCAGCAGCAGCCUGGGGACCCAGACGUACAUCUGCAACGUGAACCACAAGCCCUCG
AACACCAAGGUCGACAAGAAGGUGGAGCCCCCGAAGAGCUGCGACAAGACCCACACCUGC
CCGCCCUGCCCCGCCCCCGAGCUCCUGGGCGGGCCCAGCGUGUUCCUGUUCCCGCCCAAG
CCCAAGGACACGCUCAUGAUCAGCCGCACCCCCGAGGUCACCUGCGUGGUGGUCGACGUG
AGCCACGAGGACCCCGAGGUGAAGUUCAACUGGUACGUCGACGGCGUGGAGGUGCACAAC
GCCAAGACCAAGCCGCGGGAGGAGCAGUACAACUCGACGUACCGCGUCGUGAGCGUGCUG
ACCGUCCUGCACCAGGACUGGCUCAACGGCAAGGAGUACAAGUGCAAGGUGAGCAACAAG
GCCCUGCCCGCGCCCAUCGAGAAGACCAUCAGCAAGGCCAAGGGGCAGCCCCGGGAGCCG
CAGGUGUACACCCUGCCCCCCAGCCGCGACGAGCUCACGAAGAACCAGGUCAGCCUGACC
UGCCUGGUGAAGGGCUUCUACCCCUCGGACAUCGCCGUGGAGUGGGAGAGCAACGGGCAG
CCGGAGAACAACUACAAGACCACCCCGCCCGUCCUCGACAGCGACGGCAGCUUCUUCCUG
UACAGCAAGCUGACGGUGGACAAGUCGCGGUGGCAGCAGGGCAACGUGUUCAGCUGCAGC
GUCAUGCACGAGGCCCUCCACAACCACUACACCCAGAAGAGCCUGAGCCUGAGCCCCGGG
AAGCAUCAUCAUCAUCAUCAUUGACCAUGCAUUUGAAAGCCGGGGGUGGGAGAUCCGGAU
UGCCAGUCUGCUCGAUAUCGCAGGCUGGGUCCGUGACUACCCACUCCCCCUUUAAUUCCG
CCCCUCUCCCUCCCCCCCCCCUAACGUUACUGGCCGAAGCCGCUUGGAAUAAGGCCGGUG
UGCGUUUGUCUAUAUGUUAUUUUCCACCAUAUUGCCGUCUUUUGGCAAUGUGAGGGCCCG
GAAACCUGGCCCUGUCUUCUUGACGAGCAUUCCUAGGGGUCUUUCCCCUCUCGCCAAAGG
AAUGCAAGGUCUGUUGAAUGUCGUGAAGGAAGCAGUUCCUCUGGAAGCUUCUUGAAGACA
AACAACGUCUGUAGCGACCCUUUGCAGGCAGCGGAACCCCCCACCUGGCGACAGGUGCCU
CUGCGGCCAAAAGCCACGUGUAUAAGAUACACCUGCAAAGGCGGCACAACCCCAGUGCCA
CGUUGUGAGUUGGAUAGUUGUGGAAAGAGUCAAAUGGCUCUCCUCAAGCGUAUUCAACAA
GGGGCUGAAGGAUGCCCAGAAGGUACCCCAUUGUAUGGGAUCUGAUCUGGGGCCUCGGUG
CACAUGCUUUACGUGUGUUUAGUCGAGGUUAAAAAACGUCUAGGCCCCCCGAACCACGGG
GACGUGGUUUUCCUUUGAAAAACACGAUGAUAAUAGAUCUACCAUGGCCGUGAUGGCGCC
GCGGACCCUGGUCCUCCUGCUGAGCGGCGCCCUCGCCCUGACGCAGACCUGGGCCGGGGA
CAUCCAGAUGACCCAGAGCCCGUCGAGCCUGAGCGCCAGCGUGGGCGACCGGGUCACGAU
CACCUGCCGCGCGAGCCAGGACGUGAACACCGCCGUGGCCUGGUACCAGCAGAAGCCCGG
GAAGGCCCCCAAGCUCCUGAUCUACUCGGCGAGCUUCCUGUACAGCGGCGUCCCCAGCCG
GUUCAGCGGGUCGCGCAGCGGCACCGACUUCACGCUCACCAUCAGCAGCCUGCAGCCGGA
GGACUUCGCCACCUACUACUGCCAGCAGCACUACACCACGCCCCCCACCUUCGGGCAGGG
CACCAAGGUGGAGAUCAAGCGGACCGUGGCCGCCCCCAGCGUCUUCAUCUUCCCGCCCAG
CGACGAGCAGCUGAAGUCGGGCACGGCCAGCGUGGUGUGCCUCCUGAACAACUUCUACCC
CCGCGAGGCGAAGGUCCAGUGGAAGGUGGACAACGCCCUGCAGAGCGGGAACAGCCAGGA
GAGCGUGACCGAGCAGGACUCGAAGGACAGCACCUACAGCCUCAGCAGCACCCUGACGCU

Fig. 39

GAGCAAGGCCGACUACGAGAAGCACAAGGUCUACGCCUGCGAGGUGACCCACCAGGGGCU
CUCGAGCCCCGUGACCAAGAGCUUCAACCGGGGCGAGUGCUGACCACUAGUUAUAAGACU
GACUAGCCCGAUGGGCCUCCCAACGGGCCCUCCUCCCCUCCUUGCACCGAGAUUAAUAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AUAUUCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUCUAG

Fig. 39 continued

R3578

GGGAGAAAGCUUACCAUGGCCGUGAUGGCGCCGCGGACCCUGGUCCUCCUGCUGAGCGGC
GCCCUCGCCCUGACGCAGACCUGGGCCGGGCAGGUGCAGCUGAAGCAGAGCGGCCCGGGG
CUCGUCCAGCCCUCGCAGAGCCUGAGCAUCACCUGCACGGUGAGCGGCUUCAGCCUGACC
AACUACGGGGUGCACUGGGUCCGGCAGUCGCCCGGCAAGGGGCUCGAGUGGCUGGGCGUG
AUCUGGAGCGGCGGGAACACCGACUACAACACCCCCUUCACGAGCCGCCUGAGCAUCAAC
AAGGACAACAGCAAGUCGCAGGUGUUCUUCAAGAUGAACAGCCUCCAGAGCAACGACACC
GCCAUCUACUACUGCGCGCGGGCCCUGACCUACUACGACUACGAGUUCGCCUACUGGGGC
CAGGGGACCCUGGUCACGGUGAGCGCCGCGAGCACCAAGGGCCCGAGCGUGUUCCCCCUC
GCCCCCUCGAGCAAGAGCACCAGCGGCGGGACCGCCGCCCUGGGCUGCCUGGUCAAGGAC
UACUUCCCCGAGCCGGUGACGGUGAGCUGGAACUCGGGGGCCCUCACCAGCGGCGUCCAC
ACCUUCCCCGCGGUGCUGCAGAGCAGCGGGCUGUACAGCCUCAGCUCGGUGGUCACCGUG
CCCAGCAGCAGCCUGGGCACGCAGACCUACAUCUGCAACGUGAACCACAAGCCCAGCAAC
ACCAAGGUCGACAAGCGCGUGGAGCCGAAGUCGCCCAAGAGCUGCGACAAGACCCACACG
UGCCCGCCCUGCCCCGCCCCCGAGCUGCUCGGCGGGCCCAGCGUGUUCCUGUUCCCGCCC
AAGCCCAAGGACACCCUGAUGAUCAGCCGGACCCCCGAGGUCACCUGCGUGGUGGUCGAC
GUGAGCCACGAGGACCCGGAGGUGAAGUUCAACUGGUACGUCGACGGCGUGGAGGUGCAC
AACGCCAAGACGAAGCCCCGCGAGGAGCAGUACAACAGCACCUACCGGGUCGUGUCGGUG
CUCACCGUCCUGCACCAGGACUGGCUGAACGGGAAGGAGUACAAGUGCAAGGUGAGCAAC
AAGGCCCUCCCCCGCGCCCAUCGAGAAGACCAUCAGCAAGGCCAAGGGCCAGCCGCGCGAG
CCCCAGGUGUACACGCUGCCCCCCAGCCGGGACGAGCUGACCAAGAACCAGGUCAGCCUC
ACCUGCCUGGUGAAGGGGUUCUACCCGUCGGACAUCGCCGUGGAGUGGGAGAGCAACGGC
CAGCCCGAGAACAACUACAAGACCACGCCCCCGGUCCUGGACAGCGACGGCAGCUUCUUC
CUCUACAGCAAGCUGACCGUGGACAAGAGCCGCUGGCAGCAGGGGAACGUGUUCUCGUGC
AGCGUCAUGCACGAGGCCCUGCACAACCACUACACCCAGAAGAGCCUCAGCCUGAGCCCC
GGCAAGCAUCAUCAUCAUCAUCAUUGACCAUGCAUUUGAAAGCCGGGGGUGGGAGAUCCG
GAUUGCCAGUCUGCUCGAUAUCGCAGGCUGGGUCCGUGACUACCCACUCCCCCUUUAAUU
CCGCCCCUCUCCCUCCCCCCCCCCUAACGUUACUGGCCGAAGCCGCUUGGAAUAAGGCCG
GUGUGCGUUUGUCUAUAUGUUAUUUUCCACCAUAUUGCCGUCUUUUGGCAAUGUGAGGGC
CCGGAAACCUGGCCCUGUCUUCUUGACGAGCAUUCCUAGGGGUCUUUCCCCUCUCGCCAA
AGGAAUGCAAGGUCUGUUGAAUGUCGUGAAGGAAGCAGUUCCUCUGGAAGCUUCUUGAAG
ACAAACAACGUCUGUAGCGACCCUUUGCAGGCAGCGGAACCCCCCACCUGGCGACAGGUG
CCUCUGCGGCCAAAAGCCACGUGUAUAAGAUACACCUGCAAAGGCGGCACAACCCCAGUG
CCACGUUGUGAGUUGGAUAGUUGUGGAAAGAGUCAAAUGGCUCUCCUCAAGCGUAUUCAA
CAAGGGGCUGAAGGAUGCCCAGAAGGUACCCCAUUGUAUGGGAUCUGAUCUGGGGCCUCG
GUGCACAUGCUUUACGUGUGUUUAGUCGAGGUUAAAAAACGUCUAGGCCCCCCGAACCAC
GGGGACGUGGUUUUCCUUUGAAAAACACGAUGAUAAUAGAUCUACCAUGGCCGUGAUGGC
GCCGCGGACCCUGGUCCUCCUGCUGAGCGGCGCCCUCGCCCUGACGCAGACCUGGGCCGG
GGACAUCCUGCUCACCCAGAGCCCGGUGAUCCUGUCGGUCAGCCCCGGCGAGCGGGUGAG
CUUCAGCUGCCGCGCCAGCCAGUCGAUCGGGACGAACAUCCACUGGUACCAGCAGCGGAC
CAACGGCAGCCCCCGCCUGCUCAUCAAGUACGCGAGCGAGAGCAUCAGCGGGAUCCCCUC
GCGGUUCAGCGGCAGCGGGAGCGGCACCGACUUCACCCUGAGCAUCAACAGCGUGGAGUC
GGAGGACAUCGCCGACUACUACUGCCAGCAGAACAACAACUGGCCGACGACCUUCGGCGC
CGGGACCAAGCUGGAGCUCAAGCGCACCGUCGCCGCGCCCAGCGUGUUCAUCUUCCCGCC
CAGCGACGAGCAGCUGAAGAGCGGCACGGCCAGCGUGGUCUGCCUGCUCAACAACUUCUA
CCCCCGGGAGGCCAAGGUGCAGUGGAAGGUGGACAACGCCCUGCAGUCGGGGAACAGCCA
GGAGAGCGUCACCGAGCAGGACAGCAAGGACAGCACCUACAGCCUGUCGAGCACCCUCAC

Fig. 40

GCUGAGCAAGGCCGACUACGAGAAGCACAAGGUGUACGCGUGCGAGGUGACCCACCAGGG
CCUGAGCAGCCCCGUCACCAAGUCGUUCAACCGCGGCGCCUGACCACUAGUUAUAAGACU
GACUAGCCCGAUGGGCCUCCCAACGGGCCCUCCUCCCCUCCUUGCACCGAGAUUAAUAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AUAUUCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUCUAG

Fig. 40 continued

R3981

GGGAGAAAGCUUACCAUGGACUUCCAGGUGCAGAUCUUCAGCUUCCUGCUCAUCUCCGCC
AGCGUCAUCAUCUCCCGCGGCGACAUCCAGCUGACCCAGAGCCCCGCCUCCCUCGCCGUG
AGCCUGGGCCAGCGCGCGACCAUCUCCUGCAAGGCCAGCCAGUCCGUCGACUACGACGGG
GACAGCUACCUGAACUGGUACCAGCAGAUCCCCGGCCAGCCCCCGAAGCUCCUGAUCUAC
GACGCCUCCAACCUGGUGAGCGGGAUCCCGCCGCGGUUCUCCGGCAGCGGGUCCGGCACG
GACUUCACCCUCAACAUCCACCCCGUGGAGAAGGUCGACGCCGCCACCUACCACUGCCAG
CAGAGCACCGAGGACCCCUGGACGUUCGGCGGGGGCACCAAGCUGGAGAUCAAGGGCGGC
GGGGGGUCCGGCGGGGGCGGGAGCGGCGGCGGGGGCUCCCAGGUGCAGCUGCAGCAGAGC
GGGGCGGAGCUCGUGCGCCCCGGCUCCAGCGUCAAGAUCUCCUGCAAGGCCAGCGGGUAC
GCCUUCAGCUCCUACUGGAUGAACUGGGUGAAGCAGCGGCCGGGCCAGGGCCUGGAGUGG
AUCGGGCAGAUCUGGCCCGGCGACGGGGACACCAACUACAACGGCAAGUUCAAGGGGAAG
GCCACCCUGACGGCGGACGAGAGCUCCAGCACCGCCUACAUGCAGCUCUCCAGCCUGGCC
UCCGAGGACAGCGCCGUGUACUUCUGCGCCCGCCGGGAGACCACCACGGUCGGCCGCUAC
UACUACGCGAUGGACUACUGGGGCCAGGGGACCACCGUGACCGUGUCCAGCGGCGGGGGC
GGGUCCGACAUCAAGCUGCAGCAGAGCGGCGCCGAGCUCGCCCGGCCCGGCGCCUCCGUC
AAGAUGAGCUGCAAGACGUCCGGGUACACCUUCACCCGCUACACCAUGCACUGGGUGAAG
CAGCGGCCCGGCCAGGGGCUGGAGUGGAUCGGCUACAUCAACCCGAGCCGCGGCUACACG
AACUACAACCAGAAGUUCAAGGACAAGGCCACCCUGACCACCGACAAGUCCAGCUCCACG
GCGUACAUGCAGCUCAGCAGCCUGACCUCCGAGGACAGCGCCGUGUACUACUGCGCCCGG
UACUACGACGACCACUACUGCCUGGACUACUGGGGGCAGGGCACCACCCUCACGGUCUCC
AGCGUGGAGGGCGGGUCCGGGGGCAGCGGCGGGUCCGGCGGGAGCGGCGGGGUGGACGAC
AUCCAGCUGACCCAGUCCCCCGCCAUCAUGAGCGCCUCCCCCGGCGAGAAGGUCACCAUG
ACCUGCCGCGCGAGCUCCAGCGUGUCCUACAUGAACUGGUACCAGCAGAAGAGCGGCACG
UCCCCCAAGCGGUGGAUCUACGACACCAGCAAGGUGGCCAGCGGGGUCCCGUACCGCUUC
UCCGGCAGCGGGUCCGGCACCAGCUACUCCCUGACCAUCAGCUCCAUGGAGGCCGAGGAC
GCCGCCACGUACUACUGCCAGCAGUGGAGCUCCAACCCCCUCACCUUCGGGGCGGGCACC
AAGCUGGAGCUGAAGCACCACCACCACCACCACUGAGGACUAGUUAUAAGACUGACUAGC
CCGAUGGGCCUCCCAACGGGCCCUCCUCCCCCUCCUUGCACCGAGAUUAAUAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAUAUUCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCUCUAG

Fig. 41

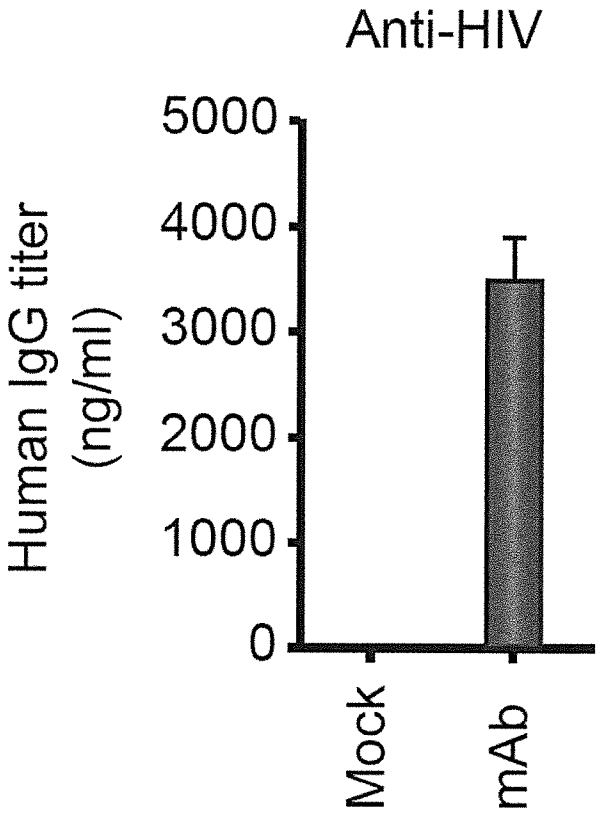

Anti-HIV
Human IgG titer (ng/ml)
5000
4000
3000
2000
1000
0
Mock
mAb

Fig. 42

A

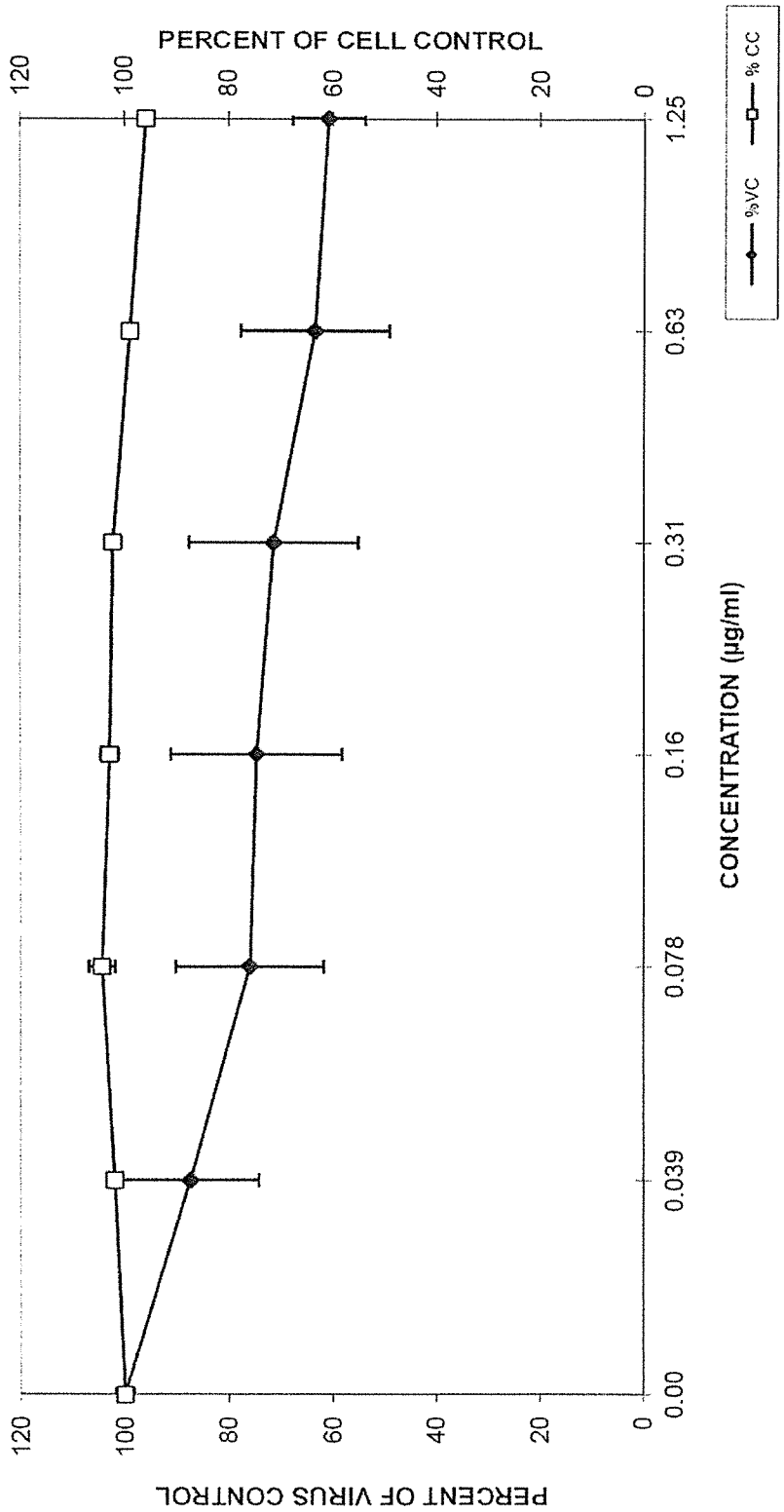

PERCENT OF CELL CONTROL
120
100
80
60
40
20
0
%VC
% CC
1.25
0.63
0.31
0.16
0.078
0.039
0.00
CONCENTRATION (µg/ml)
PERCENT OF VIRUS CONTROL

Fig. 43

B

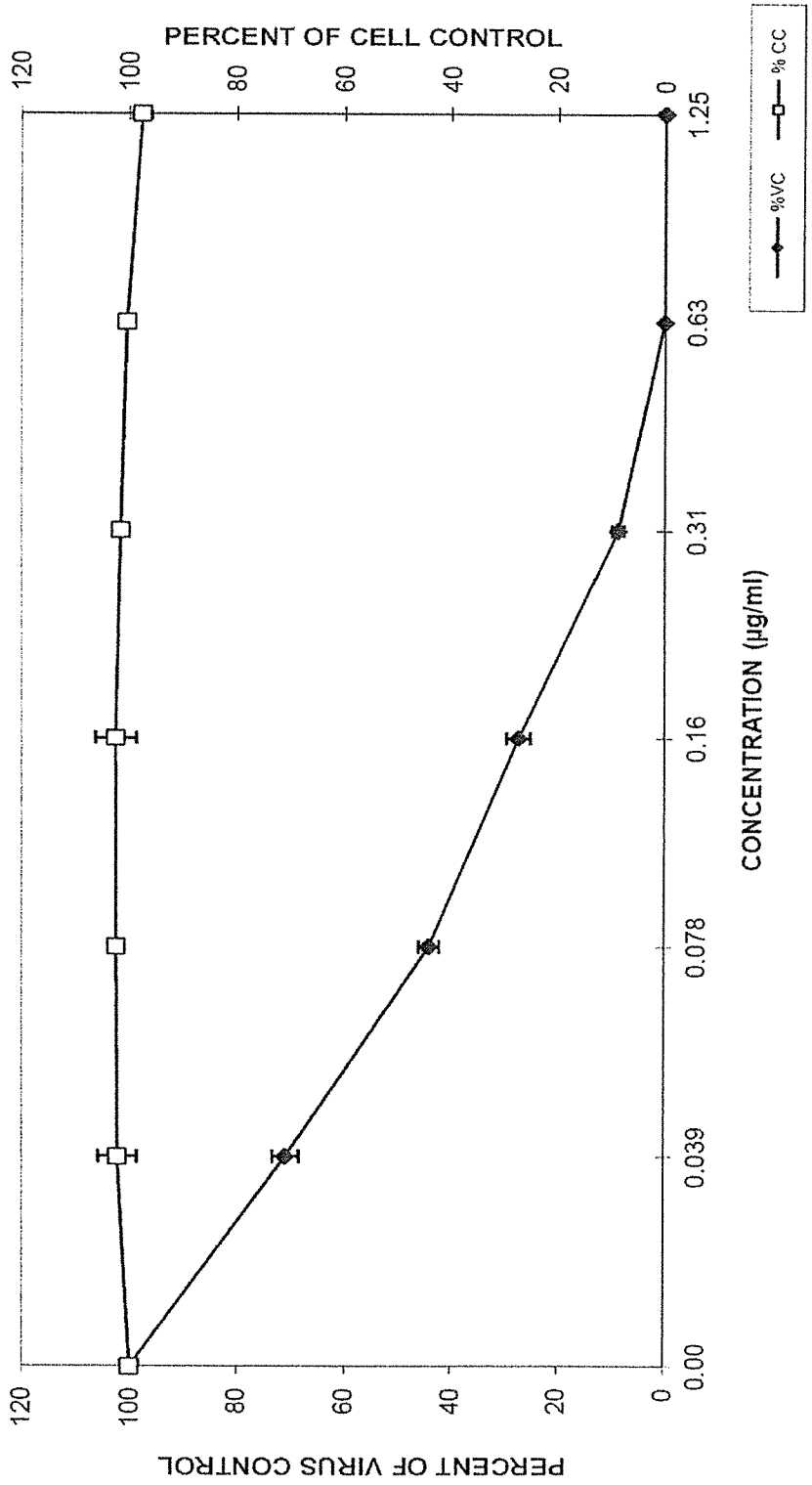


Fig. 43 continued

C

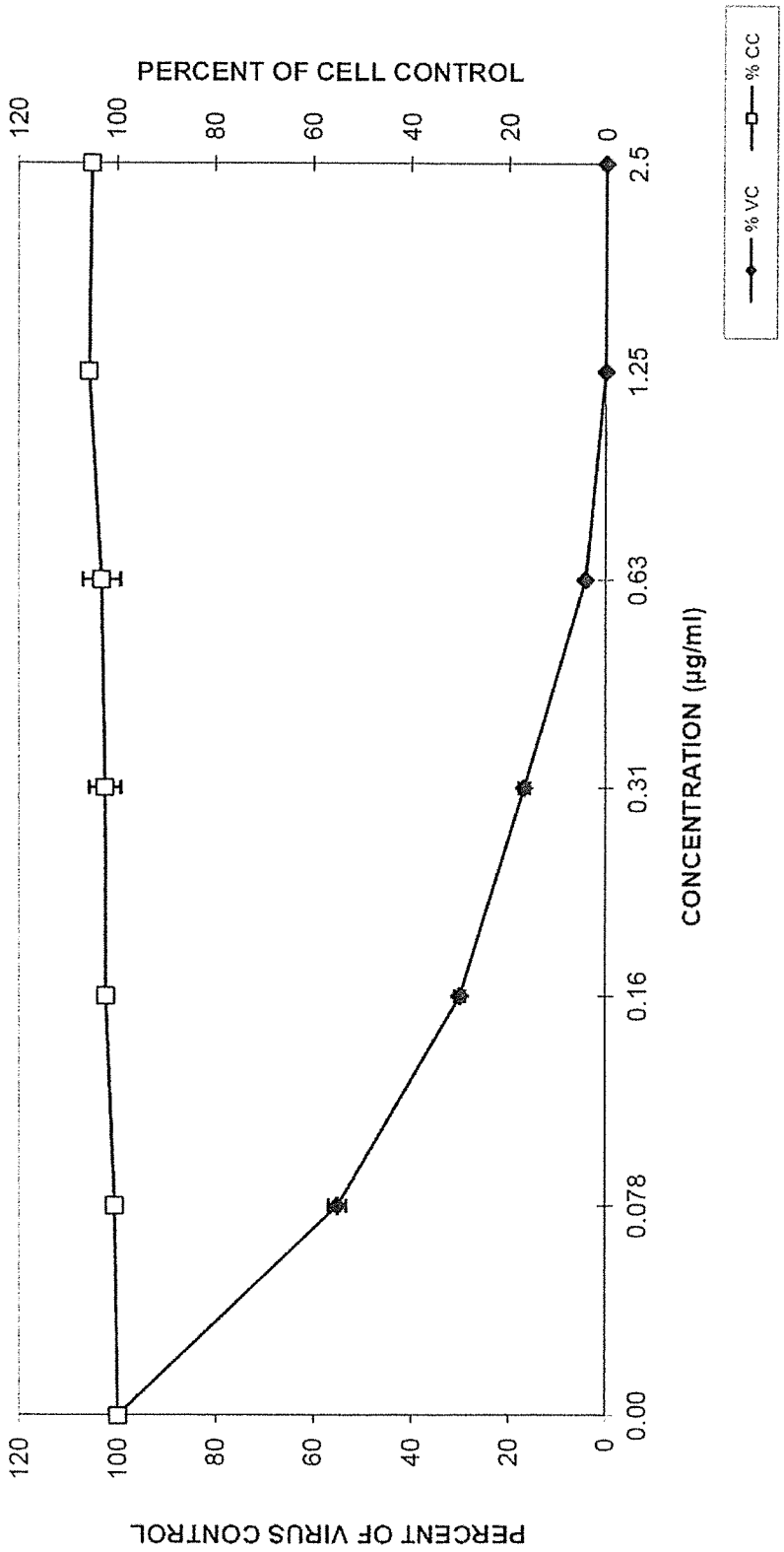


Fig. 43 continued

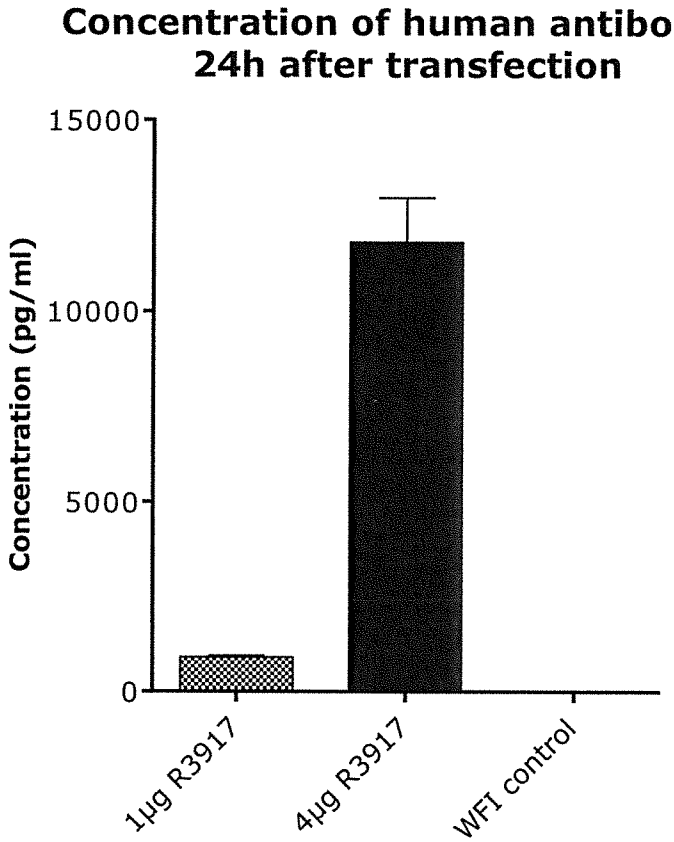

Concentration of human antibodies
24h after transfection
Concentration (pg/ml)
15000
10000
5000
0
1µg R3917
4µg R3917
WFI control

Fig. 44

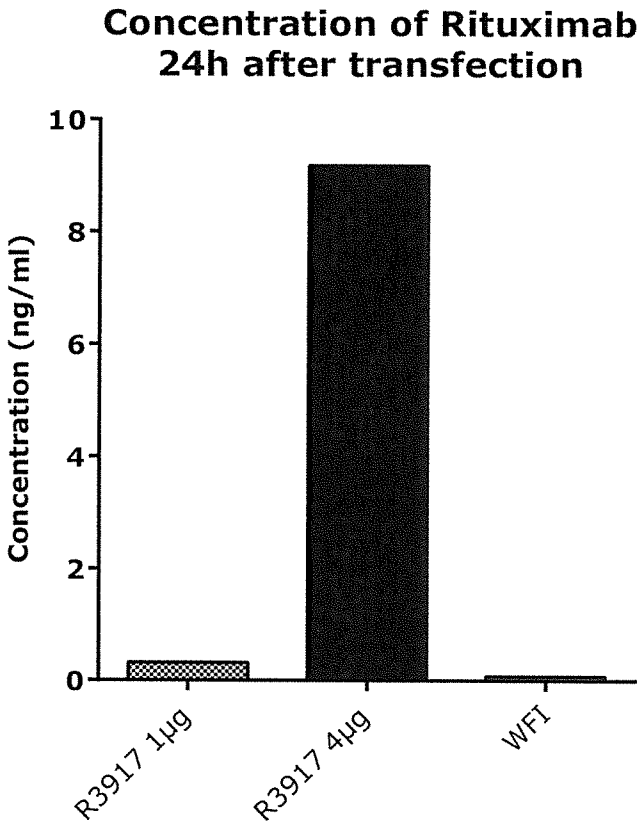

Concentration of Rituximab
24h after transfection
Concentration (ng/ml)
10
8
6
4
2
0
R3917 1µg
R3917 4µg
WFI

Fig. 45

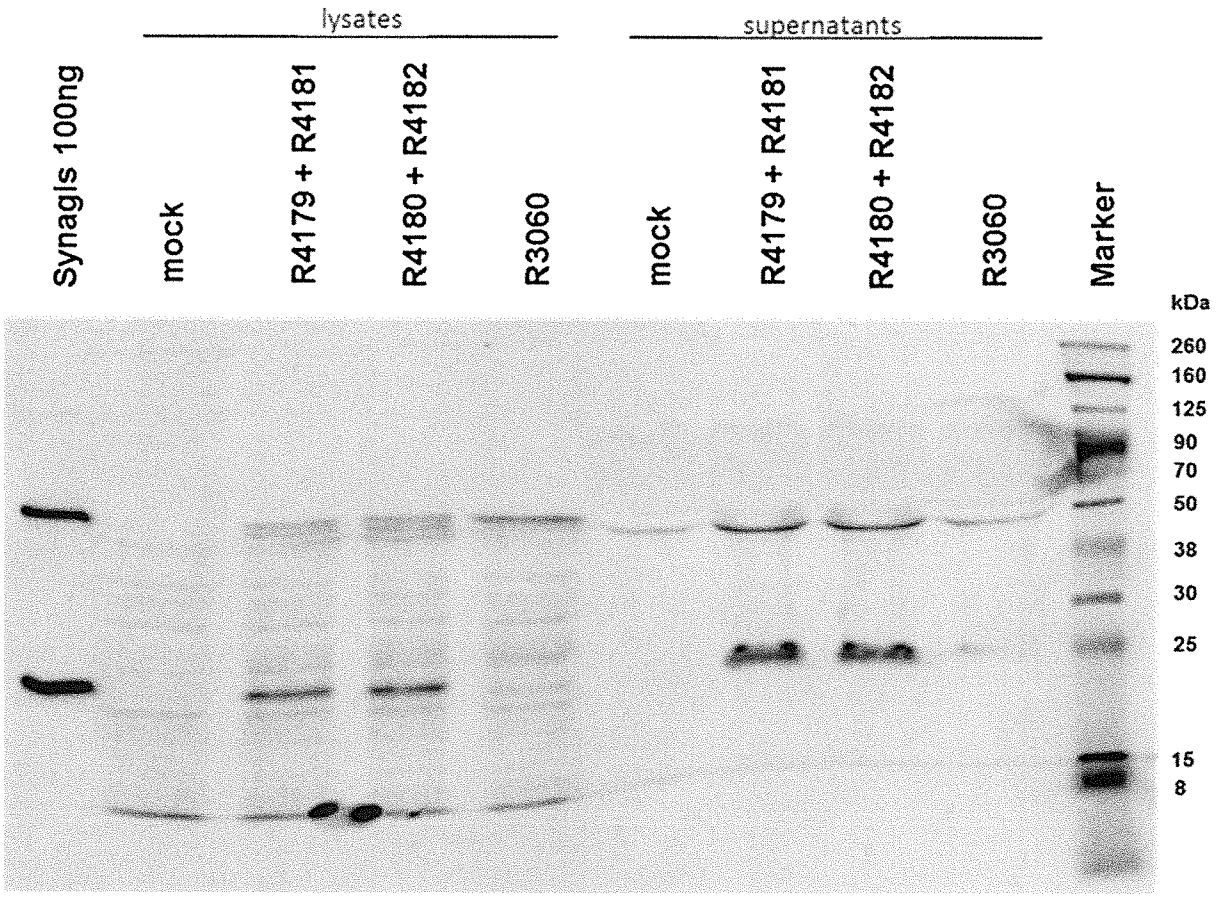

lysates
supernatants
Synagis 100ng
mock
R4179 + R4181
R4180 + R4182
R3060
mock
R4179 + R4181
R4180 + R4182
R3060
Marker
kDa
260
160
125
90
70
50
38
30
25
15
8

Fig. 46

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/060226

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K39/395 C07K16/00 C12N15/85
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61K C07K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, BIOSIS, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/083949 A2 (CUREVAC GMBH [DE]; HOERR INGMAR [DE]; PROBST JOCHEN [DE]) 17 July 2008 (2008-07-17) claims 1-34 sequences 1-53	1-104
X	WO 2013/151671 A1 (MODERNA THERAPEUTICS [US]) 10 October 2013 (2013-10-10) sequence 5672 page 635	1-6
X	N J PROUDFOOT: "3' Non-coding region sequences in eukaryotic messenger RNA", NATURE, vol. 263, 16 September 1976 (1976-09-16), pages 211-214, XP055383765,	1-6
A	page 211, left-hand column	7-104

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
1 September 2017	18/09/2017

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Herrmann, Klaus

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2017/060226

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

1-104(partially)

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-104(partially)

RNA comprising at least one coding sequence, wherein the coding sequence comprises the nucleic acid sequence according to SEQ ID NO:7643; or a fragment or variant of any one of said nucleic acid sequences; and subject-matter relating thereto.

2-53963. claims: 1-104(partially)

Idem as subject 1 but limited to each of the nucleic acid sequences as in SEQ ID NOs:7644-61136, 61161-61175 and the further SEQ ID NOs defined in claim 1, respectively. Invention 2 is limited to subject-matter relating to SEQ ID NO:7644, invention 3 to SEQ ID NO:7645 etc. For practical reasons all claims have been assigned to all inventions.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2017/060226

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