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(71) Demandeurs/Applicants:
MEMORIAL SLOAN-KETTERING CANCER CENTER, US;
EUREKA THERAPEUTICS, INC., US

(72) Inventeurs/Inventors:
BRENTJENS, RENIER J., US;
SMITH, ERIC L., US;
LIU, CHENG, US

(74) Agent: BERESKIN & PARR LLP/S.E.N.C.R.L.,S.R.L.

(54) Titre : ANTICORPS CIBLANT LA PROTEINE DE TYPE RECEPTEUR FC 5 ET PROCEDES D'UTILISATION
(54) Title: ANTIBODIES TARGETING FC RECEPTOR-LIKE 5 AND METHODS OF USE

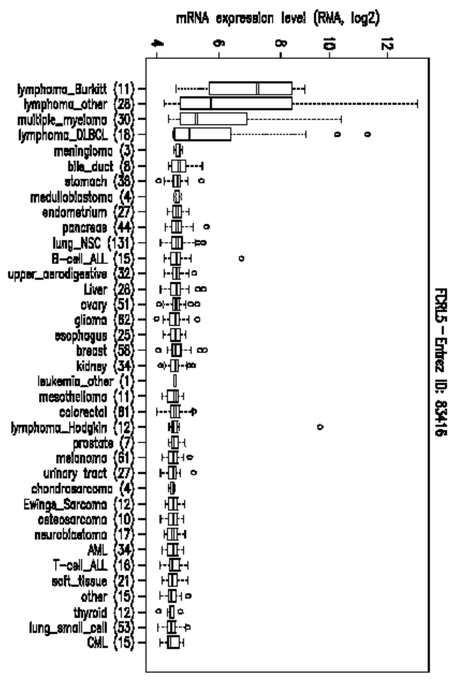


FIG. 1

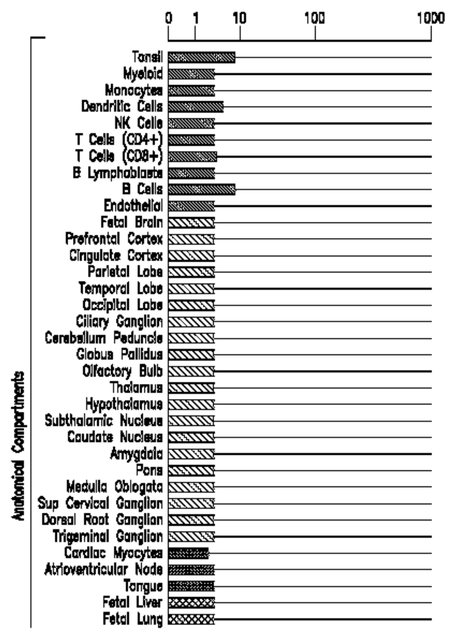
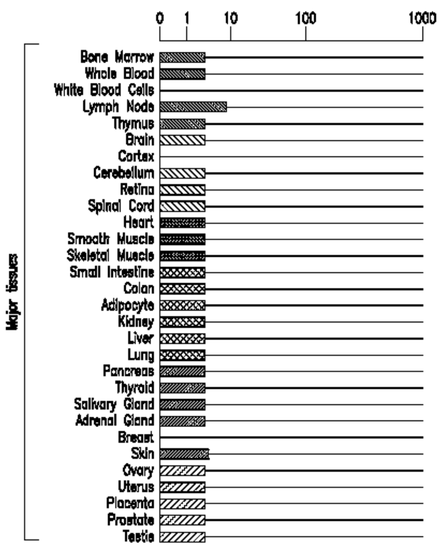


FIG. 1 (continued)



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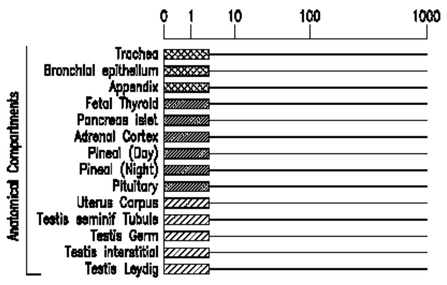

FIG. 1 (continued)

(57) Abrégé/Abstract:
The presently disclosed subject matter provides fully human antibodies or antigen-binding fragments thereof that bind to FcRL5 and methods of using the same.

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(71) Applicants: **MEMORIAL SLOAN-KETTERING CANCER CENTER** [US/US]; 1275 York Avenue, New York, NY 10065 (US). **EUREKA THERAPEUTICS, INC.** [US/US]; 5858 Horton Street, Suite 362, Emeryville, CA 94608 (US).

(72) Inventors: **BRENTJENS, Renier, J.**; 1275 York Avenue, New York, NY 10021 (US). **SMITH, Eric, L.**; 1275 York Avenue, New York, NY 10021 (US). **LIU, Cheng**; 4 Commodore Drive, #d334, Emeryville, CA 94608 (US).

(74) Agents: **KOLE, Lisa, B.** et al.; Baker Botts LLP, 30 Rockefeller Plaza, New York, NY 10112-4498 (US).

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[Continued on next page]

(54) Title: ANTIBODIES TARGETING FC RECEPTOR-LIKE 5 AND METHODS OF USE

(57) Abstract: The presently disclosed subject matter provides fully human antibodies or antigen-binding fragments thereof that bind to FcRL5 and methods of using the same.

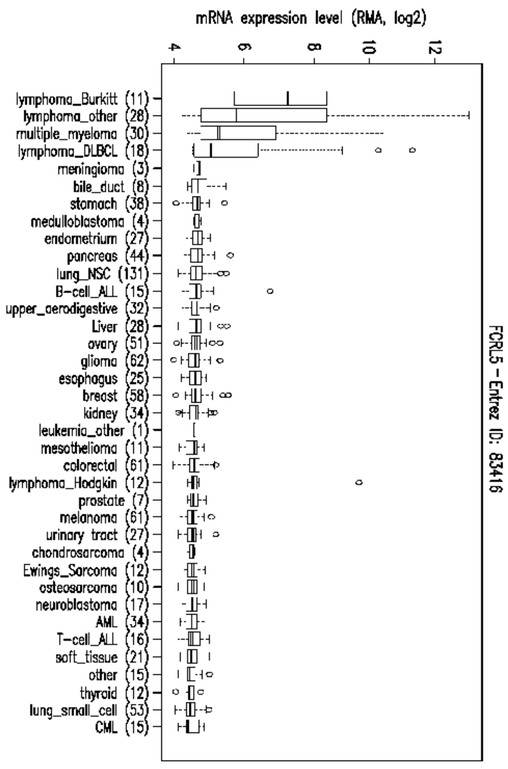

FIG. 1

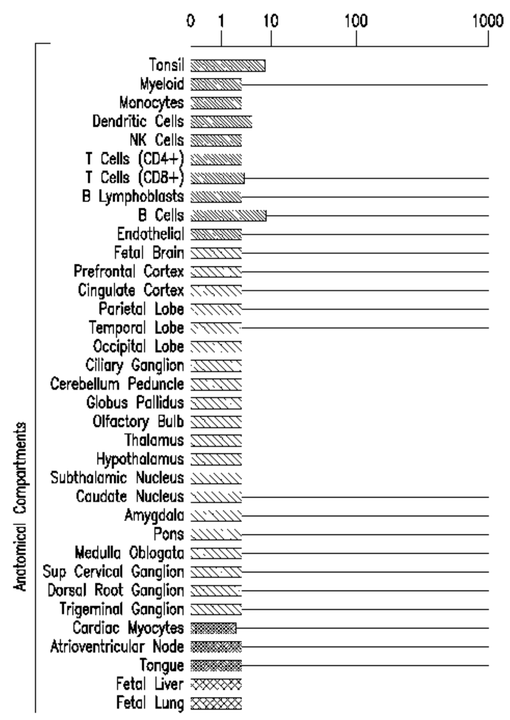

FIG. 1 (continued)

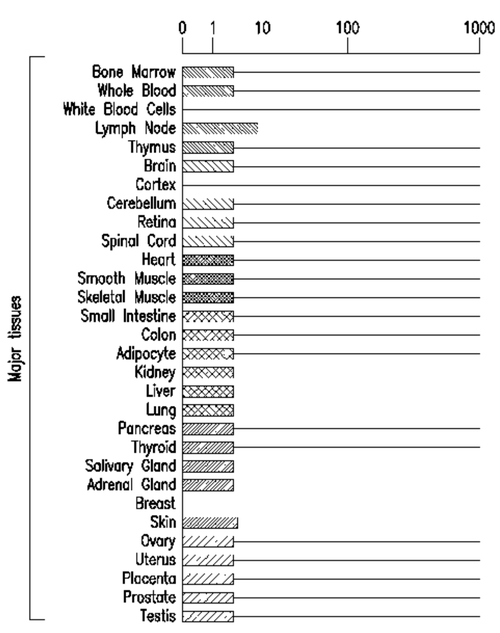

FIG. 1 (continued)

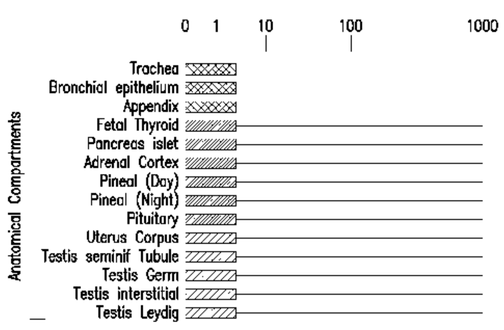

FIG. 1 (continued)

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JUMBO APPLICATIONS/PATENTS

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NOM DU FICHIER / FILE NAME :

NOTE POUR LE TOME / VOLUME NOTE:

ANTIBODIES TARGETING FC RECEPTOR-LIKE 5 AND METHODS OF USE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority to U.S. Provisional Patent Application Serial No. 62/263,586, filed December 4, 2015, the contents of which are incorporated by reference in their entirety, and to which priority is claimed.

FIELD OF THE SUBJECT MATTER

The presently disclosed subject matter relates to fully human antibodies that bind to Fc Receptor-like 5 (FcRL5), and methods of using the same. The presently disclosed subject matter further relates to fully human antibodies that bind to domain 9 of FcRL5.

BACKGROUND OF THE SUBJECT MATTER

Fc receptor-like (FcRL) proteins are a family of cellular receptors homologous to FcγRI and are predominantly expressed by B cells. FcRL5 is expressed on both mature B cells and plasma cells, and is induced by Epstein-Barr virus (EBV) proteins (Polson et al., Int. Immunol. 18:1363-1373 (2006); Mohan et al., Blood. 107:4433-4439 (2006)). FcRL5 has been shown to inhibit B cell antigen receptor signaling and the co-stimulation of FcRL5 and the B cell antigen receptor promotes proliferation and differentiation of naive B cells (Dement-Brown et al., J. Leukoc. Biol. 91:59-67 (2012)). FcRL5 has been implicated in human diseases, including cancer and autoimmune conditions (Kochi et al. Nat. Genet. 37:478-485 (2005); Li et al. Blood. 112(1):179-87 (2008)). In particular, FcRL5 has been shown to be overexpressed on malignant B cells of hairy cell leukemia, chronic lymphocytic leukemia, mantle cell lymphoma and multiple myeloma patients (Polson et al., Int. Immunol. 18(9):1363-73 (2006); Li et al. (2008)). In addition, serum levels of soluble FcRL5 are elevated in patients with several types of B cell tumors (Ise et al., Leukemia. 21:169-174 (2007)). Given the significant association between FcRL5 and B cell cancers, therapeutics targeting FcRL5 are desired.

SUMMARY OF THE SUBJECT MATTER

The presently disclosed subject matter provides fully human antibodies that bind to Fc Receptor-like 5 (FcRL5), and methods of using the same. The presently disclosed subject matter further provides fully human antibodies that specifically bind domain 7, 8 or 9 of FcRL5. It is based, at least in part, on the discovery of 76 clones from a human phage display library that specifically bind to FcRL5.

In various non-limiting embodiments, the presently disclosed subject matter provides for antibodies, and particularly variable regions of antibodies, that bind specifically to human FcRL5, as well as nucleic acids encoding said antibodies and variable regions, vectors comprising said nucleic acids and methods of producing said antibodies. The presently disclosed subject matter further provides pharmaceutical compositions comprising the disclosed anti-FcRL5 antibodies and methods of treatment. 76 species of antibodies, as well as competitively binding antibodies, are provided.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 depicts the FcRL5 expression in various normal tissues and human cancer cell lines.

Figure 2 depicts the screening of anti-FcRL5 scFvs using 3T3 cells expressing FcRL5 or FcRL1, 2, 3, 4 or 6.

Figure 3A-D. (A) A representation of the domains of FcRL5 and the soluble, glycosylphosphatidylinositol (GPI)-anchored and transmembrane forms of FcRL5. (B) A representation of the vector used to express a mutated form of FcRL5 that lacks domain 9 (also referred to herein as FcRL5Δdom9). (C) The nucleotide sequences of full length FcRL5 and the form of FcRL5 that lacks domain 9. (D) A representation of the differences in the nucleotide sequences of full length FcRL5 and the mutated form of FcRL5 in which domain 9 is deleted (referred to herein as "FcRL5Δdom9").

Figure 4 depicts the screening of anti-FcRL5 scFv ET200-39 on 3T3 cells expressing FcRL5Δdom9.

Figure 5 depicts the screening of anti-FcRL5 scFv ET200-104 on 3T3 cells expressing FcRL5Δdom9.

Figure 6 depicts the screening of anti-FcRL5 scFv ET200-105 on 3T3 cells expressing FcRL5Δdom9.

Figure 7 depicts the screening of anti-FcRL5 scFv ET200-109 on 3T3 cells expressing FcRL5Δdom9.

Figure 8 depicts the screening of anti-FcRL5 scFv ET200-117 on 3T3 cells expressing FcRL5Δdom9.

Figure 9A-B depicts the FACS analysis of anti-FcRL5/CD3 bispecific antibodies.

Figure 10 illustrates the CLIPS technology. The CLIPS reaction takes place between bromo groups of the CLIPS scaffold and thiol sidechains of cysteines. The reaction is fast and specific under mild conditions. Using this elegant chemistry, native

protein sequences are transformed into CLIPS constructs with a range of structures. From left to right: two different single T2 loops, T3 double loop, conjugated T2+T3 loops, stabilized beta sheet, and stabilized alpha helix (Timmerman et al., J. Mol. Recognit. 2007; 20: 283-29).

Figure 11 illustrates combinatorial clips library screening. The target protein (left) containing a discontinuous conformational epitope is converted into a matrix library (middle). Combinatorial peptides are synthesized on a proprietary minicard and chemically converted into spatially defined CLIPS constructs (right).

Figure 12 depicts T3 looped CLIPSTM construct.

Figure 13A-D illustrates heat map technology. (A) Table of combined peptides, with two sub-sequences indicated as “Loop 1” and “Loop 2.” (B) Data from A displayed as a matrix. (C) Color bar indication of the heat map representation. (D) Heat map visualization of data from A.

Figure 14 shows heatmap analysis of data recorded for Herceptin.

Figure 15 shows heatmap analysis of data recorded for ET200-104.

Figure 16 illustrates a 3D model of amino acid residues 380-731 of FcRL5 with peptide stretch $_{657}$SRPILTFRAPR$_{667}$ highlighted.

DETAILED DESCRIPTION OF THE SUBJECT MATTER

All publications, patents and other references cited herein are incorporated by reference in their entirety into the present disclosure.

In practicing the presently disclosed subject matter, many conventional techniques in molecular biology, microbiology, cell biology, biochemistry, and immunology are used, which are within the skill of the art. These techniques are described in greater detail in, for example, Molecular Cloning: a Laboratory Manual 3rd edition, J.F. Sambrook and D.W. Russell, ed. Cold Spring Harbor Laboratory Press 2001; Recombinant Antibodies for Immunotherapy, Melvyn Little, ed. Cambridge University Press 2009; “Oligonucleotide Synthesis” (M. J. Gait, ed., 1984); “Animal Cell Culture” (R. I. Freshney, ed., 1987); “Methods in Enzymology” (Academic Press, Inc.); “Current Protocols in Molecular Biology” (F. M. Ausubel et al., eds., 1987, and periodic updates); “PCR: The Polymerase Chain Reaction,” (Mullis et al., ed., 1994); “A Practical Guide to Molecular Cloning” (Perbal Bernard V., 1988); “Phage Display: A Laboratory Manual” (Barbas et al., 2001). The contents of these references and other references containing standard protocols, widely known to and relied upon by those of skill in the

art, including manufacturers' instructions are hereby incorporated by reference as part of the present disclosure.

Definitions

In the description that follows, certain conventions will be followed as regards the usage of terminology. Generally, terms used herein are intended to be interpreted consistently with the meaning of those terms as they are known to those of skill in the art.

An "antigen-binding protein" is a protein or polypeptide that comprises an antigen-binding region or antigen-binding fragment, that is, has a strong affinity to another molecule to which it binds. Antigen-binding proteins encompass antibodies, chimeric antigen receptors (CARs) and fusion proteins.

"Antibody" and "antibodies," as those terms are known in the art, refer to antigen binding-proteins of the immune system. The term "antibody," as referred to herein, includes whole, full length antibodies having an antigen-binding region, and any fragment thereof in which the "antigen-binding portion," "antigen-binding fragment" or "antigen-binding region" is retained, or single chains, for example, single chain variable fragment (scFv), thereof. A naturally occurring "antibody" is a glycoprotein comprising at least two heavy (H) chains and two light (L) chains inter-connected by disulfide bonds. Each heavy chain is comprised of a heavy chain variable region (abbreviated herein as V_H) and a heavy chain constant (CH) region. The heavy chain constant region is comprised of three domains, CH1, CH2 and CH3. Each light chain is comprised of a light chain variable region (abbreviated herein as V_L) and a light chain constant C_L region. The light chain constant region is comprised of one domain, C_L. The V_H and V_L regions can be further subdivided into regions of hypervariability, termed complementarity determining regions (CDR), interspersed with regions that are more conserved, termed framework regions (FR). Each V_H and V_L is composed of three CDRs and four FRs arranged from amino-terminus to carboxy-terminus in the following order: FR1, CDR1, FR2, CDR2, FR3, CDR3, FR4. The variable regions of the heavy and light chains contain a binding domain that interacts with an antigen. The constant regions of the antibodies may mediate the binding of the immunoglobulin to host tissues or factors, including various cells of the immune system (*e.g.*, effector cells) and the first component (C1 q) of the classical complement system.

The term "human antibody," as used herein, is intended to include antibodies having variable regions in which both the framework and CDR regions are derived from human germline immunoglobulin sequences. Furthermore, if the antibody contains a constant region, the constant region also is derived from human germline immunoglobulin sequences. The human antibodies of the presently disclosed subject matter may include amino acid residues not encoded by human germline immunoglobulin sequences (*e.g.*, mutations introduced by random or site-specific mutagenesis *in vitro* or by somatic mutation *in vivo*).

The term "monoclonal antibody," as used herein, refers to an antibody obtained from a population of substantially homogeneous antibodies, *i.e.*, the individual antibodies comprising the population are identical and/or bind the same epitope, except for possible variant antibodies, *e.g.*, containing naturally occurring mutations or arising during production of a monoclonal antibody preparation, such variants generally being present in minor amounts. In contrast to polyclonal antibody preparations, which typically include different antibodies directed against different determinants (epitopes), each monoclonal antibody of a monoclonal antibody preparation is directed against a single determinant on an antigen. Thus, the modifier "monoclonal" indicates the character of the antibody as being obtained from a substantially homogeneous population of antibodies, and is not to be construed as requiring production of the antibody by any particular method. For example, the monoclonal antibodies to be used in accordance with the presently disclosed subject matter may be made by a variety of techniques, including, but not limited to, the hybridoma method, recombinant DNA methods, phage-display methods, and methods utilizing transgenic animals containing all or part of the human immunoglobulin loci, such methods and other exemplary methods for making monoclonal antibodies being described herein.

The term "recombinant human antibody," as used herein, includes all human antibodies that are prepared, expressed, created or isolated by recombinant means, such as (a) antibodies isolated from an animal (*e.g.*, a mouse) that is transgenic or transchromosomal for human immunoglobulin genes or a hybridoma prepared therefrom (described further below), (b) antibodies isolated from a host cell transformed to express the human antibody, *e.g.*, from a transfectoma, (c) antibodies isolated from a recombinant, combinatorial human antibody library, and (d) antibodies prepared, expressed, created or isolated by any other means that involve splicing of human

immunoglobulin gene sequences to other DNA sequences. Such recombinant human antibodies have variable regions in which the framework and CDR regions are derived from human germline immunoglobulin sequences. In certain embodiments, however, such recombinant human antibodies can be subjected to in *vitro* mutagenesis (or, when an animal transgenic for human Ig sequences is used, *in vivo* somatic mutagenesis) and thus the amino acid sequences of the V_H and V_L regions of the recombinant antibodies are sequences that, while derived from and related to human germline V_H and V_L sequences, may not naturally exist within the human antibody germline repertoire *in vivo*.

The term "humanized antibody" is intended to refer to antibodies in which CDR sequences derived from the germline of another mammalian species, such as a mouse, have been grafted onto human framework sequences. Additional framework region modifications may be made within the human framework sequences.

The term "chimeric antibody" is intended to refer to antibodies in which the variable region sequences are derived from one species and the constant region sequences are derived from another species, such as an antibody in which the variable region sequences are derived from a mouse antibody and the constant region sequences are derived from a human antibody.

As used herein, an antibody that "specifically binds to human FcRL5" is intended to refer to an antibody that binds to human FcRL5 with a K_d of 5×10^{-7} M or less, 1×10^{-7} M or less, 5×10^{-8} M or less, 1×10^{-8} M or less, 5×10^{-9} M or less, 1×10^{-9} M or less, 5×10^{-10} M or less, 1×10^{-10} M or less, 5×10^{-11} M or less or 1×10^{-11} M or less.

An "antibody that competes for binding" or "antibody that cross-competes for binding" with a reference antibody for binding to an antigen, *e.g.*, FcRL5, refers to an antibody that blocks binding of the reference antibody to the antigen (*e.g.*, FcRL5) in a competition assay by about 50% or more, *e.g.*, about 55% or more, about 60% or more, about 65% or more, about 70% or more, about 75% or more, about 80% or more, about 85% or more, about 90% or more, about 95% or more, about 98% or more or about 99% or more, and conversely, the reference antibody blocks binding of the antibody to the antigen (*e.g.*, FcRL5) in a competition assay by about 50% or more, *e.g.*, about 55% or more, about 60% or more, about 65% or more, about 70% or more, about 75% or more, about 80% or more, about 85% or more, about 90% or more, about 95% or more, about 98% or more or about 99% or more. An exemplary competition assay is described in

"Antibodies," Harlow and Lane (Cold Spring Harbor Press, Cold Spring Harbor, NY)(1988).

As used herein, "isotype" refers to the antibody class (*e.g.*, IgM or IgGl) that is encoded by the heavy chain constant region genes.

The phrases "an antibody recognizing an antigen" and "an antibody specific for an antigen" are used interchangeably herein with the term "an antibody which binds specifically to an antigen" (*e.g.*, a FcRL5 polypeptide).

The term "antigen-binding portion," "antigen-binding fragment" or "antigen-binding region" of an antibody, as used herein, refers to that region or portion of the antibody that binds to the antigen and which confers antigen specificity to the antibody, for example, antibodies includes one or more fragments of an antibody that retain the ability to specifically bind to an antigen (*e.g.*, a FcRL5 polypeptide). It has been shown that the antigen-binding function of an antibody can be performed by fragments of a full-length antibody. Examples of antigen-binding fragments encompassed within the term "antibody fragments" of an antibody include a Fab or Fab' fragment, a monovalent fragment consisting of the V_L, V_H, C_L and CH1 domains; a $F(ab')_2$ fragment; a $F(ab)_2$ fragment, a bivalent fragment comprising two Fab fragments linked by a disulfide bridge at the hinge region; a Fd fragment consisting of the V_H and CH1 domains; a Fv fragment consisting of the V_L and V_H domains of a single arm of an antibody; a dAb fragment (Ward et al., 1989, Nature 341:544-546), which consists of a V_H domain; and an isolated complementarity determining region (CDR).

Furthermore, although the two domains of the Fv fragment, V_L and V_H, are coded for by separate genes, they can be joined, using recombinant methods, by a synthetic linker that enables them to be made as a single protein chain in which the V_L and V_H regions pair to form monovalent molecules. These are known as single chain Fvs (scFvs); see, *e.g.*, Bird et al., 1988 Science 242:423-426; and Huston et al., 1988 Proc. Natl. Acad. Sci. 85:5879-5883. These antibody fragments are obtained using conventional techniques known to those of skill in the art, and the fragments are screened for utility in the same manner as are intact antibodies.

An "isolated antibody" or "isolated antigen-binding fragment" is one which has been identified and separated and/or recovered from a component of its natural environment. "Synthetic antibodies" or "recombinant antibodies" are generally

generated using recombinant technology or using peptide synthetic techniques known to those of skill in the art.

The terms “FcRL5” and “FC Receptor-Like 5” are used interchangeably herein, and include variants, isoforms, species homologs of human FcRL5, and analogs having at least one common epitope with FcRL5 (*e.g.*, human FcRL5). Non-limiting examples of human FcRL5 sequences can be found under GenBank Protein Accession Nos: AAI01070.1; XP_011508332.1; XP_011508334.1; XP_011508333.1; XP_011508332.1; and NP_001182317.1. In certain non-limiting embodiments, FcRL5 is a human FcRL5 having the amino acid sequence set forth in SEQ ID NO:899, or fragments thereof. SEQ ID NO:899 is provided below:

MLLWVILLVLAPVSGQFARTPRPIIFLQPPWTTVFQGERVTLTCKGFRFYSPQKT
KWYHRYLGKEILRETPDNILEVQESGEYRCQAQGSPLSSPVHLDFSSASLILQAPL
SVFEGDSVVLRCRAKAEVTLNNTIYKNDNVLAFLNKRTDFHIPHACLKDNGAYR
CTGYKESCCPVSSNTVKIQVQEPFTRPVLRASSFQPISGNPVTLTCETQLSLERSD
VPLRFRFFRDDQTLGLGWSLSPNFQITAMWSKDSGFYWCKAATMPHSIISDSPRS
WIQVQIPASHPVLTLSPEKALNFEGTKVTLHCETQEDSLRTLYRFYHEGVPLRHK
SVRCERGASISFSLTTENSGNYYCTADNGLGAKPSKAVSLSVTVPVSHPVLNLSS
PEDLIFEGAKVTLHCEAQRGSLPILYQFHHEDAALERRSANSAGGVAISFSLTAE
HSGNYYCTADNGFGPQRSKAVSLSITVPVSHPVLTLSSAEALTFEGATVTLHCEV
QRGSPQILYQFYHEDMPLWSSSTPSVGRVSFSFSLTEGHSGNYYCTADNGFGPQR
SEVVSLFVTVPVSRPILTLRVPRAQAVVGDLLELHCEAPRGSPPILYWFYHEDVT
LGSSSAPSGGEASFNLSLTAEHSGNYSCEANNGLVAQHSDTISLSVIVPVSRPILTF
RAPRAQAVVGDLLELHCEALRGSSPILYWFYHEDVTLGKISAPSGGGASFNLSLT
TEHSGIYSCEADNGLEAQRSEMVTLKVAVPVSRPVLTLRAPGTHAAVGDLLELH
CEALRGSPLILYRFFHEDVTLGNRSSPSGGASLNLSLTAEHSGNYSCEADNGLGA
QRSETVTLYITGLTANRSGPFATGVAGGLLSIAGLAAGALLLYCWLSRKAGRKP
ASDPARSPSDSDSQEPTYHNVPAWEELQPVYTNANPRGENVVYSEVRIIQEKKK
HAVASDPRHLRNKGSPIIYSEVKVASTPVSGSLFLASSAPHR [SEQ ID NO:899].

In certain embodiments, FcRL5 has 9 transmembrane Ig-like domains, *i.e.*, domain 1, domain 2, domain 3, domain 4, domain 5, domain 6, domain 7, domain 8 and domain 9 (*see* Figure 3A and 3B). For example, and not by way of limitation, domain 1 can comprise amino acids 23-100 of SEQ ID NO:899; domain 2 can comprise amino acids 105-185 of SEQ ID NO:899; domain 3 can comprise amino acids 191-273 of SEQ

ID NO:899; domain 4 can comprise amino acids 287-373 of SEQ ID NO:899; domain 5 can comprise amino acids 380-466 of SEQ ID NO:899; domain 6 can comprise amino acids 490-555 of SEQ ID NO:899; domain 7 can comprise amino acids 565-638 of SEQ ID NO:899; domain 8 can comprise amino acids 658-731 of SEQ ID NO:899; and domain 9 can comprise amino acids 754-835 of SEQ ID NO:899.

As used herein, the term "single-chain variable fragment" or "scFv" is a fusion protein of the variable regions of the heavy (V_H) and light chains (V_L) of an immunoglobulin (*e.g.*, mouse or human) covalently linked to form a V_H::V_L heterodimer. The heavy (V_H) and light chains (V_L) are either joined directly or joined by a peptide-encoding linker (*e.g.*, 10, 15, 20, 25 amino acids), which connects the N-terminus of the V_H with the C-terminus of the V_L, or the C-terminus of the V_H with the N-terminus of the V_L. The linker is usually rich in glycine for flexibility, as well as serine or threonine for solubility. The linker can link the heavy chain variable region and the light chain variable region of the antigen-binding domain. Non-limiting examples of linkers are disclosed in Shen et al., Anal. Chem. 80(6):1910-1917 (2008) and WO 2014/087010, the contents of which are hereby incorporated by reference in their entireties. In certain embodiments, the linker is a G4S linker.

In one non-limiting embodiment, the linker comprises amino acids having the sequence set forth in SEQ ID NO:897 as provided below:
GGGGSGGGGSGGGGS [SEQ ID NO: 897]. In one embodiment, the nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:897 is set forth in SEQ ID NO:898, which is provided below:
GGTGGAGGTGGATCAGGTGGAGGTGGATCTGGTGGAGGTGGATCT [SEQ ID NO:898].

In certain embodiments, the linker comprises amino acids having the sequence set forth in SEQ ID NO:307 as provided below:
SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO:307]. In certain embodiments, the nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:307 is set forth in SEQ ID NO:305, which is provided below:
TCTAGAGGTGGTGGTGGTAGCGGCGGCGGCGGCTCTGGTGGTGGTGGATCCC TCGAGATGGCC [SEQ ID NO:305].

In certain embodiments, the linker comprises amino acids having the following sequence GGGGS [SEQ ID NO:901].

In certain embodiments, the linker comprises amino acids having the following sequence SGGSGGS [SEQ ID NO:902].

In certain embodiments, the linker comprises amino acids having the following sequence GGGGSGGGS [SEQ ID NO:903].

In certain embodiments, the linker comprises amino acids having the following sequence GGGGSGGGGS [SEQ ID NO:904].

In certain embodiments, the linker comprises amino acids having the following sequence GGGGSGGGGSGGGGGGS [SEQ ID NO:905].

In certain embodiments, the linker comprises amino acids having the following sequence GGGGSGGGGSGGGGSGGGGS [SEQ ID NO:906].

In certain embodiments, the linker comprises amino acids having the following sequence GGGGSGGGGSGGGGSGGGGSGGGGS [SEQ ID NO:907].

In certain embodiments, the linker comprises amino acids having the following sequence GGGGSGGGGSGGGGSGGGGSGGGGSGGGGS [SEQ ID NO:908].

In certain embodiments, the linker comprises amino acids having the following sequence GGGGSGGGGSGGGGSGGGGSGGGGSGGGGSGGGGS [SEQ ID NO:909].

In certain embodiments, the linker comprises amino acids having the following sequence EPKSCDKTHTCPPCP [SEQ ID NO:910].

In certain embodiments, the linker comprises amino acids having the following sequence GGGGSGGGSEPKSCDKTHTCPPCP [SEQ ID NO:911].

In certain embodiments, the linker comprises amino acids having the following sequence ELKTPLGDTTHTCPRCPEPKSCDTPPPCPRCPEPKSCDTPPPCPRCPEPKSCDTPPP CPRCP [SEQ ID NO:912].

In certain embodiments, the linker comprises amino acids having the following sequence GSGSGS [SEQ ID NO:913].

In certain embodiments, the linker comprises amino acids having the following sequence AAA [SEQ ID NO:914].

Despite removal of the constant regions and the introduction of a linker, scFv proteins retain the specificity of the original immunoglobulin. Single chain Fv polypeptide antibodies can be expressed from a nucleic acid comprising V_H- and V_L-encoding sequences as described by Huston, et al. (Proc. Nat. Acad. Sci. USA,

85:5879-5883, 1988). See, also, U.S. Patent Nos. 5,091,513, 5,132,405 and 4,956,778; and U.S. Patent Publication Nos. 20050196754 and 20050196754. Antagonistic scFvs having inhibitory activity have been described (see, *e.g.*, Zhao et al., Hybridoma (Larchmt) 2008 27(6):455-51; Peter et al., J Cachexia Sarcopenia Muscle 2012 August 12; Shieh et al., J Imunol2009 183(4):2277-85; Giomarelli et al., Thromb Haemost 2007 97(6):955-63; Fife et al., J Clin Invst 2006 116(8):2252-61; Brocks et al., Immunotechnology 1997 3(3):173-84; Moosmayer et al., Ther. Immunol. 1995 2(10:31-40). Agonistic scFvs having stimulatory activity have been described (see, *e.g.*, Peter et al., J Bio. Chem. 2003 25278(38):36740-7; Xie et al., Nat Biotech 1997 15(8):768-71; Ledbetter et al., Crit Rev. Immunol. 1997 17(5-6):427-55; Ho et al., BioChim Biophys Acta 2003 1638(3):257-66).

As used herein, "F(ab)" or "Fab" refers to a fragment of an antibody structure that binds to an antigen but is monovalent and does not have a Fc portion, for example, an antibody digested by the enzyme papain yields two F(ab) fragments and an Fc fragment (*e.g.*, a heavy (H) chain constant region; Fc region that does not bind to an antigen).

As used herein, "$F(ab')_2$" refers to an antibody fragment generated by pepsin digestion of whole IgG antibodies, wherein this fragment has two antigen binding (ab') (bivalent) regions, wherein each (ab') region comprises two separate amino acid chains, a part of a H chain and a light (L) chain linked by an S-S bond for binding an antigen and where the remaining H chain portions are linked together. A "$F(ab')_2$" fragment can be split into two individual Fab' fragments.

As used herein, the term "vector" refers to any genetic element, such as a plasmid, phage, transposon, cosmid, chromosome, virus, virion, etc., which is capable of replication when associated with the proper control elements and which can transfer gene sequences into cells. Thus, the term includes cloning and expression vehicles, as well as viral vectors and plasmid vectors.

"CDRs" are defined as the complementarity determining region amino acid sequences of an antibody which are the hypervariable regions of immunoglobulin heavy and light chains. See, *e.g.*, Kabat et al., Sequences of Proteins of Immunological Interest, 4th U.S. Department of Health and Human Services, National Institutes of Health (1987). The term "hypervariable region" or "HVR" as used herein refers to each of the regions of an antibody variable domain which are hypervariable in sequence

("complementarity determining regions" or "CDRs") and/or form structurally defined loops ("hypervariable loops") and/or contain the antigen-contacting residues ("antigen contacts"). Generally, antibodies comprise three heavy chain and three light chain CDRs or CDR regions in the variable region. CDRs provide the majority of contact residues for the binding of the antibody to the antigen or epitope.

An "isolated antibody" is one which has been separated from a component of its natural environment. In certain embodiments, an antibody is purified to greater than 95% or 99% purity as determined by, for example, electrophoretic (*e.g.*, SDS-PAGE, isoelectric focusing (IEF), capillary electrophoresis) or chromatographic (*e.g.*, ion exchange or reverse phase HPLC). For review of methods for assessment of antibody purity, see, *e.g.*, Flatman et al., *J. Chromatogr. B* 848:79-87 (2007).

An "isolated nucleic acid" refers to a nucleic acid molecule that has been separated from a component of its natural environment. An isolated nucleic acid includes a nucleic acid molecule contained in cells that ordinarily contain the nucleic acid molecule, but the nucleic acid molecule is present extrachromosomally or at a chromosomal location that is different from its natural chromosomal location.

An "isolated nucleic acid encoding an antibody" (including references to a specific antibody, *e.g.*, an anti-FcRL5 antibody) refers to one or more nucleic acid molecules encoding antibody heavy and light chains (or fragments thereof), including such nucleic acid molecule(s) in a single vector separate vectors, and such nucleic acid molecule(s) present at one or more locations in a host cell.

The term "vector," as used herein, refers to a nucleic acid molecule capable of propagating another nucleic acid to which it is linked. The term includes the vector as a self-replicating nucleic acid structure as well as the vector incorporated into the genome of a host cell into which it has been introduced. Certain vectors are capable of directing the expression of nucleic acids to which they are operatively linked. Such vectors are referred to herein as "expression vectors."

An "immunoconjugate" is an antibody conjugated to one or more heterologous molecule(s), including, but not limited to, a cytotoxic agent.

An "effective amount" of an agent, *e.g.*, an anti-FcRL5 antibody or an antigen-binding fragment thereof, refers to an amount effective, at dosages and for periods of time necessary, to achieve the desired therapeutic or prophylactic result, *e.g.*, treating a cancer (or a tumor of the cancer) (*e.g.*, multiple myeloma).

An "individual" or "subject" is a mammal. Mammals include, but are not limited to, domesticated animals (*e.g.*, cows, sheep, cats, dogs, and horses), primates (*e.g.*, humans and non-human primates such as monkeys), rabbits, and rodents (*e.g.*, mice and rats). In certain embodiments, the individual or subject is a human.

As used herein, "treatment" (and grammatical variations thereof such as "treat" or "treating") refers to clinical intervention in an attempt to alter the natural course of the individual being treated, and can be performed either for prophylaxis or during the course of clinical pathology. Desirable effects of treatment include, but are not limited to, preventing occurrence or recurrence of disease, alleviation of symptoms, diminishment of any direct or indirect pathological consequences of the disease, preventing metastasis, decreasing the rate of disease progression, amelioration or palliation of the disease state, and remission or improved prognosis. In certain embodiments, antibodies of the presently disclosed subject matter are used to delay development of a disease or to slow the progression of a disease, *e.g.*, a tumor (multiple myeloma).

As used herein, the term "about" or "approximately" means within an acceptable error range for the particular value as determined by one of ordinary skill in the art, which will depend in part on how the value is measured or determined, *i.e.*, the limitations of the measurement system. For example, "about" can mean within 3 or more than 3 standard deviations, per the practice in the art. Alternatively, "about" can mean a range of up to 20%, preferably up to 10%, more preferably up to 5%, and more preferably still up to 1% of a given value. Alternatively, particularly with respect to biological systems or processes, the term can mean within an order of magnitude, preferably within 5-fold, and more preferably within 2-fold, of a value.

As described herein, any concentration range, percentage range, ratio range or integer range is to be understood to include the value of any integer within the recited range and, when appropriate, fractions thereof (such as one tenth and one hundredth of an integer), unless otherwise indicated.

Anti-FcRL5 Antibodies

The presently disclosed subject matter provides fully human antibodies or antigen binding fragments that are specific to FcRL5. The anti-FcRL5 antibodies or antigen binding fragments thereof of the present disclosure are based on the identification and selection of single chain variable fragments (scFvs) using phage display, the amino acid

sequences of which confer the molecules' specificity for a FcRL5 polypeptide of interest and forms the basis of all FcRL5 antibodies or antigen binding fragments thereof of the disclosure. The scFvs, therefore, can be used to design a diverse array of "antibody" molecules, including, for example, full length antibodies, fragments thereof, such as Fab, Fab' and $F(ab')_2$, minibodies, fusion proteins, including scFv-Fc fusions, multivalent antibodies, that is, antibodies that have more than one specificity for the same antigen or different antigens, for example, bispecific antibodies, tribodies, etc. (*see* Cuesta et al., Multivalent antibodies: when design surpasses evolution. Trends in Biotechnology 28:355-362 2010).

The antibodies of the presently disclosed subject matter are characterized by particular functional features or properties of the antibodies. For example, the antibodies of the present disclosure bind specifically to FcRL5 (*e.g.*, bind to human FcRL5 and may cross-react with FcRL5 from other species, such as mouse) with high affinity. In certain embodiments, antibodies of the present disclosure can bind to at least a portion of an FcRL5 polypeptide comprising the amino acid sequence set forth in SEQ ID NO:899 with high affinity. In certain embodiments, an antibody or antigen-binding fragment thereof of the present disclosure binds to at least a portion of the domain 8 of FcRL5 with high affinity. In certain embodiments, an antibody or antigen-binding fragment thereof of the present disclosure binds to at least a portion of the domain 7 of FcRL5 with high affinity. In certain embodiments, an antibody or antigen-binding fragment thereof of the present disclosure binds to at least a portion of the domain 8 of FcRL5 with high affinity. In certain embodiments, an antibody or antigen-binding fragment thereof of the present disclosure specifically binds to domain 9 of FcRL5 with high affinity. For example, and not by way of limitation, domain 9 of FcRL5 can have the amino acid sequence set forth in SEQ ID NO:900, or fragments thereof. SEQ ID NO:900 is provided below:

RPVLTLRAPGTHAAVGDLLELHCEALRGSPLILYRFFHEDVTLGNRSSPSGGASL NLSLTAEHSGNYSCEADNGLGAQRSETVTLYI [SEQ ID NO:900]. In certain embodiments, domain 9 of FcRL5 can have the amino acid sequence set forth in SEQ ID NO:917, or fragments thereof. SEQ ID NO:917 is provided below:

GTHAAVGDLLELHCEALRGSPLILYRFFHEDVTLGNRSSPSGGASLNLSLTAEHSG NYSCEADNGLGAQRSETVTLYI [SEQ ID NO:917].

In certain embodiments, domain 9 of FcRL5 comprises an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence of SEQ ID NO:900 or 917. In certain embodiments, an antibody of the presently disclosed subject matter binds to FcRL5 or a portion thereof, *e.g.*, domain 9 of FcRL5, with a K_d of 1×10^{-7} M or less, *e.g.*, about 1×10^{-8} M or less, about 1×10^{-9} M or less, about 1×10^{-10} M or less or about 1×10^{-11} M or less. In certain embodiments, a presently disclosed anti-FcRL5 antibody binds to FcRL5 (*e.g.*, human FcRL5) with a K_d of from about 1×10^{-11} M to about 1×10^{-7} M, *e.g.*, from about 1×10^{-11} M to about 1×10^{-10} M, from about 1×10^{-10} M to about 1×10^{-9} M, from 1×10^{-9} M to about 1×10^{-8} M, or from about 1×10^{-8} M to about 1×10^{-7} M.

The heavy and light chains of an anti-FcRL5 antibody of the present disclosure can be full-length (*e.g.,* an antibody including at least one (*e.g.*, one or two) complete heavy chains, and at least one (*e.g.*, one or two) complete light chains) or can include an antigen-binding portion (*e.g.*, a Fab, Fab', $F(ab')_2$, Fv or a single chain Fv fragment ("scFv")). In certain embodiments, an anti-FcRL5 antibody of the present disclosure can include a one or more constant regions. In certain embodiments, the heavy chain constant region of a disclosed antibody is chosen from, *e.g.*, IgG1, IgG2, IgG3, IgG4, IgM, IgA1, IgA2, IgD, and IgE. In certain embodiments, the immunoglobulin isotype is selected from IgG1, IgG2, IgG3, and IgG4, more particularly, IgG1 (*e.g.*, human IgG1). In another non-limiting embodiment, the antibody light chain constant region is chosen from, *e.g.*, kappa or lambda, particularly kappa. The choice of antibody isotype can depend on the immune effector function that the antibody is designed to elicit. In constructing a recombinant immunoglobulin, appropriate amino acid sequences for constant regions of various immunoglobulin isotypes and methods for the production of a wide array of antibodies are known to those of skill in the art.

1. Single-chain variable fragments (scFvs)

In certain embodiments, the presently disclosed subject matter includes antibodies that have the scFv sequence fused to one or more constant domains to form an antibody with an Fc region of a human immunoglobulin to yield a bivalent protein, increasing the overall avidity and stability of the antibody. In addition, the Fc portion allows the direct conjugation of other molecules, including, but not limited to, fluorescent dyes, cytotoxins, radioisotopes etc. to the antibody for example, for use in

antigen quantitation studies, to immobilize the antibody for affinity measurements, for targeted delivery of a therapeutic agent, to test for Fc-mediated cytotoxicity using immune effector cells and many other applications.

The presently disclosure subject matter provides scFvs that specifically bind to an FcRL5 polypeptide. In certain embodiments, an anti-FcRL5 scFv antibody of the present disclosure comprises a light chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299 and SEQ ID NO:303, wherein the scFv antibody binds to an FcRL5 polypeptide.

In certain embodiments, an anti-FcRL5 scFv antibody of the present disclosure comprises a heavy chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID

NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300 and SEQ ID NO:304, wherein the scFv antibody binds to an FcRL5 polypeptide.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299 and SEQ ID NO:303 and (b) a heavy chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID

NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300 and SEQ ID NO:304, wherein the scFv antibody binds to an FcRL5 polypeptide.

In certain embodiments, the anti-FcRL5 scFv antibody, optionally comprises (c) a linker sequence, for example a linker peptide, between the heavy chain variable region and the light chain variable region. In one non-limiting embodiment, the linker comprises amino acids having the sequence set forth in SEQ ID NO:307. In certain embodiments, the linker comprises the amino acid sequence set forth in SEQ ID NO:897.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:3, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:4.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:7, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:8.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:11, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:12.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:15, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:16.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:19, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:20.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:23, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:24.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:27, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:28.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:31, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:32.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:35, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:36.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:39, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:40.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:43, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:44.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:47, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:48.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:51, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:52.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:55, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:56.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:59, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:60.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:63, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:64.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:67, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:68.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:71, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:72.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:75, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:76.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:79, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:80.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:83, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:84.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:87, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:88.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:91, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:92.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:95, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:96.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:99, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:100.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:103, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:104.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:107, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:108.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:111, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:112.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:115, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:116.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:119, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:120.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:123, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:124.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:127, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:128.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:131, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:132.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:135, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:136.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:139, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:140.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:143, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:144.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:147, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:148.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:151, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:152.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:155, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:156.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:159, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:160.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:163, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:164.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:167, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:168.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:171, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:172.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:175, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:176.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:179, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:180.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:183, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:184.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:187, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:188.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:191, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:192.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:195, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:196.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:199, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:200.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:203, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:204.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:207, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:208.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:211, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:212.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:215, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:216.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:219, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:220.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:223, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:224.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:227, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:228.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:231, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:232.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:235, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:236.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:239, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:240.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:243, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:244.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:247, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:248.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:251, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:252.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:255, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:256.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:259, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:260.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:263, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:264.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:267, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:268.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:271, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:272.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:275, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:276.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:279, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:280.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:283, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:284.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:287, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:288.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:291, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:292.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:279, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:280.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:283, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:284.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:287, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:288.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:291, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:292.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:295, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:296.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:299, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:300.

In certain embodiments, an anti-FcRL5 scFv antibody comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:303, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:304.

The presently disclosed subject matter further provides anti-FcRL5 scFv antibodies that comprise heavy chain variable region and light chain variable region CDRs, *e.g.*, CDR1s, CDR2s and CDR3s, as disclosed herein in Table 229. The CDR regions are delineated using the Kabat system (Kabat, E. A., et al. (1991) Sequences of Proteins of Immunological Interest, Fifth Edition, U.S. Department of Health and Human Services, NIH Publication No. 91-3242).

In certain embodiments, an anti-FcRL5 scFv antibody comprises a light chain variable region, wherein the light chain variable region comprises: (a) a CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588; (b) a CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs:313, 319, 330, 344, 349, 358, 364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586; and (c) a CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414,

418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592; wherein the antibody specifically binds FcRL5.

In certain embodiments, an anti-FcRL5 scFv antibody comprises a heavy chain variable region, wherein the heavy chain variable region comprises: (a) a CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589; (b) a CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516, 521, 526, 538, 552, 560, 566, 583 and 590; and (c) a CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591; wherein the anti-FcRL5 scFv antibody specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an anti-FcRL5 scFv antibody comprising: (a) a heavy chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591; and (b) a light chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592; wherein the anti-FcRL5 scFv antibody specifically binds FcRL5.

In certain embodiments, an anti-FcRL5 scFv antibody of the present disclosure comprises a heavy chain variable region CDR1, a heavy chain variable region CDR2, a

heavy chain variable region CDR3, a light chain variable region CDR1, a light chain variable region CDR2 and a light chain variable region CDR3 selected from Table 229. For example, and not by way of limitation, an anti-FcRL5 scFv antibody comprises: (a) a heavy chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589; (b) a heavy chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516, 521, 526, 538, 552, 560, 566, 583 and 590; (c) a heavy chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591; (d) a light chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588; (e) a light chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs:313, 319, 330, 344, 349, 358, 364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586; and (f) a light chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592; wherein the antibody specifically binds FcRL5.

In certain embodiments, an anti-FcRL5 scFv antibody comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:411; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:412; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of

SEQ ID NO:463; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:318; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:319; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:419.

In certain embodiments, an anti-FcRL5 scFv antibody comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:515; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:516; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:517; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:318; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:319; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:531.

In certain embodiments, an anti-FcRL5 scFv antibody comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:403; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:404; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:532; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:533; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:534; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:535.

In certain embodiments, an anti-FcRL5 scFv antibody comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:411; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:412; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:543; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:544; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:448; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:545.

In certain embodiments, an anti-FcRL5 scFv antibody comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:372; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:475; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:570; (d) a light chain variable region CDR1 comprising the amino acid

sequence of SEQ ID NO:571; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:572; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:573.

In certain embodiments, an anti-FcRL5 scFv antibody comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:440; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:441; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:442; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:329; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:330; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:443.

In certain embodiments, an anti-FcRL5 scFv antibody comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:309; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:310; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:489; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:490; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:313; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:491.

The presently disclosed subject matter further provides anti-FcRL5 scFv antibodies comprising a heavy chain variable region, a light chain variable region and a linker peptide between the heavy chain variable region and the light chain variable region. In certain embodiments, the linker peptide comprises the amino acid sequence set forth in SEQ ID NO: 308 or 897. Non-limiting examples of anti-FcRL5 scFv antibodies of the present disclosure that comprise a heavy chain variable region, a light chain variable region and a linker peptide are disclosed in Tables 77-152. For example, and not by way of limitation, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region and a linker peptide of the present disclosure comprises an amino acid sequence selected from the group consisting of SEQ ID NO:594, SEQ ID NO:596, SEQ ID NO:598, SEQ ID NO:600, SEQ ID NO:602, SEQ ID NO:604, SEQ ID NO:606, SEQ ID NO:608, SEQ ID NO:610, SEQ ID NO:612, SEQ ID NO:614, SEQ ID NO:616, SEQ ID NO:618, SEQ ID NO:620, SEQ ID NO:622, SEQ ID NO:624, SEQ ID NO:626, SEQ ID NO:628, SEQ ID NO:630, SEQ ID NO:632, SEQ ID

NO:634, SEQ ID NO:636, SEQ ID NO:638, SEQ ID NO:640, SEQ ID NO:642, SEQ ID NO:644, SEQ ID NO:646, SEQ ID NO:648, SEQ ID NO:650, SEQ ID NO:652, SEQ ID NO:654, SEQ ID NO:656, SEQ ID NO:658, SEQ ID NO:660, SEQ ID NO:662, SEQ ID NO:664, SEQ ID NO:666, SEQ ID NO:668, SEQ ID NO:670, SEQ ID NO:672, SEQ ID NO:674, SEQ ID NO:676, SEQ ID NO:678, SEQ ID NO:680, SEQ ID NO:682, SEQ ID NO:684, SEQ ID NO:686, SEQ ID NO:688, SEQ ID NO:690, SEQ ID NO:692, SEQ ID NO:694, SEQ ID NO:696, SEQ ID NO:698, SEQ ID NO:700, SEQ ID NO:702, SEQ ID NO:704, SEQ ID NO:706, SEQ ID NO:708, SEQ ID NO:710, SEQ ID NO:712, SEQ ID NO:714, SEQ ID NO:716, SEQ ID NO:718, SEQ ID NO:720, SEQ ID NO:722, SEQ ID NO:724, SEQ ID NO:726, SEQ ID NO:728, SEQ ID NO:730, SEQ ID NO:732, SEQ ID NO:734, SEQ ID NO:736, SEQ ID NO:738, SEQ ID NO:740, SEQ ID NO:742 and SEQ ID NO:744 (as shown in Tables 77-152).

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region and a linker peptide comprises the amino acid sequence of SEQ ID NO:664.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region and a linker peptide comprises the amino acid sequence of SEQ ID NO:700.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region and a linker peptide comprises the amino acid sequence of SEQ ID NO:702.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region and a linker peptide comprises the amino acid sequence of SEQ ID NO:710.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region and a linker peptide comprises the amino acid sequence of SEQ ID NO:726.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region and a linker peptide comprises the amino acid sequence of SEQ ID NO:650.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region and a linker peptide comprises the amino acid sequence of SEQ ID NO:678.

The presently disclosed subject matter further provides anti-FcRL5 scFv antibodies comprising a heavy chain variable region, a light chain variable region, a linker peptide between the heavy chain variable region and the light chain variable region, and a His-tag and a HA-tag. In certain embodiments, the amino acid sequence of the His-tag and HA-tag comprises the amino acid sequence of SEQ ID NO:308. The nucleotide sequence encoding SEQ ID NO: 308 is SEQ ID NO: 306. Non-limiting examples of anti-FcRL5 scFv antibodies of the present disclosure that comprise a His-tag and a HA-tag are disclosed in Tables 153-228.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region, a linker peptide and a His-tag and a HA-tag comprises the amino acid sequence of SEQ ID NO:816.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region, a linker peptide and a His-tag and a HA-tag comprises the amino acid sequence of SEQ ID NO:852.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region, a linker peptide and a His-tag and a HA-tag comprises the amino acid sequence of SEQ ID NO:854.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region, a linker peptide and a His-tag and a HA-tag comprises the amino acid sequence of SEQ ID NO:862.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region, a linker peptide and a His-tag and a HA-tag comprises the amino acid sequence of SEQ ID NO:878.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region, a linker peptide and a His-tag and a HA-tag comprises the amino acid sequence of SEQ ID NO:802.

In certain embodiments, an anti-FcRL5 scFv antibody having a heavy chain variable region, a light chain variable region, a linker peptide and a His-tag and a HA-tag comprises the amino acid sequence of SEQ ID NO:830.

2. *Monoclonal Antibodies*

The presently disclosed subject matter further provides antibodies (*e.g.*, human monoclonal antibodies) that specifically bind to FcRL5 (*e.g.*, human FcRL5) and were isolated and structurally characterized as described in Examples 1 and 2.

The V_H amino acid sequences of human anti-FcRL5 antibodies ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 disclosed herein are set forth in SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300 and SEQ ID NO:304, respectively, and are shown in Tables 1-76.

The V_L amino acid sequences of human anti-FcRL5 antibodies ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031,

ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 disclosed herein are set forth in SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299 and SEQ ID NO:303, respectively, and are shown in Tables 1-76.

Given that each of the disclosed anti-FcRL5 antibodies ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115,

ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 antibodies can bind to FcRL5, the V_H and V_L sequences (shown in Tables 1-76) can be "mixed and matched" to create other anti-FcRL5 binding molecules. FcRL5 binding of such "mixed and matched" antibodies can be tested using the binding assays known in the art, including for example, ELISAs, Western blots, RIAs and Biacore analysis. In certain embodiments, when V_H and V_L chains are mixed and matched, a V_H sequence from a particular V_H/V_L pairing is replaced with a structurally similar V_H sequence. Likewise, a V_L sequence from a particular V_H/V_L pairing is replaced with a structurally similar V_L sequence.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising a light chain variable region, wherein the light chain variable region comprises an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299 and SEQ ID NO:303.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises a heavy chain variable region, wherein the heavy chain variable region comprises an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID

NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300 and SEQ ID NO:304, wherein the antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a light chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID

NO:299 and SEQ ID NO:303; and (b) a heavy chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300 and SEQ ID NO:304, wherein the antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:3, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:4.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:7, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:8.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:11, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:12.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:15, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:16.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:19, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:20.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:23, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:24.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:27, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:28.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:31, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:32.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:35, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:36.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:39, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:40.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:43, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:44.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:47, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:48.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:51, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:52.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:55, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:56.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:59, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:60.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:63, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:64.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:67, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:68.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:71, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:72.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:75, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:76.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:79, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:80.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:83, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:84.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:87, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:88.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:91, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:92.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:95, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:96.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:99, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:100.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:103, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:104.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:107, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:108.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:111, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:112.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:115, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:116.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:119, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:120.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:123, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:124.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:127, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:128.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:131, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:132.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:135, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:136.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:139, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:140.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:143, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:144.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:147, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:148.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:151, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:152.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:155, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:156.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:159, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:160.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:163, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:164.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:167, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:168.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:171, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:172.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:175, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:176.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:179, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:180.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:183, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:184.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:187, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:188.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:191, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:192.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:195, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:196.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:199, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:200.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:203, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:204.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:207, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:208.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:211, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:212.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:215, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:216.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:219, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:220.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:223, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:224.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:227, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:228.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:231, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:232.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:235, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:236.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:239, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:240.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:243, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:244.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:247, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:248.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:251, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:252.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:255, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:256.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:259, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:260.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:263, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:264.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:267, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:268.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:271, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:272.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:275, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:276.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:279, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:280.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:283, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:284.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:287, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:288.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:291, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:292.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:279, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:280.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:283, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:284.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids

having a sequence set forth in SEQ ID NO:287, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:288.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:291, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:292.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:295, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:296.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:299, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:300.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:303, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:304.

In certain embodiments, the presently disclosed subject matter provides antibodies that comprise the heavy chain variable region and light chain variable region CDR1s, CDR2s and CDR3s of ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 shown in Table 229.

The amino acid sequences of the V_H CDR1s of ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 are shown in Table 229.

The amino acid sequences of the V_H CDR2s of ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 are shown in Table 229.

The amino acid sequences of the V_H CDR3s of ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-

109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 are shown in Table 229.

The amino acid sequences of the V_L CDR1s of ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 are shown in Table 229.

The amino acid sequences of the V_L CDR2s of ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 are shown in Table 229.

The amino acid sequences of the V_L CDR3s of ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-

041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 are shown in Table 229.

Given that each of the disclosed antibodies can bind to FcRL5 and that antigen-binding specificity is provided primarily by the CDR1, CDR2, and CDR3 regions, the V_H CDR1, CDR2, and CDR3 sequences and V_L CDR1, CDR2, and CDR3 sequences can be "mixed and matched" (*i.e.*, CDRs from different antibodies can be mixed and match, although each antibody must contain a V_H CDR1, CDR2, and CDR3 and a V_L CDR1, CDR2, and CDR3) to create other anti-FcRL5 binding molecules. FcRL5 binding of such "mixed and matched" antibodies can be tested using the binding assays described above. When V_H CDR sequences are mixed and matched, the CDR1, CDR2 and/or CDR3 sequence from a particular V_H sequence is replaced with a structurally similar CDR sequence(s). Likewise, when V_L CDR sequences are mixed and matched, the CDR1, CDR2 and/or CDR3 sequence from a particular V_L sequence preferably is replaced with a structurally similar CDR sequence(s). It will be readily apparent to the ordinarily skilled artisan that novel V_H and V_L sequences can be created by substituting one or more V_H and/or V_L CDR region sequences with structurally similar sequences from the CDR sequences of the antibodies ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 disclosed herein. *See* Table 229.

For example, and not by way of limitation, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises a light chain variable region, wherein the light chain variable region comprises: (a) a CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588; (b) a CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs:313, 319, 330, 344, 349, 358, 364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586; and (c) a CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592, and wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof, comprising a heavy chain variable region, wherein the heavy chain variable region comprises: (a) a CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589; (b) a CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516, 521, 526, 538, 552, 560, 566, 583 and 590; and (c) a CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591, and wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a

heavy chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591; and (b) a light chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592, wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:463; and (b) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:419; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:517; and (b) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:531; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:532; and (b) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:535; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID

NO:543; and (b) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:545; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:570; and (b) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:573; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:442; and (b) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:443; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:489; and (b) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:491; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (a) a heavy chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589; (b) a heavy chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516, 521, 526, 538, 552, 560, 566, 583 and 590; (c) a heavy chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432,

437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591; (d) a light chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588; (e) a light chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs:313, 319, 330, 344, 349, 358, 364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586; and (f) a light chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592; wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to FcRL5.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:411; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:412; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:463; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:318; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:319; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:419.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:515; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:516; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:517; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:318; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID

NO:319; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:531.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:403; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:404; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:532; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:533; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:534; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:535.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:411; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:412; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:543; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:544; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:448; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:545.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:372; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:475; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:570; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:571; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:572; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:573.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:440; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:441; (c) a heavy chain variable

region CDR3 comprising the amino acid sequence of SEQ ID NO:442; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:329; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:330; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:443.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:309; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:310; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:489; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:490; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:313; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:491.

In certain embodiments, the extracellular antigen-binding domain, *e.g.*, the human scFv, comprises a heavy chain variable region, a light chain variable region, a linker peptide between the heavy chain variable region and the light chain variable region, and an His-tag and an HA-tag. In certain embodiments, the amino acid sequence of the His-tag and HA-tag comprises the amino acid sequence of SEQ ID NO:308. The nucleotide sequence encoding SEQ ID NO: 308 is SEQ ID NO: 306.

In certain embodiments, a presently disclosed anti-FcRL5 antibody is a fully-human antibody, *e.g.*, any one of ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124. Fully-human mAbs are preferred for therapeutic use in

humans because murine antibodies cause an immunogenicity reaction, known as the HAMA (human anti-mouse antibodies) response (Azinovic, et al. Survival benefit associated with human anti-mouse antibody (HAMA) in patients with B-cell malignancies. Cancer Immunol. Immunother. 2006; 55(12):1451-8; Tjandra, et al. Development of human anti-murine antibody (HAMA) response in patients. Immunol. Cell Biol. 1990; 68(6):367-76), when administered to humans, causing serious side effects, including anaphylaxis and hypersensitivity reactions. This immunogenicity reaction is triggered by the human immune system recognizing the murine antibodies as foreign because of slightly different amino acid sequences from natural human antibodies.

The use of fully human phage display libraries has made it possible to select large numbers of antibody (Ab) repertoires for unique and rare Abs against very defined epitopes (for more details on phage display see McCafferty et al., Phage antibodies: filamentous phage displaying antibody variable domains. Nature, 348: 552-554 (1990)). The rapid identification of human Fab, Fab' or single chain Fv (scFV) fragments highly specific for tumor antigen-derived peptide-MHC complex molecules has thus become possible. Recently, immuno-toxins, generated by fusing TCR-like Fab specific for melanoma Ag MART-1 26-35/A2 or gp100 280-288/A2 to a truncated form of Pseudomonas endotoxin, have been shown to inhibit human melanoma growth both *in vitro* and *in vivo* (Klechevsky, et al. Antitumor activity of immunotoxins with T-cell receptor-like specificity against human melanoma xenografts. Cancer Res 2008; 68 (15):6360-6367). In addition, by engineering full-length mAb using the Fab fragments, it is possible to directly generate a therapeutic human mAb, bypassing months of time-consuming work, normally needed for developing therapeutic mAbs.

The presently disclosed subject matter involves the development of a fully human mAb that recognizes, for example, a human FcRL5 polypeptide (*e.g.*, one having the amino acid sequence set forth in SEQ ID NO:899) for cancer therapy. The presently disclosed subject matter further involves the development of a fully human mAb that recognizes at least a part of domain 9 of a human FcRL5 polypeptide (*e.g.*, a polypeptide having the amino acid sequence set forth in SEQ ID NO:900 or 917) for cancer therapy. The presently disclosed subject matter further involves the development of a fully human mAb that recognizes at least a part of domain 8 of a human FcRL5 polypeptide for cancer therapy. The presently disclosed subject matter further involves the development

of a fully human mAb that recognizes at least a part of domain 7 of a human FcRL5 polypeptide for cancer therapy. In certain embodiments, the presently disclosed subject provides fully human mAbs that are specific for domain 7, domain 8 or domain 9 of FcRL5 for cancer therapy.

3. *Homologous Antibodies*

In certain embodiments, an antibody of the presently disclosed subject matter comprises heavy and light chain variable regions comprising amino acid sequences that are homologous to the amino acid sequences of the antibodies described herein and as disclosed in Tables 1-76 (*e.g.*, ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 antibodies), and wherein the antibodies retain the desired functional properties of the anti-FcRL5 antibodies of the presently disclosed subject matter.

For example, and not by way of limitation, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising a light chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID

NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299 and SEQ ID NO:303, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof, comprises a heavy chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300 and SEQ ID NO:304, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof, comprises (a) a light chain variable region comprising an amino acid

sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299 and SEQ ID NO:303; and (b) a heavy chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID

NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300 and SEQ ID NO:304, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:143, and (b) a heavy chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:144, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:215, and (b) a heavy chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:216, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:219, and (b) a heavy chain variable comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:220, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:235, and (b) a heavy chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:236, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:267, and (b) a heavy chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:268, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:115, and (b) a heavy chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:116, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

In certain embodiments, an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprises (a) a light chain variable comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:171, and (b) a heavy chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%,

90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to the amino acid sequence set forth in SEQ ID NO:172, wherein the anti-FcRL5 antibody or antigen-binding fragment thereof binds to an FcRL5 polypeptide.

An anti-FcRL5 antibody or antigen-binding fragment thereof comprising V_H and/or V_L regions having high (*i.e.*, 80% or greater) homology to the V_H and V_L regions of the sequences set forth above, can be obtained by mutagenesis (*e.g.*, site-directed or PCR-mediated mutagenesis), followed by testing of the encoded altered antibody for retained function (*i.e.*, the binding affinity) using the binding assays described herein. In certain embodiments, a V_L sequence having at least 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% identity contains substitutions (*e.g.*, conservative substitutions to generate conservative modifications of a sequence), insertions or deletions relative to the reference sequence, but an anti-FcRL5 antibody or antigen-binding fragment thereof comprising that sequence retains the ability to bind to FcRL5. In certain embodiments, a V_H sequence having at least 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% identity contains substitutions (*e.g.*, conservative substitutions), insertions or deletions relative to the reference sequence, but an anti-FcRL5 antibody or antigen-binding fragment thereof comprising that sequence retains the ability to bind to FcRL5. In certain embodiments, a total of about 1 to about 10 amino acids have been substituted, inserted and/or deleted in the disclosed sequences. Non-limiting examples of conservative modifications are provided below, *e.g.*, within Table 230.

As used herein, the percent homology between two amino acid sequences is equivalent to the percent identity between the two sequences. The percent identity between the two sequences is a function of the number of identical positions shared by the sequences (*i.e.*, % homology = # of identical positions/total # of positions x 100), taking into account the number of gaps, and the length of each gap, which need to be introduced for optimal alignment of the two sequences. The comparison of sequences and determination of percent identity between two sequences can be accomplished using a mathematical algorithm, as described in the non-limiting examples below.

The percent homology between two amino acid sequences can be determined using the algorithm of E. Meyers and W. Miller (Comput. Appl. Biosci., 4:11-17 (1988)) which has been incorporated into the ALIGN program (version 2.0), using a PAM120 weight residue table, a gap length penalty of 12 and a gap penalty of 4. In addition, the percent homology between two amino acid sequences can be determined using the

Needleman and Wunsch (J. Mol. Biol. 48:444-453 (1970)) algorithm which has been incorporated into the GAP program in the GCG software package (available at www.gcg.com), using either a Blossum 62 matrix or a PAM250 matrix, and a gap weight of 16, 14, 12, 10, 8, 6, or 4 and a length weight of 1, 2, 3, 4, 5, or 6.

Additionally or alternatively, the protein sequences of the presently disclosed subject matter can further be used as a "query sequence" to perform a search against public databases to, for example, identify related sequences. Such searches can be performed using the XBLAST program (version 2.0) of Altschul, et al. (1990) J. Mol. Biol. 215:403-10. BLAST protein searches can be performed with the XBLAST program, score = 50, wordlength = 3 to obtain amino acid sequences homologous to the antibody molecules of the invention. To obtain gapped alignments for comparison purposes, Gapped BLAST can be utilized as described in Altschul et al., (1997) Nucleic Acids Res. 25(17):3389-3402. When utilizing BLAST and Gapped BLAST programs, the default parameters of the respective programs (*e.g.*, XBLAST and NBLAST) can be used. (See www.ncbi.nlm.nih.gov).

4. Antibodies with Conservative Modifications

The present disclosure further provides antibodies and antigen-binding fragments thereof that comprise conservative modifications of the antibody sequences disclosed herein. For example, and not by way of limitation, an antibody or antigen-binding fragment thereof of the presently disclosed subject matter comprises a heavy chain variable region comprising CDR1, CDR2 and CDR3 sequences and a light chain variable region comprising CDR1, CDR2 and CDR3 sequences, wherein one or more of these CDR sequences comprise specified amino acid sequences based on the antibodies described herein (*e.g.*, ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118,

ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 antibodies), or conservative modifications thereof, and wherein the antibodies retain the desired functional properties of the anti-FcRL5 antibodies of the presently disclosed subject matter. *See* Table 229.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising a light chain variable region, wherein the light chain variable region comprises: (a) a CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588, and conservative modifications thereof; (b) a CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs:313, 319, 330, 344, 349, 358, 364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586, and conservative modifications thereof; and (c) a CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592, and conservative modifications thereof; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising a heavy chain variable reion, wherein the heavy chain variable region comprises: (a) a CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589, and conservative modifications thereof; (b) a CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516, 521, 526, 538, 552, 560, 566, 583 and 590, and conservative modifications thereof; and (c) a CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356,

362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591, and conservative modifications thereof; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

The presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof, comprising a heavy chain variable region comprising CDR1, CDR2, and CDR3 sequences and a light chain variable region comprising CDR1, CDR2, and CDR3 sequences, wherein: (a) the heavy chain variable region CDR3 comprises an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591, and conservative modifications thereof; and (b) the light chain variable region CDR3 comprises an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592, and conservative modifications thereof; wherein the antibody or antigen-binding fragment thereof binds to human FcRL5.

In certain embodiments, the presently disclosed subject matter provides an isolated anti-FcRL5 antibody or antigen-binding fragment thereof, comprising a heavy chain variable region comprising CDR1, CDR2, and CDR3 sequences and a light chain variable region comprising CDR1, CDR2, and CDR3 sequences, wherein: (a) the heavy chain variable region CDR1 comprises an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589, and conservative modifications thereof; (b) the heavy chain variable region CDR2 comprises an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516,

521, 526, 538, 552, 560, 566, 583 and 590, and conservative modifications thereof; (c) the heavy chain variable region CDR3 comprises an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591, and conservative modifications thereof; (d) the light chain variable region CDR1 comprises an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588, and conservative modifications thereof; (e) the light chain variable region CDR2 comprises an amino acid sequence selected from the group consisting of SEQ ID NOs:313, 319, 330, 344, 349, 358, 364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586, and conservative modifications thereof; and (f) the light chain variable region CDR3 comprises an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592, and conservative modifications thereof; wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:411 or conservative modifications thereof; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:412 or conservative modifications thereof; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:463 or conservative modifications thereof; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:318 or conservative modifications thereof; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:319 or conservative modifications thereof; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:419 or conservative modifications thereof.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:515 or conservative modifications thereof; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:516 or conservative modifications thereof; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:517 or conservative modifications thereof; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:318 or conservative modifications thereof; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:319 or conservative modifications thereof; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:531 or conservative modifications thereof.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:403 or conservative modifications thereof; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:404 or conservative modifications thereof; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:532 or conservative modifications thereof; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:533 or conservative modifications thereof; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:534 or conservative modifications thereof; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:535 or conservative modifications thereof.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:411 or conservative modifications thereof; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:412 or conservative modifications thereof; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:543 or conservative modifications thereof; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:544 or conservative modifications thereof; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:448 or conservative modifications thereof; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:545 or conservative modifications thereof.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:372 or conservative modifications thereof; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:475 or conservative modifications thereof; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:570 or conservative modifications thereof; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:571 or conservative modifications thereof; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:572 or conservative modifications thereof; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:573 or conservative modifications thereof.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:440 or conservative modifications thereof; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:441 or conservative modifications thereof; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:442 or conservative modifications thereof; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:329 or conservative modifications thereof; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:330 or conservative modifications thereof; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:443 or conservative modifications thereof.

In certain embodiments, a presently disclosed anti-FcRL5 antibody or antigen-binding fragment thereof comprises: (a) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:309 or conservative modifications thereof; (b) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:310 or conservative modifications thereof; (c) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:489 or conservative modifications thereof; (d) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:490 or conservative modifications thereof; (e) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:313 or conservative modifications thereof; and (f) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:491 or conservative modifications thereof.

As used herein, the term "conservative sequence modifications" is intended to refer to amino acid modifications that do not significantly affect or alter the binding characteristics of the antibody containing the amino acid sequence. Such conservative modifications include amino acid substitutions, additions and deletions. Modifications can be introduced into an antibody of the invention by standard techniques known in the art, such as site-directed mutagenesis and PCR-mediated mutagenesis.

Conservative amino acid substitutions are ones in which the amino acid residue is replaced with an amino acid residue having a similar side chain. Families of amino acid residues having similar side chains have been defined in the art. Exemplary conservative amino acid substitutions are shown in Table 230. Amino acid substitutions may be introduced into an antibody of interest and the products screened for a desired activity, *e.g.*, retained/improved antigen binding, decreased immunogenicity, or improved ADCC or CDC. In certain embodiments, a sequence disclosed herein, *e.g.*, a CDR sequence, a V_H sequence or a V_L sequence, can have up to about one, up to about two, up to about three, up to about four, up to about five, up to about six, up to about seven, up to about eight, up to about nine or up to about ten amino acid residues that are modified and/or substituted.

Table 230

Original Residue	**Exemplary conservative amino acid Substitutions**
Ala (A)	Val; Leu; Ile
Arg (R)	Lys; Gln; Asn
Asn (N)	Gln; His; Asp, Lys; Arg
Asp (D)	Glu; Asn
Cys (C)	Ser; Ala
Gln (Q)	Asn; Glu
Glu (E)	Asp; Gln
Gly (G)	Ala
His (H)	Asn; Gln; Lys; Arg
Ile (I)	Leu; Val; Met; Ala; Phe
Leu (L)	Ile; Val; Met; Ala; Phe
Lys (K)	Arg; Gln; Asn

Original Residue	Exemplary conservative amino acid Substitutions
Met (M)	Leu; Phe; Ile
Phe (F)	Trp; Leu; Val; Ile; Ala; Tyr
Pro (P)	Ala
Ser (S)	Thr
Thr (T)	Val; Ser
Trp (W)	Tyr; Phe
Tyr (Y)	Trp; Phe; Thr; Ser
Val (V)	Ile; Leu; Met; Phe; Ala

Amino acids may be grouped according to common side-chain properties:

- hydrophobic: Norleucine, Met, Ala, Val, Leu, Ile;
- neutral hydrophilic: Cys, Ser, Thr, Asn, Gln;
- acidic: Asp, Glu;
- basic: His, Lys, Arg;
- residues that influence chain orientation: Gly, Pro;
- aromatic: Trp, Tyr, Phe.

In certain embodiments, non-conservative substitutions will entail exchanging a member of one of these classes for another class.

5. *Anti-FcRL5 Antibodies that Cross-compete for Binding to FcRL5 with Anti-FcRL5 Antibodies of the Invention*

The present application provides antibodies that cross-compete with any of the disclosed anti-FcRL5 antibodies for binding to FcRL5 (*e.g.*, human FcRL5). The present application further provides antibodies that cross-compete with any of the disclosed anti-FcRL5 antibodies for binding to domain 7, domain 8 or domain 9 of FcRL5 (*e.g.*, domain 7, domain 8 or domain 9 of human FcRL5). For example, and not by way of limitation, the cross-competing antibodies can bind to the same epitope region, *e.g.*, same epitope, adjacent epitope or overlapping epitope as any of the anti-FcRL5 antibodies of the presently disclosed subject matter. In certain embodiments, the epitope is present within an immunoglobulin (Ig)-like domain of FcRL5, *e.g.*, within domain 1, domain 2, domain 3, domain 4, domain 5, domain 6, domain 7, domain 8 or domain 9 of FcRL5 (*see* Figure 3A and 3C). In certain embodiments, the epitope is present within domain 9

of FcRL5. In certain embodiments, the epitope is present within domain 8 of FcRL5. In certain embodiments, the epitope is present within domain 7 of FcRL5.

In certain embodiments, the reference antibody for cross-competition studies can be any one of the anti-FcRL5 antibodies disclosed herein, *e.g.*, ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 antibodies.

Such cross-competing antibodies can be identified based on their ability to cross-compete with any one of the presently disclosed anti-FcRL5 antibodies in standard FcRL5 binding assays. For example, Biacore analysis, ELISA assays or flow cytometry can be used to demonstrate cross-competition with the antibodies of the presently disclosed subject matter. The ability of a test antibody to inhibit the binding of, for example, any one of the presently disclosed anti-FcRL5 antibodies (*e.g.*, ET200-001, ET200-002, ET200-003, ET200-006, ET200-007, ET200-008, ET200-009, ET200-010, ET200-011, ET200-012, ET200-013, ET200-014, ET200-015, ET200-016, ET200-017, ET200-018, ET200-019, ET200-020, ET200-021, ET200-022, ET200-023, ET200-024, ET200-025, ET200-026, ET200-027, ET200-028, ET200-029, ET200-030, ET200-031, ET200-032, ET200-033, ET200-034, ET200-035, ET200-037, ET200-038, ET200-039, ET200-040, ET200-041, ET200-042, ET200-043, ET200-044, ET200-045, ET200-069, ET200-078, ET200-079, ET200-081, ET200-097, ET200-098, ET200-099, ET200-100, ET200-101, ET200-102, ET200-103, ET200-104, ET200-105, ET200-106, ET200-107, ET200-108, ET200-109, ET200-110, ET200-111, ET200-112, ET200-113, ET200-114, ET200-115, ET200-116, ET200-117, ET200-118, ET200-119, ET200-120, ET200-121, ET200-122, ET200-123, ET200-125, ET200-005 and ET200-124 antibodies) to human FcRL5 demonstrates that the test antibody can compete with any one of the presently

disclosed anti-FcRL5 antibodies for binding to human FcRL5 and thus binds to the same epitope region on human FcRL5 as any one of the presently disclosed anti-FcRL5 antibodies. In certain embodiments, the cross-competing antibody binds to the same epitope on human FcRL5 as any one of the presently disclosed anti-FcRL5 antibodies.

In a non-limiting example of a competition assay, immobilized antigen, *e.g.*, a human FcRL5 polypeptide, can be incubated in a solution comprising a first labeled antibody that binds to the antigen and a second unlabeled antibody that is being tested for its ability to compete with the first antibody for binding to the antigen. In certain embodiments, the second antibody can be present in a hybridoma supernatant. As a control, immobilized antigen is incubated in a solution comprising the first labeled antibody but not the second unlabeled antibody. After incubation under conditions permissive for binding of the first antibody to the antigen, excess unbound antibody is removed, and the amount of label associated with immobilized antigen is measured. If the amount of label associated with immobilized antigen is substantially reduced, *e.g.*, greater than about 50%, in the test sample relative to the control sample, then that indicates that the second antibody is competing with the first antibody for binding to the antigen. *See* Harlow and Lane (1988) *Antibodies: A Laboratory Manual* ch.14 (Cold Spring Harbor Laboratory, Cold Spring Harbor, NY).

In certain embodiments, an antibody that cross-competes with any one of the presently disclosed anti-FcRL5 antibodies has a K_d of 5×10^{-7} M or less, 1×10^{-7} M or less, 5×10^{-8} M or less, 1×10^{-8} M or less, 5×10^{-9} M or less, 1×10^{-9} M or less, 5×10^{-10} M or less, or 1×10^{-10} M or less.

6. Characterization of Antibody Binding to Antigen

Antibodies of the presently disclosed subject can be tested for binding to FcRL5 by, for example, standard ELISA. To determine if the selected anti-FcRL5 antibodies bind to unique epitopes, each antibody can be biotinylated using commercially available reagents (Pierce, Rockford, IL). Competition studies using unlabeled monoclonal antibodies and biotinylated monoclonal antibodies can be performed using FcRL5 coated-ELISA plates as described above. Biotinylated mAb binding can be detected with a strep-avidin-alkaline phosphatase probe.

To determine the isotype of purified antibodies, isotype ELISAs can be performed using reagents specific for antibodies of a particular isotype. Anti-FcRL5 human IgGs can be further tested for reactivity with FcRL5 antigen by Western blotting.

In certain embodiments, K_d is measured by a radiolabeled antigen binding assay (RIA). In certain embodiments, an RIA is performed with the Fab version of an antibody of interest and its antigen. For example, solution binding affinity of Fabs for antigen is measured by equilibrating Fab with a minimal concentration of (^{125}I)-labeled antigen in the presence of a titration series of unlabeled antigen, then capturing bound antigen with an anti-Fab antibody-coated plate (*see*, *e.g.*, Chen et al., *J. Mol. Biol.* 293:865-881(1999)).

In certain embodiments, K_d is measured using a BIACORE® surface plasmon resonance assay. For example, an assay using BIACORE®-2000 or a BIACORE ®-3000 (Biacore, Inc., Piscataway, NJ) is described in the Biacore Assay Handbook (2012) available at http://www.gelifesciences.com.

In certain embodiments, an antibody or an antigen-binding fragment thereof of the present disclosure binds to a human FcRL5 polypeptide comprising the amino acid sequence set forth in SEQ ID NO: 899. In certain embodiments, an antibody or an antigen-binding fragment thereof of the present disclosure binds to an epitope in domain 9 (*e.g.*, comprising amino acids 754-835 of SEQ ID NO:899). In certain embodiments, an antibody or an antigen-binding fragment thereof of the present disclosure binds to an epitope in domain 8 (*e.g.*, comprising amino acids 658-731 of SEQ ID NO:899). In certain embodiments, an antibody or an antigen-binding fragment thereof of the presently disclosed subject matter binds to an epitope within domain 9 comprising amino acids 829-840 of SEQ ID NO:899. In certain embodiments, an antibody or an antigen-binding fragment thereof of the presently disclosed subject matter binds to an epitope within domain 8 comprising amino acids 657-667 of SEQ ID NO:899. For example, and not by way of limitation, an antibody or an antigen-binding fragment thereof of the present disclosure binds to an epitope comprising the amino acid sequence RSETVTLYITGL (SEQ ID NO:915). In certain embodiments, In certain embodiments, an antibody or an antigen-binding fragment thereof of the present disclosure binds to an epitope comprising the amino acid sequence SRPILTFRAPR (SEQ ID NO:916).

7. <u>Immunoconjugates</u>

The presently disclosed subject provides an anti-FcRL5 antibody, or a antigen-binding fragment thereof, conjugated to a therapeutic moiety (*e.g.*, agent), such as a cytotoxin, a drug (*e.g.*, an immunosuppressant) or a radiotoxin. Such conjugates are referred to herein as "immunoconjugates." Immunoconjugates that include one or more

cytotoxins are referred to as "immunotoxins." A cytotoxin or cytotoxic agent includes any agent that is detrimental to (*e.g.*, kills) cells. Non-limiting examples of cytotoxic agents include taxol (such as ricin, diphtheria and gelonin), cytochalasin B, gramicidin D, ethidium bromide, emetine, mitomycin, etoposide, tenoposide, vincristine, vinblastine, colchicin, doxorubicin, daunorubicin, dihydroxy anthracin dione, mitoxantrone, mithramycin, actinomycin D, 1-dehydrotestosterone, glucocorticoids, procaine, tetracaine, lidocaine, propranolol, and puromycin and analogs or homologs thereof. Therapeutic agents also include, for example, calecheamicin, aureastatin, antimetabolites (*e.g.*, methotrexate, 6-mercaptopurine, 6-thioguanine, cytarabine, 5-fluorouracil decarbazine), alkylating agents (*e.g.*, mechlorethamine, thioepa chlorambucil, melphalan, carmustine (BSNU) and lomustine (CCNU), cyclothosphamide, busulfan, dibromomannitol, streptozotocin, mitomycin C, and cis-dichlorodiamine platinum (II) (DDP) cisplatin), anthracyclines (*e.g.*, daunorubicin (formerly daunomycin) and doxorubicin), antibiotics (*e.g.*, dactinomycin (formerly actinomycin), bleomycin, mithramycin, and anthramycin (AMC)), and anti-mitotic agents (*e.g.*, vincristine and vinblastine).

Other examples of therapeutic cytotoxins that can be conjugated to an anti-FcRL5 antibody or antigen-binding fragment thereof disclosed herein include duocarmycins, calicheamicins, maytansines and auristatins, and derivatives thereof. An example of a calicheamicin antibody conjugate is commercially available (Mylotarg™; Wyeth-Ayerst).

Cytoxins can be conjugated to anti-FcRL5 antibody disclosed herein using linker technology available in the art. Examples of linker types that have been used to conjugate a cytotoxin to an antibody include, but are not limited to, hydrazones, thioethers, esters, disulfides and peptide-containing linkers. A linker can be chosen that is, for example, susceptible to cleavage by low pH within the lysosomal compartment or susceptible to cleavage by proteases, such as proteases preferentially expressed in tumor tissue such as cathepsins (*e.g.*, cathepsins B, C, D). For further discussion of types of cytotoxins, linkers and methods for conjugating therapeutic agents to antibodies, see also Saito, G. et al. (2003) Adv. Drug Deliv. Rev. 55:199-215; Trail, P.A. et al. (2003) Cancer Immunol. Immunother. 52:328-337; Payne, G. (2003) Cancer Cell 3:207-212; Allen, T.M. (2002) Nat. Rev. Cancer 2:750-763; Pastan, I. and Kreitman, R. J. (2002) Curr.

Opin. Investig. Drugs 3:1089-1091; Senter, P.D. and Springer, C.J. (2001) Adv. Drug Deliv. Rev. 53:247-264.

Anti-FcRL5 antibodies of the presently disclosed subject matter also can be conjugated to a radioactive isotope to generate cytotoxic radiopharmaceuticals, also referred to as radioimmunoconjugates. Examples of radioactive isotopes that can be conjugated to antibodies for use diagnostically or therapeutically include, but are not limited to, ^{90}Y, ^{131}I, ^{225}Ac, ^{213}Bi, ^{223}Ra and ^{227}Th. Methods for preparing radioimmunconjugates are established in the art. Examples of radioimmunoconjugates are commercially available, including Zevalin™ (IDEC Pharmaceuticals) and Bexxar™ (Corixa Pharmaceuticals), and similar methods can be used to prepare radioimmunoconjugates using the antibodies of the invention.

The antibody conjugates of the presently disclosed subject matter can be used to modify a given biological response, and the drug moiety is not to be construed as limited to classical chemical therapeutic agents. For example, the drug moiety may be a protein or polypeptide possessing a desired biological activity. Such proteins may include, for example, an enzymatically active toxin, or active fragment thereof, such as abrin, ricin A, pseudomonas exotoxin, or diphtheria toxin; a protein such as tumor necrosis factor (TNF) or interferon-γ; or, biological response modifiers such as, for example, lymphokines, interleukin-1 ("IL-1"), interleukin-2 ("IL-2"), interleukin-6 ("IL-6"), granulocyte macrophage colony stimulating factor ("GM-CSF"), granulocyte colony stimulating factor ("G-CSF"), or other growth factors.

Techniques for conjugating such therapeutic moieties to antibodies are well known, *see*, *e.g.*, Arnon et al., "Monoclonal Antibodies For Immunotargeting Of Drugs In Cancer Therapy," in Monoclonal Antibodies And Cancer Therapy, Reisfeld et al. (eds.), pp. 243-56 (Alan R. Liss, Inc. 1985); Hellstrom et al., "Antibodies For Drug Delivery", in Controlled Drug Delivery (2nd Ed.), Robinson et al. (eds.), pp. 623-53 (Marcel Dekker, Inc. 1987); Thorpe, "Antibody Carriers Of Cytotoxic Agents In Cancer Therapy: A Review," in Monoclonal Antibodies '84: Biological And Clinical Applications, Pinchera et al. (eds.), pp. 475-506 (1985); "Analysis, Results, And Future Prospective Of The Therapeutic Use Of Radiolabeled Antibody In Cancer Therapy," in Monoclonal Antibodies For Cancer Detection And Therapy, Baldwin et al. (eds.), pp. 303-16 (Academic Press 1985), and Thorpe et al., "The Preparation And Cytotoxic Properties Of Antibody-Toxin Conjugates," Immunol. Rev., 62:119-58 (1982).

8. Bispecific Molecules

The presently disclosed subject matter provides bispecific molecules comprising an anti-FcRL5 antibody or a fragment thereof disclosed herein. An antibody of the presently disclosed subject matter, or antigen-binding fragments thereof, can be derivatized or linked to another functional molecule, *e.g.*, another peptide or protein (*e.g.*, another antibody or ligand for a receptor) to generate a bispecific molecule that binds to at least two different binding sites or target molecules. The antibody of the presently disclosed subject matter can in fact be derivatized or linked to more than one other functional molecule to generate multispecific molecules that bind to more than two different binding sites and/or target molecules; such multispecific molecules are also intended to be encompassed by the term "bispecific molecule" as used herein. To create a bispecific molecule, a presently disclosed anti-FcRL5 antibody can be functionally linked (*e.g.*, by chemical coupling, genetic fusion, noncovalent association or otherwise) to one or more other binding molecules, such as another antibody, antibody fragment, peptide or binding mimetic, such that a bispecific molecule results.

The presently disclosed subject matter provides bispecific molecules comprising at least a first binding specificity for FcRL5 and a second binding specificity for a second target epitope. The second target epitope can be a FcRL5 epitope, or a non-FcRL5 epitope, *e.g.*, a different antigen. In certain embodiments, the bispecific molecule is multispecific, the molecule can further include a third binding specificity. Where a first portion of a bispecific antibody binds to an antigen on a tumor cell for example and a second portion of a bispecific antibody recognizes an antigen on the surface of a human immune effector cell, the antibody is capable of recruiting the activity of that effector cell by specifically binding to the effector antigen on the human immune effector cell. In certain embodiments, bispecific antibodies, therefore, are able to form a link between effector cells, for example, T cells and tumor cells, thereby enhancing effector function. In certain embodiments, a bispecific antibody of the present disclosure comprises at least a first binding to FcRL5 and at least a second binding to an immune cell. For example, and not by way of limitation, a bispecific antibody of the present disclosure comprises at least a first binding to FcRL5 and at least a second binding to a receptor present on the surface of an immune cell, *e.g.*, CD3.

The bispecific molecules of the presently disclosed subject matter can be prepared by conjugating the constituent binding specificities using methods known in the

art. For example, each binding specificity of the bispecific molecule can be generated separately and then conjugated to one another. When the binding specificities are proteins or peptides, a variety of coupling or cross-linking agents can be used for covalent conjugation. Examples of cross-linking agents include protein A, carbodiimide, N-succinimidyl-S-acetyl-thioacetate (SATA), 5, 5'-dithiobis(2-nitrobenzoic acid) (DTNB), o-phenylenedimaleimide (oPDM), N-succinimidyl-3-(2-pyridyldithio)propionate (SPDP), and sulfosuccinimidyl 4-(N-maleimidomethyl) cyclohaxane-1-carboxylate (sulfo-SMCC) (*see*, *e.g.*, Karpovsky et al. (1984) J. Exp. Med. 160:1686; Liu, MA et al. (1985) Proc. Natl. Acad. Sci. USA 82:8648). Other methods include those described in Paulus (1985) Behring Ins. Mitt. No. 78, 118-132; Brennan et al. (1985) Science 229:81-83), and Glennie et al. (1987) J. Immunol. 139: 2367-2375). Preferred conjugating agents are SATA and sulfo-SMCC, both available from Pierce Chemical Co. (Rockford, IL).

When the binding specificities are antibodies, they can be conjugated via sulfhydryl bonding of the C-terminus hinge regions of the two heavy chains. In one non-limiting embodiment, the hinge region is modified to contain an odd number of sulfhydryl residues, preferably one, prior to conjugation.

Alternatively, both binding specificities can be encoded in the same vector and expressed and assembled in the same host cell. This method is particularly useful where the bispecific molecule is a mAb x mAb, mAb x Fab, Fab x $F(ab')_2$ or ligand x Fab fusion protein.

Binding of the bispecific molecules to their specific targets can be confirmed by, for example, enzyme-linked immunosorbent assay (ELISA), radioimmunoassay (RIA), FACS analysis, bioassay (*e.g.*, growth inhibition), or Western Blot assay. Each of these assays generally detects the presence of protein-antibody complexes of particular interest by employing a labeled reagent (*e.g.*, an antibody) specific for the complex of interest. Alternatively, the complexes can be detected using any of a variety of other immunoassays. For example, the antibody can be radioactively labeled and used in a radioimmunoassay (RIA) (see, for example, Weintraub, B., Principles of Radioimmunoassays, Seventh Training Course on Radioligand Assay Techniques, The Endocrine Society, March, 1986, which is incorporated by reference herein). The radioactive isotope can be detected by such means as the use of a γ counter or a scintillation counter or by autoradiography.

9. Selecting a high affinity ScFv against a FcRL5 polypeptide

Phage display technology allows the selection of phage that bind to the target antigen of interest with high affinity from phage in a human phage display library that either does not bind or that binds with lower affinity. This is accomplished by iterative binding of phage to the antigen, which is bound to a solid support, for example, beads or mammalian cells followed by removal of non-bound phage and by elution of specifically bound phage. In certain embodiments, antigens are first biotinylated for immobilization to, for example, streptavidin-conjugated Dynabeads M-280. The phage library is incubated with the cells, beads or other solid support and non-binding phage is removed by washing. Clones that bind are selected and tested.

Once selected, positive scFv clones are further tested for their binding to FcRL5 (*e.g.*, human FcRL5) on live 3T3 cell surfaces by flow cytometry. Briefly, phage clones are incubated with 3T3 cells over-expressing FcRL5. The cells are washed and then incubated with a mouse anti-M13 coat protein mAb. Cells are washed again and labeled with a PE-horse anti-mouse Ig prior to flow cytometry.

In certain embodiments, binding selectively for FcRL5 can be further confirmed by testing whether the positive scFv clones do not bind to other members of the FcRL family, such as, but not limited to, FcRL1, FcRL2, FcRL3, FcRL4 or FcRL6 and SLAMF9.

In other non-limiting embodiments, the anti-FcRL5 antibodies can comprise one or more framework region amino acid substitutions designed to improve protein stability, antibody binding, expression levels or to introduce a site for conjugation of therapeutic agents. These scFv are then used to produce recombinant human monoclonal IgGs in accordance with methods known to those of skill in the art.

10. Engineering full length mAb using the selected ScFv fragments

Phage display technology allows for the rapid selection and production of antigen-specific scFv and Fab fragments, which are useful in and of themselves, or which can be further developed to provide complete antibodies, antigen binding proteins or antigen binding fragments thereof. Complete mAbs with Fc domains have a number of advantages over the scFv and Fab antibodies. First, only full length Abs exert immunological function such as CDC and ADCC mediated via Fc domain. Second, bivalent mAbs offer stronger antigen-binding affinity than monomeric Fab Abs. Third, plasma half- life and renal clearance will be different with the Fab and bivalent mAb.

The particular features and advantages of each can be matched to the planned effector strategy. Fourth, bivalent mAb may be internalized at different rates than scFv and Fab, altering immune function or carrier function. Alpha emitters, for example, do not need to be internalized to kill the targets, but many drugs and toxins will benefit from internalization of the immune complex. In one non-limiting embodiment, therefore, once scFv clones specific for FcRL5 were obtained from phage display libraries, a full length IgG mAb using the scFv fragments was produced.

To produce recombinant human monoclonal IgG in Chinese hamster ovary (CHO) cells, a full length IgG mAb can be engineered based on a method known to those of skill in the art (Tomomatsu et al., Production of human monoclonal antibodies against FceRIa by a method combining in vitro immunization with phage display. Biosci Biotechnol Biochem 73(7): 1465-1469 2009). Briefly, antibody variable regions can be subcloned into mammalian expression vectors, with matching Lambda or Kappa light chain constant sequences and IgG1 subclass Fc (for example) (Lidija P, et al. An integrated vector system for the eukaryotic expression of antibodies or their fragments after selection from phage display libraries. Gene 1997; 187(1): 9-18; Lisa JH, et al. Crystallographic structure of an intact lgG1 monoclonal antibody. Journal of Molecular Biology 1998; 275 (5): 861-872). Kinetic binding analysis (Yasmina NA, et al. Probing the binding mechanism and affinity of tanezumab, a recombinant humanized anti-NGF monoclonal antibody, using a repertoire of biosensors. Protein Science 2008; 17(8): 1326-1335) can be used to confirm specific binding of full length IgG to FcRL5, with a K_d in nanomolar range.

Pharmaceutical Compositions and Methods of Treatment

Anti-FcRL5 antibodies or antigen-binding fragments thereof, *e.g.*, scFvs, of the presently disclosed subject matter can be administered for therapeutic treatments to a patient suffering from a cancer (*e.g.*, multiple myeloma) in an amount sufficient to prevent, inhibit or reduce the progression of the cancer. Progression includes, *e.g.*, the growth, invasiveness, metastases and/or recurrence of the cancer, *e.g.*, tumor. In certain embodiments, the method can include administering to a subject an effective amount of an anti-FcRL5 antibody or antigen-binding fragment thereof (or a pharmaceutical composition thereof) to produce an anti-cancer effect in the subject. Amounts effective for this use will depend upon the severity of the disease and the general state of the patient's own immune system. Dosing schedules will also vary with the disease state and

status of the patient, and will typically range from a single bolus dosage or continuous infusion to multiple administrations per day (*e.g.*, every 4-6 hours), or as indicated by the treating physician and the patient's condition.

An "anti-cancer effect" means one or more of: a reduction in aggregate cancer cell mass, a reduction in cancer cell growth rate, a reduction in cancer cell proliferation, a reduction in tumor mass, a reduction in tumor volume, a reduction in tumor cell proliferation, a reduction in tumor growth rate or a reduction in tumor metastasis. In certain embodiments, the anti-cancer effect is a reduction in the number of cancer cells. In certain embodiments, where the cancer is a solid tumor, an anti-cancer effect can be a reduction in tumor size and/or a reduction in the rate of tumor growth. In certain embodiments, the anti-cancer effect is a reduction in the aggregate cancer cell burden. In certain embodiments, the anti-cancer effect is a reduction in the rate of cell proliferation and/or an increase in the rate of cell death. In certain embodiments, the anti-cancer effect is a prolongation of survival. In certain embodiments, the anti-cancer effect is a prolongation in the interval until relapse.

The identification of medical conditions treatable by anti-FcRL5 antibodies of the presently disclosed subject matter is well within the ability and knowledge of one skilled in the art. For example, human individuals who are either suffering from multiple myeloma or who are at risk of developing multiple myeloma are suitable for administration of the presently disclosed anti-FcRL5 antibodies. A clinician skilled in the art can readily determine, for example, by the use of clinical tests, physical examination and medical/family history, if an individual is a candidate for such treatment.

In certain embodiments, the presently disclosed subject matter provides a method of treating a cancer, *e.g.*, a tumor, by administering a presently disclosed anti-FcRL5 antibody and, optionally, in combination with one or more other agents. "In combination with" or "in conjunction with," as used interchangeably herein, means that the anti-FcRL5 antibody and the other agent are administered to a subject as part of a treatment regimen or plan. In certain embodiments, being used in combination does not require that the anti-FcRL5 antibody and the other agent are physically combined prior to administration or that they be administered over the same time frame. For example, and not by way of limitation, the anti-FcRL5 antibody and the other agent can be administered concurrently to the subject being treated, or can be administered at the

same time or sequentially in any order or at different points in time. In certain embodiments, the presently disclosed subject matter provides a method of treating a cancer by administering a presently disclosed anti-FcRL5 antibody with an anti-neoplastic agent. The anti-FcRL5 antibody can be chemically or biosynthetically linked to one or more of the antineoplastic agents.

Non-limiting examples of suitable cancers that can be treated with the disclosed antibodies or antigen-binding fragments thereof include multiple myeloma, Non-Hodgkin Lymphoma (*e.g.*, Mantle Cell), Hodgkin Lymphoma, Chronic Lymphocytic Leukemia (CLL), Acute lymphocytic leukemia (ALL), Hairy Cell Leukemia, Burketts Lymphoma and Waldenstrom's Macroglobulinemia. In certain embodiments, the cancer is multiple myeloma.

Any suitable method or route can be used to administer a presently disclosed anti-FcRL5 antibody, and optionally, to coadminister antineoplastic agents. Routes of administration include, for example, oral, intravenous, intraperitoneal, subcutaneous, or intramuscular administration. It should be emphasized, however, that the presently disclosed subject matter is not limited to any particular method or route of administration.

It is noted that presently disclosed anti-FcRL5 antibodies can be administered as a conjugate, which binds specifically to the receptor and delivers a toxic, lethal payload following ligand-toxin internalization.

The anti-FcRL5 antibodies of the presently disclosed subject matter can be administered in the form of a composition additionally comprising a pharmaceutically acceptable carrier. Suitable pharmaceutically acceptable carriers include, for example, one or more of water, saline, phosphate buffered saline, dextrose, glycerol, ethanol and the like, as well as combinations thereof. Pharmaceutically acceptable carriers may further comprise minor amounts of auxiliary substances such as wetting or emulsifying agents, preservatives or buffers, which enhance the shelf life or effectiveness of the binding proteins. The compositions of the injection can, as is well known in the art, be formulated so as to provide quick, sustained or delayed release of the active ingredient after administration to the mammal.

The presently disclosed subject matter also provides use of antibodies and nucleic acids that encode them for treatment of a cancer (*e.g.*, multiple myeloma), for diagnostic and prognostic applications as well as use as research tools for the detection of FcRL5 in

cells and tissues. Pharmaceutical compositions comprising the disclosed antibodies and nucleic acids are encompassed by the presently disclosed subject matter. Vectors comprising the nucleic acids of the presently disclosed subject matter for antibody-based treatment by vectored immunotherapy are also contemplated by the presently disclosed subject matter. Vectors include expression vectors which enable the expression and secretion of antibodies, as well as vectors which are directed to cell surface expression of the antigen binding proteins, such as chimeric antigen receptors.

In certain embodiments, the nucleic acid sequences encoding the presently disclosed antibodies (provided in Tables 1-228) can be inserted into a vector for expression, *e.g.*, within a cell. Cells comprising such nucleic acids, for example cells that have been transfected with the vectors of the invention, are also encompassed by the presently disclosed subject matter.

Kits

The presently disclosed subject matter provides kits for the treatment or prevention of a cancer (*e.g.*, multiple myeloma). In certain embodiments, the kit comprises a therapeutic composition containing an effective amount of an anti-FcRL5 antibody in unit dosage form. In certain embodiments, the kit can further comprise one or more other agents In certain embodiments, the kit comprises a sterile container which contains a therapeutic composition; such containers can be boxes, ampules, bottles, vials, tubes, bags, pouches, blister-packs, or other suitable container forms known in the art. Such containers can be made of plastic, glass, laminated paper, metal foil, or other materials suitable for holding medicaments.

In certain embodiments, the anti-FcRL5 antibody or antigen-binding fragment thereof is provided together with instructions for administration to a subject having or at risk of developing a cancer (*e.g.*, multiple myeloma). The instructions will generally include information about the use of the composition for the treatment or prevention of a cancer (*e.g.*, multiple myeloma). In other embodiments, the instructions include at least one of the following: description of the therapeutic agent; dosage schedule and administration for treatment or prevention of a neoplasia (*e.g.*, multiple myeloma) or symptoms thereof; precautions; warnings; indications; counter-indications; overdosage information; adverse reactions; animal pharmacology; clinical studies; and/or references. The instructions may be printed directly on the container (when present), or as a label

applied to the container, or as a separate sheet, pamphlet, card, or folder supplied in or with the container.

Analysis and Production Methods

Flow cytometry analysis. For cell surface staining, cells can be incubated with appropriate mAbs for 30 minutes on ice, washed, and incubated with secondary antibody reagents when necessary. Flow cytometry data can be collected on a FACS Calibur (Becton Dickinson) and analyzed with FlowJo V8.7.1 and 9.4.8 software.

Selection and characterization of scFvs specific for FcRL5. A human scFv antibody phage display library can be used for the selection of mAb clones. In certain embodiments, phage display selection against FcRL5 can be conducted using a cell panning strategy with 31 human scFv naïve and semi-synthetic phage sub-libraries. FcRL5 overexpressing 3T3 cells can be used in positive panning, and FcRL1, 2, 3, 4 and 6 overexpressing 3T3 cells (5 cell lines in total) can be used in negative panning. Bound clones can then be eluted and used to infect *E. Coli* XL1-Blue. The scFv phage clones expressed in the bacteria can be purified as previously described (Yasmina, et al. Probing the binding mechanism and affinity of tanezumab, a recombinant humanized anti-NGF monoclonal antibody, using a repertoire of biosensors. Protein Science 2008, 17(8):1326-1335; Roberts, et al. Vaccination with CD20 peptides induces a biologically active, specific immune response in mice. Blood 2002, 99(10):3748-3755). Panning can be performed for about 3 to about 4 cycles to enrich scFv phage clones that bind to FcRL5 specifically. Positive clones can be determined by ELISA method against His-tag FcRL5. Positive clones can be further tested for their binding to FcRL5 on live cell surfaces by flow cytometry, using FcRL5-overexpressing cell lines, *e.g.*, 3T3 and/or Raji cells that overexpress FcRL5. The cells can be washed, and the staining can be performed using the following steps: the cells can be first stained with purified scFv phage clones, and followed by staining with a mouse anti-M13 mAb, and finally the horse anti-mouse Ig's conjugate to PE. Each step of the staining can be done between 30-60 minutes on ice and the cells were washed twice between each step of the staining. In certain embodiments, the positive clones can be further characterized for specific binding to domain 9 of FcRL5 using cells, *e.g.*, 3T3 cells, that overexpress FcRL5 that has a domain 9 deletion (FcRL5Δdom9).

Engineering full length mAb using the selected ScFv fragments. Full-length human IgG of the selected phage clones can be produced in HEK293 and Chinese

hamster ovary (CHO) cell lines, as described (Caron PC, Class K, Laird W, Co MS, Queen C, Scheinberg DA. Engineered humanized dimeric forms of IgG are more effective antibodies. J Exp Med 176:1 191 -1 195. 1992). In brief, antibody variable regions can be subcloned into mammalian expression vectors, with matching human lambda or kappa light chain constant region and human lgG constant region sequences. Molecular weight of the purified full length IgG antibodies can be measured under both reducing and non-reducing conditions by electrophoresis.

Characterization of the full-length human IgG for FcRL5. Initially, specificities of the fully human IgG mAbs for the FcRL5 can be determined by staining 3T3 cells transduced to overexpress FcRL5, followed by secondary goat anti-human IgG mAb conjugate to PE or FITC. The fluorescence intensity can be measured by flow cytometry. The same method can be used to determine the binding of the mAbs to fresh tumor cells and cell lines.

Antibody-dependent cellular cytotoxicity (ADCC). Target cells used for ADCC can be 3T3 cells over-expressing FcRL5. Anti-FcRL5 antibody or its control human IgG at various concentrations can be incubated with target cells and fresh PBMCs at different effector:target (E:T) ratio for 16 hrs. The supernatant can be harvested and the cytotoxicity can be measured by LDH release assay using Cytotox 96 nonradioactive kit from Promega following their instruction. Cytotoxicity can also be measured by standard 4 hours 51 Cr-release assay.

Exemplary anti-FcRL5 Antibodies

Table 1

ET200-001
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) Cagtctgtgttgacgcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcag ctccaacatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaat aatcagcggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtggg ctccagtctgaggatgaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactggga ccaaggtcaccgtcctaggt [SEQ ID NO: 1] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctacagcagtggggcgcaggactgttgaagccttcggagaccctgccctcacctgcgctgtgt atggtgggtccttcagtggttactactggagctggatccgccagcccccagggaaggggctggagtggattgg ggaaatcaatcatagtggaagcaccaactacaacccgtccctcaagagtcgagtcaccatatcagtagacac gtccaagaaccagttctccctgaagctgagctctgtgaccgccgcggacacggccgtgtattactgtgcgcgcg aaggtccgtacgacggtttcgattcttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 2] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATAC CCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSN NQRPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFG TGTKVTVLG [SEQ ID NO: 3] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLE WIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYC AREGPYDGFDSWGQGTLVTVSS** [SEQ ID NO: 4] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 2

ET200-002
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) Aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagt ggcagcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgagg ataaccaaagaccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatc tctggactgaagactgaggacgaggctgactactactgtcagtcttatgatagcagcaattctgtggtattcggcggag ggaccaagctgaccgtcctaggt [SEQ ID No. 5] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtccagctggtacagtctggcactgaggtgaagaagcctggggcctcagtgagggtcgcctgcaaggctt ctggttacccctttaacaaatatgacatcaactgggtgcgacaggcccctggacaagggcttgagtggatggg aggcatcatccctatctttcgtacaacaaactacgcacagaagttcagggcagagtcacgattaccgcggac gaatccacgagcacagcctacatggagctgagcagcctgagatctgaggacacggccgtatattactgtgcgc gcgaatggttctactgggatatctggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 6] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATAC CCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYE DNQRPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNSVVFG GGTKLTVLG [SEQ ID NO: 7] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGTEVKKPGASVRVACKASGYPFNKYDINWVRQAPGQGLE WMGGIIPIFRTTNYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVY YCAREWFYWDIWGQGTLVTVSS** [SEQ ID NO: 8] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 3

ET200-003
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgactcagccaccctcagtgtccgtgtccccaggacagacagccagcatctcctgctctggaaataaattgggg gactaagtatgtttactggtatcagaagaggccaggccagtcccctgtgttggtcatgtatgaagataatcagcggccctcag ggatcccggagcggttctctggctccaactctgggaacacagccactctgaccatcagagggacccagactgtggatgag gctgactattactgtcaggcgtgggactccgacactttcgtggtcttcggcggagggaccaaggtcaccgtcctaggt [SEQ ID NO: 9] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagaccgggggaggcgtggtccagcctgggaggtccctgagactctcctgtgcagcctctg gattcaccttcagtagttatggcatgcactgggtccgccaggctccaggcaaggggctggagtgggtggcagttatat cacatgatggaagtaataaatactacgcagactccgtgaagggccgattcaccatctccagagacaattccaagga cacgctgtatctgcaaatgaacagcctgagaggtgaggacacggccgtatattactgtgcgcgctctaaccagtggt ctggttacttctctttcgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 10] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSVSPGQTASISCSGNKLGTKYVYWYQKRPGQSPVLVMYEDNQ RPSGIPERFSGSNSGNTATLTIRGTQTVDEADYYCQAWDSDTFVVFGGGTKVT VLG [SEQ ID NO: 11] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVETGGGVVQPGRSLRLSCAASGFTFSSYGMHWVRQAPGKGLEWV AVISHDGSNKYYADSVKGRFTISRDNSKDTLYLQMNSLRGEDTAVYYCAR SNQWSGYFSFDYWGQGTLVTVSS** [SEQ ID NO: 12] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 4

ET200-006
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtggtggtcatccattatgatagcgaccggcc ctcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccgggg atgaggccgactattactgtcaggtgtgggatagtagtagtgatcatccttatgtcttcggaactgggaccaaggtcaccgtcc taggt [SEQ ID NO: 13] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccacctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcaa cacttacaatggtcacacaaactatgcacagaagctccagggcagagccacaatgaccgcagacacatccacgaa cacagcctacatggagctgaggagcctgagatctgacgacactgccgtgtattactgtgcgcgcgttatctacggttct ggtgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 14] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVVVIHYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHPYVFGTGTKV TVLG [SEQ ID NO: 15] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGASVKVSCKASGYTFTTYGISWVRQAPGQGLEWM GWINTYNGHTNYAQKLQGRATMTADTSTNTAYMELRSLRSDDTAVYYC ARVIYGSGDYWGQGTLVTVSS** [SEQ ID NO: 16] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 5

ET200-007
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgtgctgactcagccactctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaactgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatg aggccgactattactgtcaggtgtgggatagtagtagtgatcatcgggtgttcggcggagggaccaagctgaccgtcctagg t [SEQ ID NO: 17] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctgcaggagtcgggcccaggactggtgaagccttcggagaccctgccctcacctgcaatgtctctggt tactccatcagcagtggttacttttggggctggatccggcagcccccagggaaggggctggagtggattgggagtat ctatcatagtaggagcacctactacaacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaacc agttctccctgaagctgaactctgtgaccgccgcagacacggccgtgtattactgtgcgcgcggttacggttacttcga ttactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 18] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYVLTQPLSVSVAPGKTARITCGGNNIGSKTVHWYQQKPGQAPVLVIYYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHRVFGGGTKLT VLG [SEQ ID NO: 19] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQESGPGLVKPSETLSLTCNVSGYSISSGYFWGWIRQPPGKGLEWIG SIYHSRSTYYNPSLKSRVTISVDTSKNQFSLKLNSVTAADTAVYYCARGYG YFDYWGQGTLVTVSS** [SEQ ID NO: 20] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 6

ET200-008
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caatctgccctgactcagcctgcctccgtgtctgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtgacgttggtggttataactatgtctcctggtaccaacaacacccaggcaaagcccccaaactcatgatttatgatgtcagtaatcggccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggacgaggctgattattactgcagctcatatacaagcagcagcacttcgaaggtgttcggcggagggaccaagctgaccgtcctaggt [SEQ ID NO: 21] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctgggggaggtgtggtacggcctgggggtccctgagactctcctgtgcagcctctggattcacctttggtgattatggcatgagctgggtccgccaagctccagggaaggggctggagtgggtctctggtattaattggaatggtggtagcacaggttatgcagactctgtgaagggccgattcaccatctccagagacaacgccaagaactcctgtatctgcaaatgaacagtctgagagccgaggacacggccgtatattactgtgcgcgctctaaatacaacttccatgtttactacgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 22] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSALTQPASVSGSPGQSITISCTGTSSDVGGYNYVSWYQQHPGKAPKLMIYDVSNRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYTSSSTSKVFGGGTKLTVLG [SEQ ID NO: 23] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGGGVVRPGGSLRLSCAASGFTFGDYGMSWVRQAPGKGLEWVSGINWNGGSTGYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTAVYYCARSKYNFHVYYDYWGQGTLVTVSS** [SEQ ID NO: 24] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 7

ET200-009
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccaccctcagcgtctgggacccccgggcagacagtcaccatctcttgttctggaagcaactcca acatcggaagtaattatgtatactggtaccagcagctcccaggaacggcccccaaactcctcatctataggaataatcagcgg ccctcaggggtccctgaccgattctcaggctccaagtctggcacctcagcctccctggccatcagtgggctccgctccgagg atgaggctgattattactgtgcagcatgggatgacagcctgagtgcttatgtcttcggaactgggaccaaggtcaccgtccta ggt [SEQ ID NO: 25] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccagctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatca gcgcttacaatggtaacacaaactatgcacagaagctccagggcagagtcaccatgaccacagacacatccacga gcacagcctacatggagctgaggagcctgagatctgacgacactgccgtgtattactgtgcgcgctcttctggtaaca tggtttcttggaaagatatgtggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 26] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSASGTPGQTVTISCSGSNSNIGSNYVYWYQQLPGTAPKLLIYRNNQ RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCAAWDDSLSAYVFGTGTKV TVLG [SEQ ID NO: 27] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWM GWISAYNGNTNYAQKLQGRVTMTTDTSTSTAYMELRSLRSDDTAVYYCA RSSGNMVSWKDMWGQGTLVTVSS** [SEQ ID NO: 28] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 8

ET200-010
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caatctgccctgactcagcctgcctccgtgtctgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtgacgttggtggttataactctgtctcctggtaccaacaacacccaggcaaagcccccagactcatgatttatgatgtcagtaatcggccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggacgaggctgattattactgcagctcatatacaagcagcagcaccccttttagtcttcggaactgggaccaaggtcaccgtcctaggt [SEQ ID NO: 29] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgcacagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatctgacgacacggccgtgtattactgtgcgcgcggtgctgttgcttaccatgattggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 30] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSALTQPASVSGSPGQSITISCTGTSSDVGGYNSVSWYQQHPGKAPRLMIYDVSNRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYTSSSTPLVFGTGTKVTVLG [SEQ ID NO: 31] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAYMELRSLRSDDTAVYYCARGAVAYHDWGQGTLVTVSS** [SEQ ID NO: 32] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 9

ET200-011
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagagggtcaccatctcctgctctggaagcagctcc aacatttcgatttatgatgtatcctggtatcagcagctcccaggaacagcccccaaactcctcatttatggcaataataagcgac cctcggggattgctgaccgattctctggctccacgtctggcacgtcagccaccctgggcatcaccggactccagactgggg acgaggccgattattactgcggaacatgggatgacagtctgagtgggggggtgttcggcggagggaccaagctgaccgtc ctaggt [SEQ ID NO: 33] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **cagatgcagctggtgcaatctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcgaggcttctgg aggcaccctcagcagctatgctatcaactgggtgcgacaggcccctggacaagggcttgagtggatgggagggatc atccctatgtttggtacagcacactacgcacagaagttcagggcagagtcacgattaccgcggacgaatccacgaa aacagcctacatggagctgagcagcctgagatctgaggacactgccgtgtattactgtgcgcgcggtgttcattacgc ttctttcgatcattggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 34] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSAAPGQRVTISCSGSSSNISIYDVSWYQQLPGTAPKLLIYGNNK RPSGIADRFSGSTSGTSATLGITGLQTGDEADYYCGTWDDSLSGGVFGGGTKL TVLG [SEQ ID NO: 35] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QMQLVQSGAEVKKPGSSVKVSCEASGGTLSSYAINWVRQAPGQGLEWM GGIIPMFGTAHYAQKFQGRVTITADESTKTAYMELSSLRSEDTAVYYCAR GVHYASFDHWGQGTLVTVSS** [SEQ ID NO: 36] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 10

ET200-012
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagtgtctgcggccgcaggacagaaggtcaccatctcctgctctggaagcgactcc aacattgggaataattatgtgtcctggtatcaacacctcccagggacagcccccaaactcctcatttatgacgttaaaaatcga ccctcagggattcctgaccggttctccggctccaagtctggctcgtcagccaccctaggcatcgccggactccagcctggg gacgaggccgattattactgcggaacatgggacagtcggctggatgcctatgtcttcggaactgggaccaaggtcaccgtc ctaggt [SEQ ID NO: 37] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **cagatgcagctggtgcaatctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaagacttctgg tttccccttaatatctttggaatcacctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagc ggttacaacggtaacacagactacccacagaagttccagggcagagtcaccatgtccacagacacatccacgagta cagcctacatggagctgaggaacctgaaatctgacgacacggccgtgtattactgtgcgcgcggtgcttacggtggt atggatacttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 38] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSAAAGQKVTISCSGSDSNIGNNYVSWYQHLPGTAPKLLIYDVK NRPSGIPDRFSGSKSGSSATLGIAGLQPGDEADYYCGTWDSRLDAYVFGTGTK VTVLG [SEQ ID NO: 39] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QMQLVQSGAEVKKPGASVKVSCKTSGFPFNIFGITWVRQAPGQGLEWMG WISGYNGNTDYPQKFQGRVTMSTDTSTSTAYMELRNLKSDDTAVYYCAR GAYGGMDTWGQGTLVTVSS** [SEQ ID NO: 40] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 11

ET200-013
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcacctc caacatcggggcaggttatgatgtacactggtatcagcagcttccaggaacagcccccaaactcctcatctatactaacaactt tcggccctcaggggtccctgaccgattctctgcctccaagtctggcacttcagcttccctggccatcactggtctccaggctga ggatgaggctgattattactgcggaacatgggatagcagcctgagtgccgttgtgttcggcggagggaccaagctgaccgt cctaggt [SEQ ID NO: 41] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctggaactgaggtgaagaagcctggggcctcagtgaaagtctcctgcaaggcttctgg ttacatgtttaccagttatggtctcaactgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcag cgctaacaatggtaagacaaattatgctaagaaattccaggacagagtcaccatgaccagagacacttccacgagc acaggctacatggaactgaggagcctgagatctgacgacacggccgtatattactgtgcgcgccatatcggtggttct tacttcgatcgttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 42] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSGAPGQRVTISCTGSTSNIGAGYDVHWYQQLPGTAPKLLIYTN NFRPSGVPDRFSASKSGTSASLAITGLQAEDEADYYCGTWDSSLSAVVFGGGT KLTVLG [SEQ ID NO: 43] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGTEVKKPGASVKVSCKASGYMFTSYGLNWVRQAPGQGLEWM GWISANNGKTNYAKKFQDRVTMTRDTSTSTGYMELRSLRSDDTAVYYCA RHIGGSYFDRWGQGTLVTVSS** [SEQ ID NO: 44] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 12

ET200-014
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccc tcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggat gaggccgactattactgtcaggtgtgggatagtagtagtgatcattatgtcttcggaactgggaccaaggtcaccgtcctaggt [SEQ ID NO: 45] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagactgggggaggcttggtacagcctgggggtccctgagactctcctgtgcagcctctgg attcacctttagcagctatgccatgagctgggtccgccaggctccagggaaggggctggagtgggtctcagctattag tggtagtgatggtagcacatactacgcagactccgtgaagggccggttcaccatctccagagacaattccaagaaca cgctgtatctgcaaatgaacagcctgagagacgaggacacggccgtatattactgtgcgcgctctcatgaagctaac ctggttggtgattggtggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 46] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHYVFGTGTKVT VLG [SEQ ID NO: 47] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVETGGGLVQPGGSLRLSCAASGFTFSSYAMSWVRQAPGKGLEWVS AISGSDGSTYYADSVKGRFTISRDNSKNTLYLQMNSLRDEDTAVYYCARSH EANLVGDWWGQGTLVTVSS** [SEQ ID NO: 48] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 13

ET200-015
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtggtgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccc tcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggat gaggccgactattactgtcaggtgtgggatagtagtagtgatgtggtattcggcggagggaccaagctgaccgtcctaggt [SEQ ID NO: 49] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtacagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccagctacggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatca gcgcttacaatggtaacacaaactatgcacagaagctccagggcagagtcaccatgaccacagacacatccacga gcacagcctacatggagctgaggagcctgagatctgacgacacggccgtgtattactgtgcgcgctggggtggtttc ggtgctgttgatcattggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 50] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDVVFGGGTKLTV LG [SEQ ID NO: 51] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWMG WISAYNGNTNYAQKLQGRVTMTTDTSTSTAYMELRSLRSDDTAVYYCAR WGGFGAVDHWGQGTLVTVSS** [SEQ ID NO: 52] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 14

ET200-016
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcttctgagctgactcaggaccctgctgtgtctgtggccttgggacagacagtcaagatcacgtgccaaggagacagcctca cagactaccatgcaacctggtaccagcagaagccaggacaggcccctgtcgctgtcatctatgctacaaacaaccggccca ctgggatcccagaccgattctctggttccagttccggaaacacagcttctttgaccatcactggggctcaggcggaagatgag gctgactattactgtaattcccgggacagcggcacggacgaagtgttattcggcggagggaccaagctgaccgtcctaggt [SEQ ID NO: 53] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagactgggggaggcctggtcaagcctgggggtccctgagactctcctgtgcagcctctgg attcaccttcagtagctatagcatgaactgggtccgccaggctccagggaaggggctggagtgggtctcatccattag tagtagtagtagttacatatactacgcagactcagtgaagggccgattcaccatctccagagacaacgccaagaact cactgtatctgcaaatgaacagcctgagagccgaggacacggccgtgtattactgtgcgcgcggtcagggttacgat tactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 54] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SSELTQDPAVSVALGQTVKITCQGDSLTDYHATWYQQKPGQAPVAVIYATNN RPTGIPDRFSGSSSGNTASLTITGAQAEDEADYYCNSRDSGTDEVLFGGGTKLT VLG [SEQ ID NO: 55] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVETGGGLVKPGGSLRLSCAASGFTFSSYSMNWVRQAPGKGLEWVS SISSSSSYIYYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTAVYYCARGQ GYDYWGQGTLVTVSS** [SEQ ID NO: 56] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 15

ET200-017
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgtgctgactcagccaccctcggtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcgtctatgatgatagcgaccggcc ctcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgagcatcagcagggtcgaagccggggg atgaggccgactattactgtcaggtgtgggatagtagtagtgatcatactgtcttcggaactgggaccaaggtcaccgtccta ggt [SEQ ID NO: 57] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctacagcagtggggcgcaggactgttgaagccttcggagaccctgccctcacctgcgctgtctatggt gggtccttcagtggttactactggagctggatccgccagcccccagggaaggggctggagtggattggggaaatca atcatagtggaagcaccaactacaacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaacca gttctccctgaagctgagctctgtgaccgccgcggacacggccgtgtattactgtgcgcgctactacccgggtatggat atgtggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 58] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVVYDDSD RPSGIPERFSGSNSGNTATLSISRVEAGDEADYYCQVWDSSSDHTVFGTGTKVT VLG [SEQ ID NO: 59] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIG EINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCARYYPG MDMWGQGTLVTVSS** [SEQ ID NO: 60] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 16

ET200-018
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgctgactcagccgccctcaacgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcc aacatcgggagaaatggtgtaaactggtaccagcagctcccaggagcggcccccaaagtcctcatctataatgataatcagc gaccctcaggggtccctgaccgagtctctggctcccagtctggctcctcaggcaccctggccatcgatgggcttcggtctga ggatgaggctgattattactgtgcggcatgggatgacagcctgcatggtgtggtattcggcggagggaccaagctgaccgtc ctaggt [SEQ ID NO: 61] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtccagctggtacagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggtttccgg atacaccctcaatgaattatccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttga tcctgaagatggtgaaacaatctacgcacagaagttcagggcagagtcaccatgaccgaggacacatctacagac acagcctacatggagctgagcagcctgagatctgaggacactgccgtgtattactgtgcgcgcggtggttacggtgat tcttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 62] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPPSTSGTPGQRVTISCSGSSSNIGRNGVNWYQQLPGAAPKVLIYNDN QRPSGVPDRVSGSQSGSSGTLAIDGLRSEDEADYYCAAWDDSLHGVVFGGGT KLTVLG [SEQ ID NO: 63] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGASVKVSCKVSGYTLNELSMHWVRQAPGKGLEW MGGFDPEDGETIYAQKFQGRVTMTEDTSTDTAYMELSSLRSEDTAVYYC ARGGYGDSWGQGTLVTVSS** [SEQ ID NO: 64] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 17

ET200-019
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaa gaccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaaga ctgaggacgaggctgactactactgtcagtcttatgatagcagcaattcttgggtgttcggcggagggaccaagctgaccgtc ctaggt [SEQ ID NO: 65] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcaatctggggctgaggtgaagaggcctgggtcctcggtgaaggtctcctgcacggcttctgg aggcaccttcagcagcgatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggaggaatc atccctatgtttggtacagcaaactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgag cacagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcgcgcgaaggttactact acccgtctgcttacctgggttctgttctgaacgacatctcttctgtttacgatgaatggggtcaaggtactctggtgacc gtctcctca** [SEQ ID NO: 66] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNSWVFGGGTKL TVLG [SEQ ID NO: 67] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKRPGSSVKVSCTASGGTFSSDAISWVRQAPGQGLEWMG GIIPMFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCAREG YYYPSAYLGSVLNDISSVYDEWGQGTLVTVSS** [SEQ ID NO: 68] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 18

ET200-020
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcacctcc aacattggaaataatgatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcg accctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactggg gacgaggccgattattactgcggaacatgggatagcagcgtgagtgcttcttgggtcttcggcagagggaccaagctgacc gtcctaggt [SEQ ID NO: 69] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccagctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatca gcgcttacaatggtaacacaaactatccacagaagctccagggcagagtcaccatgaccacagacccatccacgag cacagcctacatggagctgaggagcctgagatctgacgacacggccgtgtattactgtgcgcgctctatgacttctttc gattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 70] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSAAPGQKVTISCSGSTSNIGNNDVSWYQQLPGTAPKLLIYDNN KRPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSVSASWVFGRGT KLTVLG [SEQ ID NO: 71] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWM GWISAYNGNTNYPQKLQGRVTMTTDPSTSTAYMELRSLRSDDTAVYYCA RSMTSFDYWGQGTLVTVSS** [SEQ ID NO: 72] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 19

ET200-021
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcaactcca acattgggaataattatgtatcctggtatcagcaactcccagggacagcccccaaactcctcatttatgacaataataagcgac cctcagggattcctgaccgattctctggctccaggtctggcacgtcagccaccctgggcatcaccggactccagactgggg acgaggccgattattactgcggaacatggaataccactgtgactcctggctatgtcttcggaactgggaccaaggtcaccgtc ctaggt [SEQ ID NO: 73] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaagtgcagctggtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccagctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatca gcgcttacaatggtaacacaaactatgcacagaagctccagggcagagtcaccatgaccacagacacatccacga gcacagcctacatggagctgaggagcctgagatctgacgacaccgccatgtattactgtgcgcgctctgtttacgacc tggatacttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 74] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSAAPGQKVTISCSGSNSNIGNNYVSWYQQLPGTAPKLLIYDNN KRPSGIPDRFSGSRSGTSATLGITGLQTGDEADYYCGTWNTTVTPGYVFGTGT KVTVLG [SEQ ID NO: 75] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWMG WISAYNGNTNYAQKLQGRVTMTTDTSTSTAYMELRSLRSDDTAMYYCAR SVYDLDTWGQGTLVTVSS** [SEQ ID NO: 76] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 20

ET200-022
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcagctcc aacattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcga ccctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactgggg acgaggccgattattactgcggaacatgggatagcagcctgggggccccttatgtcttcggaactgggaccaaggtcaccg tcctaggt [SEQ ID NO: 77] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtgcagtcttggggaggctcggaacagcctggcaggtccctgagactctcctgtgcagcctctgg attcacctttgatgattatgccatgcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattag ttggaatagcggtagcataggctatgcggactctgtgaagggccgattcaccatctccagagacaacgccaagaatt ccctgtatctgcaaatgaacagtctgagagctgaggacaccgccatgtattactgtgcgcgctaccgtcaggttggttc tgcttacgattcttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 78] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSAAPGQKVTISCSGSSSNIGNNYVSWYQQLPGTAPKLLIYDNN KRPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSLGAPYVFGTGT KVTVLG [SEQ ID NO: 79] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSWGGSEQPGRSLRLSCAASGFTFDDYAMHWVRQAPGKGLEWV SGISWNSGSIGYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTAMYYCAR YRQVGSAYDSWGQGTLVTVSS** [SEQ ID NO: 80] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 21

ET200-023
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) ctgcctgtgctgactcagccaccctcggtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtatcagcagaagccaggccaggcccctgtgctggtcgtctatgctgatagcgaccggccc tcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggat gaggccgactattactgtcaggtgtgggatagtagtagttatcataattatgtcttcggaactgggaccaaggtcaccgtccta ggt [SEQ ID NO: 81] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccagctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatca gcgcttacaatggtaacacaaactatgcacagaagctccagggcagagtcaccatgaccacagacacatccacga gcacagcctacatggagctgagcagcctgagatctgaggacaccgccatgtattactgtgcgcgctactggggtttcg gtgtttctgatcgttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 82] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) LPVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVVYADSD RPSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSYHNYVFGTGTK VTVLG [SEQ ID NO: 83] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWMG WISAYNGNTNYAQKLQGRVTMTTDTSTSTAYMELSSLRSEDTAMYYCAR YWGFGVSDRWGQGTLVTVSS** [SEQ ID NO: 84] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 22

ET200-024
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaa gaccctctggggtccccgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaaga ctgaggacgaggctgactactactgtcagtcttatgacagcagcaatctttgggtgttcggcggagggaccaagctgaccgt cctaggt [SEQ ID NO: 85] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **cagatgcagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctgg aggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatc atccctatctttggtacagcaaactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgag cacagcctacatggagctgagcagcctgagatctgaggacactgccgtgtattactgtgcgcgctacaactactacta ctacgattcttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 86] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTGSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNLWVFGGGTKL TVLG [SEQ ID NO: 87] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QMQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWM GGIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCARY NYYYYDSWGQGTLVTVSS** [SEQ ID NO: 88] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 23

ET200-025
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) gacatccagatgacccagtctccatcctccctgtctgcatctgtaggagacagagtcaccatcacttgccgggcaagtcagagcattagcagctatttaaattggtatcagcagaaaccagggaaagcccctaagctcctgatctatgctgcatccagtttgcaaagtggggtcccatcaaggttcagtggcagtggatctgggacagatttcactctcaccatcagcagtctgcaacctgaagattttgcaacttactgtcaacagagttacagtaccccattcactttcggccctgggaccaaagtggatatcaaacgt [SEQ ID NO: 89] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatctgaggacaccgccatgtattactgtgcgcgctactggggttacgactcttacgatgaatggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 90] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) DIQMTQSPSSLSASVGDRVTITCRASQSISSYLNWYQQKPGKAPKLLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQSYSTPFTFGPGTKVDIKR [SEQ ID NO: 91] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAMYYCARYWGYDSYDEWGQGTLVTVSS** [SEQ ID NO: 92] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 24

ET200-026
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaa gaccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaaga ctgaggacgaggctgactactactgtcagtcttatgatagcagcaattgggtgttcggcggagggaccaagctgaccgtcct aggt [SEQ ID NO: 93] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctgg aggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatc atccctatctttggtacagcaaactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgag cacagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcgcgcaacaaccattact acaacgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 94] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTGSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNWVFGGGTKLT VLG [SEQ ID NO: 95] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMG GIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCARNN HYYNDYWGQGTLVTVSS** [SEQ ID NO: 96] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 25

ET200-027
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagggggtcaccatcccctgcactgggagcagctc caacatcggggcaggttatgatgtacactggtaccagcagcttccagggacagcccccaaactcctcatctatggtaacaac aatcggccctcaggggtccctgaccgcttctctggctccaggtctggctcctcagcctccctggccatcactgggctccagg ctgaggatgaggctgattattactgccagtcctatgacagcagcctgagtgatgtggtattcggcggagggaccaaggtcac cgtcctaggt [SEQ ID NO: 97] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtgcagtctggggctgaggtgaagaagcctggggctacagtgaaaatctcctgcaaggtttctgg atacaccttcaccgactactacatgcactgggtgcaacaggcccctggaaaagggcttgagtggatgggacttgttg atcctgaagatggtgaaacaatatacgcagagaagttcagggcagagtcaccataaccgcggacacgtctacaga cacagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcgcgctactggtcttactc tttcgactacctgtacatgccggaaggtaacgattggtggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 98] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSGAPGQGVTIPCTGSSSNIGAGYDVHWYQQLPGTAPKLLIYGN NNRPSGVPDRFSGSRSGSSASLAITGLQAEDEADYYCQSYDSSLSDVVFGGGT KVTVLG [SEQ ID NO: 99] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGATVKISCKVSGYTFTDYYMHWVQQAPGKGLEWM GLVDPEDGETIYAEKFQGRVTITADTSTDTAYMELSSLRSEDTAVYYCARY WSYSFDYLYMPEGNDWWGQGTLVTVSS** [SEQ ID NO: 100] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 26

ET200-028
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgactcagccacccgcagcgtctgggacccccggacagagagtcaccatctcttgttctgggggcgtctcca acatcgggagtggtgctctaaattggtaccagcaactcccaggaacggcccccaaactcctcatctatagttacaatcagcg gccctcaggggtctctgaccgattctctggctccaggtctgccacctcagcctccctggccatcagtgggctccagtctgagg atgaggctgattattactgtgcaacctgggatgatagtgtgaatggttgggtgttcggcggagggaccaagctgaccgtccta ggt [SEQ ID NO: 101] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtccagctggtacagtctggagctgaggtgaagaagcctggggattcagtgaaggtctcctgcaagccttctgg ttacaattttctcaactatggtatcaactgggtgcgacaggcccctggacaagggcttgagtggatgggatggattag cacttacaccggtaacacaaactatgcacagaagctgcagggcagagtcaccttcaccacagacacatccacgagc acagcctacatggagatgaggagcctgagatctgacgacacggccgtgtattactgtgcgcgcgacctgtactacta cgaaggtgttgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 102] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPAASGTPGQRVTISCSGGVSNIGSGALNWYQQLPGTAPKLLIYSYNQ RPSGVSDRFSGSRSATSASLAISGLQSEDEADYYCATWDDSVNGWVFGGGTK LTVLG [SEQ ID NO: 103] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] QVQLVQSGAEVKKPGDSVKVSCKPSGYNFLNYGINWVRQAPGQGLEWMGWI STYTGNTNYAQKLQGRVTFTTDTSTSTAYMEMRSLRSDDTAVYYCARDLYY YEGVDYWGQGTLVTVSS [SEQ ID NO: 104] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 27

ET200-029
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccagggttacctgtgggggaaacaacat tggaagtgaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgttggtcatctattatgataccgaccggccc tcagggatccctgagcgattctctggctcccactctgggaccacggccaccctgaccatcagcagggtcgaagccggggat gaggccgactattactgtcaggtgtgggatagtagtagggatcatgtggtattcggcggagggaccaagctgaccgtcctag gt [SEQ ID NO: 105] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcagtctgggggaggcgtggtccagcctgggaggtccctgagactctcctgtgcggcctctgg attcaccttcagtagctatgctatgcactgggtccgccaggctccaggcaagggactggagtgggtggcagttatatc atatgatggaagcaataaatactacgcagactccgtgaagggcctattcaccatctccagagacaattccaagaaca cgctgtatctgcaaatgaacagcctgagagctgaggacacggccgtgtattactgtgcgcgctcttacttcacttctgg tttctacgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 106] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPPSVSVAPGKTARVTCGGNNIGSESVHWYQQKPGQAPVLVIYYDTD RPSGIPERFSGSHSGTTATLTISRVEAGDEADYYCQVWDSSRDHVVFGGGTKL TVLG [SEQ ID NO: 107] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGGGVVQPGRSLRLSCAASGFTFSSYAMHWVRQAPGKGLEWV AVISYDGSNKYYADSVKGLFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR SYFTSGFYDYWGQGTLVTVSS** [SEQ ID NO: 108] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 28

ET200-030
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagttcc aacatcggggcaggttatgatgtaaattggtatcagcagtttccaggaacagcccccaaactcctcatctatggtaacagcaat cggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctccaggctg aggatgaggctgattattactgccagtcctatgacagcagcctgagtggctcttatgtcttcggaactgggaccaaggtcacc gtcctaggt [SEQ ID NO: 109] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **cagatgcagctggtgcagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttccgg atacaccctcactgaattatccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttga tcctgaagatggtgaaacaatctacgcacagaagttccagggcagagtcaccatgaccgaggacacatctacagac acagcctacatggagctgagcagcctgagatctgaggacactgccgtgtattactgtgcgcgcatgtcttctatgtact acgattggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 110] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSGAPGQRVTISCTGSSSNIGAGYDVNWYQQFPGTAPKLLIYGNS NRPSGVPDRFSGSKSGTSASLAITGLQAEDEADYYCQSYDSSLSGSYVFGTGTK VTVLG [SEQ ID NO: 111] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QMQLVQSGAEVKKPGASVKVSCKASGYTLTELSMHWVRQAPGKGLEW MGGFDPEDGETIYAQKFQGRVTMTEDTSTDTAYMELSSLRSEDTAVYYC ARMSSMYYDWGQGTLVTVSS** [SEQ ID NO: 112] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 29

ET200-031
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccc tcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggat gaggccgactattactgtcaggtgtgggatagtagtagtgattatgtcttcggaactgggaccaaggtcaccgtcctaggt [SEQ ID NO: 113] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagactgggggaggcttggtcaagcctggagggtccctgagactctcctgtgcagcctctgg attcaccgtcagtgactactacatgagctggatccgccaggctccagggaagggcctggagtggatttcatacattag tggtagtggtaatagcatatactacgcagactctgtgaagggccgattcaccatctccagggacaacgccaagaact cactggatctgcaaatgaccagcctgagagccgaggacacggccgtatattactgtgcgcgctctactaaattcgatt actggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 114] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDYVFGTGTKVTV LG [SEQ ID NO: 115] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVETGGGLVKPGGSLRLSCAASGFTVSDYYMSWIRQAPGKGLEWIS YISGSGNSIYYADSVKGRFTISRDNAKNSLDLQMTSLRAEDTAVYYCARST KFDYWGQGTLVTVSS** [SEQ ID NO: 116] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 30

ET200-032
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) ctgcctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acgtcggaagttacactgtaaactggtaccggcaactcccaggaacggcccccacactcctcatctataataataatcagcg gccctcaggggtccctgaccgattctctgactccaagtctggcacctcggcctccctgaccattagtgggctccagcctgag gatgaggctgattattattgtgcagcatgggatgacaggctgggtggttatgtcttcggaactgggaccaaggtcaccgtcct aggt [SEQ ID NO: 117] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtgcagtctggagcagaggtgaaaaagccgggggagtctctgaagatctcctgtaagggttctg gatacagctttaccaactactggatcggctgggtgcgccagatgcccgggaaaggcctggagtggatggggatcatc tatcctggtgactctgataccagatacagcccgtccttccaaggccaggtcaccatctcagccgacaagtccatcagc accgcctacctacagtggagcagcctgaaggcctcggacaccgccatgtattactgtgcgcgctctactggttcttctc atatgtctgatgaatggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 118] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) LPVLTQPPSASGTPGQRVTISCSGSSSNVGSYTVNWYRQLPGTAPTLLIYNNNQ RPSGVPDRFSDSKSGTSASLTISGLQPEDEADYYCAAWDDRLGGYVFGTGTKV TVLG [SEQ ID NO: 119] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGESLKISCKGSGYSFTNYWIGWVRQMPGKGLEWM GIIYPGDSDTRYSPSFQGQVTISADKSISTAYLQWSSLKASDTAMYYCARST GSSHMSDEWGQGTLVTVSS** [SEQ ID NO: 120] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 31

ET200-033
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaa gaccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaaga ctgaggacgaggctgactactactgtcagtcttatgatagcagcaatcattgggtgttcggcggagggaccaagctgaccgt cctaggt [SEQ ID NO: 121] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caagtgcagctacagcagtggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggt gggtccttcagtggttactactggagctggatccgccagcccccagggaaggggctggagtggattggggagatcac tcatagtggaaggtccaactacaacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagt tctccctgaagctgagctctgtgaccgccgcggacacggccgtgtattactgtgcgcgctcttctatcatgtctgattac tggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 122] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTGSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNHWVFGGGTKL TVLG [SEQ ID NO: 123] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIG EITHSGRSNYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCARSSIM SDYWGQGTLVTVSS** [SEQ ID NO: 124] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 32

ET200-034
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcacctcc aacatcggggcaggttatgatgtacactggtaccagcagcttccaggaacagcccccaaactcctcatcaacaataacagg aatcggccctcaggggtccctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccag actggggacgaggccgattattactgcggaacatgggatggcagcctgactggtgcagtgttcggcggagggaccaagct gaccgtcctaggt [SEQ ID NO: 125] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcatgcaaggcttctgg aggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatc atccctatctttggtacagcaaactacgcacagaagttcagggcagagtcacgattaccgcggacgaatccacgag cacagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcgcgcggttctgctctgga ccattacgatcgttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 126] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSGAPGQRVTISCTGSTSNIGAGYDVHWYQQLPGTAPKLLINNN RNRPSGVPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDGSLTGAVFGGG TKLTVLG [SEQ ID NO: 127] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMG GIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCARGSA LDHYDRWGQGTLVTVSS** [SEQ ID NO: 128] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 33

ET200-035
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaa gaccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaaga ctgaggacgaggctgactactactgtcagtcttatgatagcaccaattgggtgttcggcggagggaccaagctgaccgtcct aggt [SEQ ID NO: 129] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctgg aggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatc atccctatctttggtacagcaaactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgag cacagcctacatggagctgagcagcctgagatctgaggacactgccgtgtattactgtgcgcgctacaactactactt caacgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 130] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSTNWVFGGGTKLT VLG [SEQ ID NO: 131] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMG GIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCARYN YYFNDYWGQGTLVTVSS** [SEQ ID NO: 132] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 34

ET200-037
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccc tcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggat gaggccgactattactgtcaggtgtgggatagtagtagtgatcatccttatgtcttcggaactgggaccaaggtcaccgtccta ggt [SEQ ID NO: 133] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **cagatgcagctggtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccagctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatca gcgcttacaatggtaacacaaactatgcacagaagctccagggcagagtcaccatgaccacagacacatccacga gcacagcctacatggagctgaggagcctgagatctgacgacactgccgtgtattactgtgcgcgctctatgttcggtg ctcatgattcttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 134] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHPYVFGTGTKV TVLG [SEQ ID NO: 135] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QMQLVQSGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWM GWISAYNGNTNYAQKLQGRVTMTTDTSTSTAYMELRSLRSDDTAVYYCA RSMFGAHDSWGQGTLVTVSS** [SEQ ID NO: 136] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 35

ET200-038
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagctc caacatcggggcaggttttgatgtacactggtaccagctacttccaggaacagcccccaaactcctcatctatgctaacagc aatcggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctcctgg ctgaggatgaggctgattattactgccagtcctatgacagcagcctgagtggtgtggtattcggcggagggaccaagctga ccgtcctaggt [SEQ ID NO: 137] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcaatctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctg gaggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggaggga tcatccctatctttggtacagcaaactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccac gagcacagcctacatggagctgagcagcctgagatctgaggacactgccgtgtattactgtgcgcgcggtgcttctt tcgaccgtcatgataactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 138] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSGAPGQRVTISCTGSSSNIGAGFDVHWYQLLPGTAPKLLIYAN SNRPSGVPDRFSGSKSGTSASLAITGLLAEDEADYYCQSYDSSLSGVVFGGGT KLTVLG [SEQ ID NO: 139] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWM GGIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCARG ASFDRHDNWGQGTLVTVSS** [SEQ ID NO: 140] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 36

ET200-039
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagttcccccaccactgtgatctatgaggataaccaaa gaccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaaga ctgaggacgaggctgactactactgtcagtcttatgatagcagcaattgggtgttcggcggagggaccaagctgaccgtcct aggt [SEQ ID NO: 141] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctgg aggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatc atccctatctttggtacagcaaactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgag cacagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcgcgctctaactactacta caacgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 142] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSSPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNWVFGGGTKLT VLG [SEQ ID NO: 143] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMG GIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCARSNY YYNDYWGQGTLVTVSS** [SEQ ID NO: 144] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 37

ET200-040
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagctcc aacatcggggcaggttatgatgtacactggtaccagcagcttccaggaacagcccccaaactcctcatctatggtaacagca atcggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctccaggc tgaggatgaggctgattattactgccagtcctatgacagcagcctgagtggttatgtcttcggaactgggaccaaggtcaccg tcctaggt [SEQ ID NO: 145] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggtttccgg atacaccctcactgaattatccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttga tcctgaagatggtgaaacaatctacgcacagaagttccagggcagagtcaccatgaccgaggacacatctacagac acagcctacatggagctgagcagcctgagatctgaggacactgccgtgtattactgtgcgcgctactctggtgtttact acgattggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 146] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSGAPGQRVTISCTGSSSNIGAGYDVHWYQQLPGTAPKLLIYGNS NRPSGVPDRFSGSKSGTSASLAITGLQAEDEADYYCQSYDSSLSGYVFGTGTK VTVLG [SEQ ID NO: 147] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGASVKVSCKVSGYTLTELSMHWVRQAPGKGLEWM GGFDPEDGETIYAQKFQGRVTMTEDTSTDTAYMELSSLRSEDTAVYYCAR YSGVYYDWGQGTLVTVSS** [SEQ ID NO: 148] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 38

ET200-041
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggggtctccggggaagacggtaaccatctcctgcaccggcagcagtggca gcattgccgacaactttgtgcagtggtaccagcagcgcccgggcggtgtccccaccactgtgatctttaatgatgacgaaag accctctggcgtccctgatcggttctctggctccatcgacacctcctccaattctgcctccctcaccatctctggactgaagact gaggacgaggctgactactactgtcagtcttatgataataataatcgaggggtgttcggcggagggaccaagctgaccgtcc taggt [SEQ ID NO: 149] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtccagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctgg aggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatg aaccctaacagtggtaacacaggctatgcacagaagttccagggcagagtcaccatgaccaggaacacctccataa gcacagcctacatggagctgagcaacctgagatctgaggacacggccgtgtattactgtgcgcgctactactcttacg gttacgattggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 150] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSGSPGKTVTISCTGSSGSIADNFVQWYQQRPGGVPTTVIFNDDE RPSGVPDRFSGSIDTSSNSASLTISGLKTEDEADYYCQSYDNNNRGVFGGGTKL TVLG [SEQ ID NO: 151] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMG WMNPNSGNTGYAQKFQGRVTMTRNTSISTAYMELSNLRSEDTAVYYCAR YYSYGYDWGQGTLVTVSS** [SEQ ID NO: 152] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 39

ET200-042
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccgccctcagtgtctggggccccagggcagacggtcaccatctcctgcactgggggcagctc caacatcgggacaggttattttgtaaattggtaccagcaggttccaggaaaagcccccaaactcctcatcctgggtaacaata atcggccctcgggggtccctgaccgactctccggctccacgtccggcacctcagcctccctggccatcactgggctccagg ctgaggatgagggtacttattactgccagtcctatgacagcagcctgagtggttatgtcttcggaactgggaccaaggtcacc gtcctaggt [SEQ ID NO: 153] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtacagctgcagcagtcaggtccaggactggtgaagccctcgcagaccctctcactcacctgtggcatctccgg ggacagtgtctctaccaacagtgttgcttggcactggatcaggcagtccccatcgagaggccttgagtggctgggaa ggacatactacaggtccaagtggtctaatgactatggagtatctgtgaaaagtcgaatcaccatcatcccagacacat ccaagaaccagttctccctgcagctgaactctgtgactcccgaggacacggctgtgtattactgtgcgcgctcttcttct tggtaccagatcttcgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 154] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSGAPGQTVTISCTGGSSNIGTGYFVNWYQQVPGKAPKLLILGN NNRPSGVPDRLSGSTSGTSASLAITGLQAEDEGTYYCQSYDSSLSGYVFGTGTK VTVLG [SEQ ID NO: 155] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQQSGPGLVKPSQTLSLTCGISGDSVSTNSVAWHWIRQSPSRGLEWL GRTYYRSKWSNDYGVSVKSRITIIPDTSKNQFSLQLNSVTPEDTAVYYCAR SSSWYQIFDYWGQGTLVTVSS** [SEQ ID NO: 156] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 40

ET200-043
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagcgaca gcatagccaacaactatgttcagtggtaccagcagcgcccgggcagtgcccccaccaatgtgatctacgaagatgtccaaa gaccctctggggtccctgatcggttctctgggtccatcgacagctcctccaactctgcctccctcaccatctctggactgaaga ctgaggacgaggctgtctactattgtcagtcttatcatagcgacaatcgttgggtgttcggcggcgggaccaagctgaccgtc ctaggt [SEQ ID NO: 157] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtggagtctgggggaggcttggtacagcctgggggtccctgagactctcctgtgcagcctctgg attcacctttagcagctatgccatgagctgggtccgccaggctccagggaaggggctggagtgggtctcagctattag tggtagtggtggtagcacatactacgcagactccgtgaagggccggttcaccatctccagagacaattccaagaaca cgctgtatctgcaaatgaacagcctgagagccgaggacacggccgtatattactgtgcgcgctctggtgcttactggg actactctgtttacgatgaatggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 158] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTGSSDSIANNYVQWYQQRPGSAPTNVIYEDV QRPSGVPDRFSGSIDSSSNSASLTISGLKTEDEAVYYCQSYHSDNRWVFGGGTK LTVLG [SEQ ID NO: 159] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVESGGGLVQPGGSLRLSCAASGFTFSSYAMSWVRQAPGKGLEWVS AISGSGGSTYYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCARSG AYWDYSVYDEWGQGTLVTVSS** [SEQ ID NO: 160] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 41

ET200-044
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgactcagccaccctcagtgtccgtgtccccaggacagacagccaccatcgcctgttctggacataaattgggggataaatatgcttcctggtatcagcagaagtcgggccagtcccctgtgttgatcatctatcaggataataagcggccctcaggattcctgagcgattctctggctccaactctgggaacacagccactctgaccatcagcgggacccaggctctggatgaggctgactattattgtcaggcgtgggacagtagtacttatgtggcattcggcggagggaccaagctgaccgtcctaggt [SEQ ID NO: 161] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctgcaggagtccggcccaggactggtgaagccttcggagaccctgtccctcacctgcgttgtctctggtggctccatcagcagtagtaactggtggagctgggtccgccagcccccagggaaggggctggagtggattggggaaatctatcatagtgggagccccaactacaacccatccctcaagagtcgagtcaccatatcagtagacaagtccaagaaccagttctccctgaagctgagctctgtgaccgccgcggacacggccgtgtattactgtgcgcgcatgactactcatacttttcggttacgatgcttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 162] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSVSPGQTATIACSGHKLGDKYASWYQQKSGQSPVLIIYQDNKRPSGIPERFSGSNSGNTATLTISGTQALDEADYYCQAWDSSTYVAFGGGTKLTVLG [SEQ ID NO: 163] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQESGPGLVKPSETLSLTCVVSGGSISSSNWWSWVRQPPGKGLEWIGEIYHSGSPNYNPSLKSRVTISVDKSKNQFSLKLSSVTAADTAVYYCARMTTHTFGYDAWGQGTLVTVSS** [SEQ ID NO: 164] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 42

ET200-045
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagcctgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccacgattacttgtgggggaaacaacatt ggaagtgaaagtgtgcactggtaccaccagaagccaggccaggcccctgtgttggtcatctatgatgatgccggccggccc tcagggatccctgagcgattcactggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccgggga tgaggccgactattactgtcaggtgtgggacagaaatagtgctcagtttgtcttcggacctgggaccaaggtcaccgtcctag gt [SEQ ID NO: 165] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccagctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatca gcgcttacaatggtaacacaaactatgcacagaagctccagggcagagtcaccatgaccacagacacatccacga gcacagcctacatggagctgaggagcctgagatctgacgacacggccgtgtattactgtgcgcgcggtgttcatctg gattggtggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 166] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QPVLTQPPSVSVAPGKTATITCGGNNIGSESVHWYHQKPGQAPVLVIYDDAGR PSGIPERFTGSNSGNTATLTISRVEAGDEADYYCQVWDRNSAQFVFGPGTKVT VLG [SEQ ID NO: 167] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWMG WISAYNGNTNYAQKLQGRVTMTTDTSTSTAYMELRSLRSDDTAVYYCAR GVHLDWWGQGTLVTVSS** [SEQ ID NO: 168] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 43

ET200-069
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcc aacatcggaagtaattatgtatactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagc ggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccggtccg aggatgaggctgattattactgtgcagcatgggatgacagcctgagtggttatgtcttcggaactgggaccaagctgaccgt cctaggt [SEQ ID NO: 169] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctacagcagtggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatgg tgggtccttcagtggttactactggagctggatccgccagcccccagggaaggggctggagtggattggggaaatc aatcatagtggaagcaccaactacaacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaac cagttctccctgaagctgagctctgtgaccgccgcggacacggccgtgtattactgtgcgcgcctgtacgaaggtgg ttaccatggttggggttcttggctgtcttctgattcttggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 170] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSASGTPGQRVTISCSGSSSNIGSNYVYWYQQLPGTAPKLLIYSNN QRPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCAAWDDSLSGYVFGTGT KLTVLG [SEQ ID NO: 171] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWI GEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCARLY EGGYHGWGSWLSSDSWGQGTLVTVSS** [SEQ ID NO: 172] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 44

ET200-078
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcg gccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgag gatgaggctgattattactgtgcagcatgggatgacagcctgaatggttattgggtgttcggcggagggaccaagctgaccg tcctaggt [SEQ ID NO: 173] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctacagcagtggggcgcaggactgttgaagccttcggagaccctgccctcacctgcgctgtctatggt gggtccttcagtggttactactggagctggatccgccagcccccagggaaggggctggagtggattggggaaatca atcatagtggaagcaccaactacaacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaacca gttctccctgaagctgagctctgtgaccgccgcggacacggctgtgtattactgtgcgcgcgaaggggcatttgatgct tttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 174] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQ RPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYWVFGGGT KLTVLG [SEQ ID NO: 175] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGEIN HSGSTNYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCAREGAFDAFDI WGQGTMVTVS [SEQ ID NO: 176] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 45

ET200-079
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgagctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaattatgtatactggtaccagcagctcccaggaacggcccccaaactcttcatctataggaataatcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccggtccgagg atgaggctgattattactgtgcagcatgggatgacagcctgagtggttatctcttcggaactgggaccaaggtcaccgtccta ggt [SEQ ID NO: 177] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctgggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctgg attcacctttgatgattatgccatgcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattag ttggaatagtggtagcataggctatgcggactctgtgaagggccgattcaccatctccagagacaacgccaagaact ccctgtatctgcaaatgaacagtctgagagctgaggacacggccttgtattactgtgcaaatggcgactccaactact actacggtatggacgtctggggccaagggaccacggtcaccgtctcctca** [SEQ ID NO: 178] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYELTQPPSASGTPGQRVTISCSGSSSNIGSNYVYWYQQLPGTAPKLFIYRNNQ RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCAAWDDSLSGYLFGTGTKV TVLG [SEQ ID NO: 179] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGGGLVQPGRSLRLSCAASGFTFDDYAMHWVRQAPGKGLEWV SGISWNSGSIGYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTALYYCANG DSNYYYGMDVWGQGTTVTVSS** [SEQ ID NO: 180] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 46

ET200-081
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgccctgactcagcctgcctccgtgtccgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtgacattggtggttataactatgtctcctggtaccaacaacacccaggcaaagcccccaaactcatgatttatgatgtcagtaatcggccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggacgaggctgattattactgcatctcatatacacgcacctggaacccctatgtcttcgggagtgggaccaaggtcaccgtcctaggt [SEQ ID NO: 181] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtgcagtctgggggaggcgtggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccatgcactgggtccgtcaagctccagggaagggtctggagtgggtctctcttattagtgggatggtggtagcacatactatgcagactctgtgaagggccgattcaccatctccagagacaacagcaaaaactcctgtatctgcaaatgaacagtctgagaactgaggacaccgccttgtattactgtgcaaaagatcgggcagcagctggctactactactacggtatggacgtctggggccaagggaccacggtcaccgtctcctca** [SEQ ID NO: 182] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSALTQPASVSGSPGQSITISCTGTSSDIGGYNYVSWYQQHPGKAPKLMIYDVSNRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCISYTRTWNPYVFGSGTKVTVLG [SEQ ID NO: 183] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGGGVVQPGGSLRLSCAASGFTFDDYAMHWVRQAPGKGLEWVSLISGDGGSTYYADSVKGRFTISRDNSKNSLYLQMNSLRTEDTALYYCAKDRAAAGYYYYGMDVWGQGTTVTVSS** [SEQ ID NO: 184] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 47

ET200-097
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) ctgcctgtgctgactcagccaccctcagtgtccgtgtccccaggacagacagccatcatcacctgctctggagataaattgggggaaaaatatgtttcctggtatcagcagaagccaggccagtcccctgtactggtcatcgatcaagataccaggaggccctcagggatccctgagcgattctctggctccaactctgggaccacagccactctgaccatcagcgggacccaggctatggatgaggctgactattactgtcaggcgtgggacaggggtgtggtattcggcggagggaccaagctgaccgtcctaggt [SEQ ID NO: 185] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctgggggagacttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttaatgattatgccatgcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggagtggtaataacataggctatgcggactctgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctgaggacacggccttgtattactgtgcaaaagatagtatacggtatggcatcacctggggaggttttgactactggggccagggaaccctggtcaccgtctcctca** [SEQ ID NO: 186] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) LPVLTQPPSVSVSPGQTAIITCSGDKLGEKYVSWYQQKPGQSPVLVIDQDTRRPSGIPERFSGSNSGTTATLTISGTQAMDEADYYCQAWDRGVVFGGGTKLTVLG [SEQ ID NO: 187] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGGDLVQPGRSLRLSCAASGFTFNDYAMHWVRQAPGKGLEWVSGISWSGNNIGYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTALYYCAKDSIRYGITWGGFDYWGQGTLVTVSS** [SEQ ID NO: 188] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 48

ET200-098
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagcctgtgctgactcagccaccctcggtgtccaagggcttgagacagaccgccacactcacctgcactgggaacagcaa caatgttggcaacctaggagtagcttggctgcagcagcaccagggccaccctcccaaactcctatcctacaggaataacaa ccggccctcagggatctcagagagattatctgcatccaggtcaggaaacacagcctccctgaccattactggactccagcct gaggacgaggctgactattactgctcagcatgggacagtagcctcagtgcttgggtgttcggcggagggaccaagctgacc gtcctaggt [SEQ ID NO: 189] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctgggggagtcgtggtacagcctgggggtccctgagactctcctgtgcagcctctgg attcacctttgatgattatgccatgcactgggtccgtcaagctccggggaagggtctggagtgggtctctcttattaatt gggatggtggtagcacctactatgcagactctgtgaagggtcgattcaccatctccagagacaacagcaaaaactcc ctgtatctgcaaatgaacagtctgagagctgaggacaccgccttgtattactgtgcaaaagggatgggcctgagggc gtttgactactggggccagggaaccctggtcaccgtctcctca** [SEQ ID NO: 190] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QPVLTQPPSVSKGLRQTATLTCTGNSNNVGNLGVAWLQQHQGHPPKLLSYRN NNRPSGISERLSASRSGNTASLTITGLQPEDEADYYCSAWDSSLSAWVFGGGT KLTVLG [SEQ ID NO: 191] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGGVVVQPGGSLRLSCAASGFTFDDYAMHWVRQAPGKGLEWV SLINWDGGSTYYADSVKGRFTISRDNSKNSLYLQMNSLRAEDTALYYCAK GMGLRAFDYWGQGTLVTVSS** [SEQ ID NO: 192] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 49

ET200-099
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcctgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaatgatcagcg gccctcaggggtccctgaccgattctctggctccaagtccggcacctcagcctccctggccatcagtgggctccagtctgag gatgaggctgattattactgtgcttcatgggatgacagcctgaatggccgttatgtcttcggaactgggaccaaggtcaccgtc ctaggt [SEQ ID NO: 193] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtccagctggtacagtctggggctgaggtgaggaagcctggggcctcagtgaaggtttcctgcaagacttctgg atacaccttcagttggtatgctatacattgggtgcgccaggcccccggacaaaggcttgagtggatgggatggatca acgctggcaatggaaacacaaaatattcacagaaatttcagggcagagtcagtcttaccagggacacatccgcgag cacagcctacatggagctgagcagcctgagatctgatgacacggctgtgtattactgtgcgagacccgataattatgg ttcgggtggggatgtttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 194] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNDQ RPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCASWDDSLNGRYVFGTGTK VTVLG [SEQ ID NO: 195] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVRKPGASVKVSCKTSGYTFSWYAIHWVRQAPGQRLEWM GWINAGNGNTKYSQKFQGRVSLTRDTSASTAYMELSSLRSDDTAVYYCAR PDNYGSGGDVFDIWGQGTMVTVSS** [SEQ ID NO: 196] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 50

ET200-100
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactttgtgcagtggtaccagcagcgcccgggcagtgcccccacccctatgatctatgaggataacaaca gacccccctggggtccctgatcggttctctgcctccgtcgacagctcctccaactctgcctccctcaccatctctggactgaag actgaggacgaggctgactactactgtcagtcttatgataccagcaatgtggtattcggcgggggggaccaagctgaccgtc ctaggt [SEQ ID NO: 197] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctgggggaggcttggtacagcctggagggtccctgagactctcctgtgcagcctctg gattcaccttcagtagttatgaaatgaactgggtccgccaggctccagggaaggggctggagtgggtttcatacatt agtagtagtggtagtaccatatactacgcagactctgtgaagggccgattcaccatctccagagacaacgccaaga actcactgtatctgcaaatgaacagcctgagagccgaggacacggctgtttattactgtgcacgctgggactacggt atggacgtctggggccaagggaccacggtcaccgtctcctca** [SEQ ID NO: 198] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTRSSGSIASNFVQWYQQRPGSAPTPMIYEDN NRPPGVPDRFSASVDSSSNSASLTISGLKTEDEADYYCQSYDTSNVVFGGGTK LTVLG [SEQ ID NO: 199] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGGGLVQPGGSLRLSCAASGFTFSSYEMNWVRQAPGKGLEWV SYISSSGSTIYYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTAVYYCAR WDYGMDVWGQGTTVTVSS** [SEQ ID NO: 200] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 51

ET200-101
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgctgactcagccaccctcagcgtctggggccccgggcagagggtcaccgtctcttgttctggaagcaactcc aacatcggaagtaactacgttaactggtaccagcagttcccaggaacggcccccaaactcctcatgtatagtagtagtcagc ggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccactctga ggatgaggctgattattactgtgctacatgggatgacagcctgaatgcttgggtgttcggcggagggaccaagctgaccgtc ctaggt [SEQ ID NO: 201] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtgcagtctggggctgaggtgaggaagcctggggcctcagtgaaggtttcctgcaagacttctgg atacaccttcacttggtatgctatacattgggtgcgccaggcccccggacaaaggcttgagtggatgggatggatcaa cgctggcagtggaaacacaaaatattcacagaaatttcagggcagagtcacccttaccagggacacatccgcgagc acagcgtacatggagctgagcagcctgagatctgatgacacggctgtgtattactgtgcgagacccaataactatgg ttcgggtggggatgtttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 202] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPPSASGAPGQRVTVSCSGSNSNIGSNYVNWYQQFPGTAPKLLMYSSS QRPSGVPDRFSGSKSGTSASLAISGLHSEDEADYYCATWDDSLNAWVFGGGT KLTVLG [SEQ ID NO: 203] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVRKPGASVKVSCKTSGYTFTWYAIHWVRQAPGQRLEWM GWINAGSGNTKYSQKFQGRVTLTRDTSASTAYMELSSLRSDDTAVYYCAR PNNYGSGGDVFDIWGQGTMVTVSS** [SEQ ID NO: 204] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 52

ET200-102
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcagctc caacattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagc gaccctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactg gggacgaggccgattattactgcggaacatgggatagcagcctgagtgcttatgtcttcggaactgggaccaaggtcacc gtcctaggt [SEQ ID NO: 205] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtccagctggtgcagtctggggctgaggtgaagaagcctggggcctcagtgaaagtttcctgcaaggcttctg gatacaccttcacgaactatgctctgcattgggtgcgccaggcccccggacaagggcttgagtggatggcatggat caacggtggcaatggtaacacaaaatattcacagaacttccagggcagagtcaccattaccagggacacatccgc gagcacagcctatatggagctgagcagcctgagatctgaagacacggctgtgtattactgtgcgaaaccggagga aacagctggaacaatccactttgactactggggccagggaaccccggtcaccgtctcctca** [SEQ ID NO: 206] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSAAPGQKVTISCSGSSSNIGNNYVSWYQQLPGTAPKLLIYDNN KRPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSLSAYVFGTGTK VTVLG [SEQ ID NO: 207] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGASVKVSCKASGYTFTNYALHWVRQAPGQGLEW MAWINGGNGNTKYSQNFQGRVTITRDTSASTAYMELSSLRSEDTAVYYC AKPEETAGTIHFDYWGQGTPVTVSS** [SEQ ID NO: 208] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 53

ET200-103
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcagcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaagaccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactgaggacgaggctgactactactgtcagtcttatgatagcaccatcacggtgttcggcggagggaccaagctgaccgtcctaggt [SEQ ID NO: 209] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtccagctggtacagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggaggatcatccctatctttggtacagcaaactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcgggggagggttactatgatagtagtggttattccaacggtgatgcttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 210] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQRPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSTITVFGGGTKLTVLG [SEQ ID NO: 211] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCAGEGYYDSSGYSNGDAFDIWGQGTMVTVSS** [SEQ ID NO: 212] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 54

ET200-104
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaa agaccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaa gactgaggacgaggctgactactactgtcagtcttatgatagcagcaatgtggtattcggcggagggaccaaggtcaccgt cctaggt [SEQ ID NO: 213] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctgggggaggcttggtacagcctggagggtccctgagactctcctgtgcagcctctg gattcaccttcagtagttatgaaatgaactgggtccgccaggctccagggaaggggctggagtgggtttcatacatt agtagtagtggtagtaccatatactacgcagactctgtgaagggccgattcaccatctccagagacaacgccaaga actcactgtatctgcaaatgaacagcctgagagccgaggacacggctgtttattactgtgcacgctgggactacggt atggacgtctggggccaagggaccacggtcaccgtctcctca** [SEQ ID NO: 214] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDN QRPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNVVFGGGTK VTVLG [SEQ ID NO: 215] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGGGLVQPGGSLRLSCAASGFTFSSYEMNWVRQAPGKGLEWV SYISSSGSTIYYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTAVYYCAR WDYGMDVWGQGTTVTVSS** [SEQ ID NO: 216] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 55

ET200-105
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgtgctgactcagccaccctcagtgtccgtgtccccaggacagacagccagcatcacctgctctggagatagattga cgaataaatatgtttcctggtatcaacagaagccaggccagtcccctgtgttggtcatctatgaggatgccaagcggccctc agggatccctgcgcgattctctggctccaactctgggaacacagccactctgaccatcagcgggacccaggctatggatg agtctgaatattactgtcaggcgtgggacagcagtgtggtggtttttggcggagggaccaagctgaccgtcctaggt [SEQ ID NO: 217] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctgggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctgg atttacctttgatgattatgccatgcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattag ttggaatagtggtagtataggctatgcggactctgtgaagggccgattcaccatctccagagacaacgccaagaac tccctgtatctgcaaatgaacagtctgagagatgaggacacggccttgtattactgtgcaaaagaccgagggggg gagttatcgttaaggatgcttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 218] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYVLTQPPSVSVSPGQTASITCSGDRLTNKYVSWYQQKPGQSPVLVIYEDAKR PSGIPARFSGSNSGNTATLTISGTQAMDESEYYCQAWDSSVVVFGGGTKLTVL G [SEQ ID NO: 219] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGGGLVQPGRSLRLSCAASGFTFDDYAMHWVRQAPGKGLEWV SGISWNSGSIGYADSVKGRFTISRDNAKNSLYLQMNSLRDEDTALYYCAK DRGGGVIVKDAFDIWGQGTMVTVSS** [SEQ ID NO: 220] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 56

ET200-106
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgagctgactcagccacccgcagcgtctgggacccccggacagagagtcaccatctcttgttctgggggcgtctcca acatcgggagtggtgctctaaattggtaccagcaactcccaggaacggcccccaaactcctcatctatagttacaatcagcg gccctcaggggtctctgaccgattctctggctccaggtctgccacctcagcctccctggccatcagtgggctccagtctgagg atgaggctgattattactgtgcaacctgggatgatagtgtgaatggttgggtgttcggcggagggaccaagctgaccgtccta ggt [SEQ ID NO: 221] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctggagctgaggtgaagaagcctggggattcagtgaaggtctcctgcaagccttctgg ttacaattttctcaactatggtatcaactgggtgcgacaggcccctggacaagggcttgagtggatgggatggattag cacttacaccggtaacacaaactatgcacagaagctgcagggcagagtcaccttcaccacagacacatccacgagc acagcctacatggagatgaggagcctgagatctgacgacacggccgtgtattactgtgcgcgccagcagggtggtg gttggtacgatgtttggggtcaaggtactctggtcaccgtctcctca** [SEQ ID NO: 222] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYELTQPPAASGTPGQRVTISCSGGVSNIGSGALNWYQQLPGTAPKLLIYSYNQ RPSGVSDRFSGSRSATSASLAISGLQSEDEADYYCATWDDSVNGWVFGGGTK LTVLG [SEQ ID NO: 223] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGAEVKKPGDSVKVSCKPSGYNFLNYGINWVRQAPGQGLEWM GWISTYTGNTNYAQKLQGRVTFTTDTSTSTAYMEMRSLRSDDTAVYYCA RQQGGGWYDVWGQGTLVTVSS** [SEQ ID NO: 224] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 57

ET200-107
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggagagaaggtcaccatctcctgctctggaagcaacttca atgttggaaataatgatgtatcctggtatcagcaactcccaggtgcagcccccaaactcctcatttatgacaataataagcgac cctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctggacatcaccgggctccacagtgacga cgaggccgattattactgcggaacatgggatagcagcctgaatactgggggggtcttcggaactgggaccaaggtcaccgt cctaggt [SEQ ID NO: 225] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccagctatactatcagctgggtacgacaggcccctggacaagggcttgagtggatgggatggatcag cacttacaatggtctcacaaactatgcacagaacctccagggcagagtcaccatgactacagacacattcacgacca cagcctacatggagctgaggagcctcagatctgacgacacggccgtgtattactgtgtgagagaggggtcccccgac tacggtgacttcgcgtcctttgactactggggccagggaaccctggtcaccgtctcctca** [SEQ ID NO: 226] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSAAPGEKVTISCSGSNFNVGNNDVSWYQQLPGAAPKLLIYDNN KRPSGIPDRFSGSKSGTSATLDITGLHSDDEADYYCGTWDSSLNTGGVFGTGT KVTVLG [SEQ ID NO: 227] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGASVKVSCKASGYTFTSYTISWVRQAPGQGLEWMG WISTYNGLTNYAQNLQGRVTMTTDTFTTTAYMELRSLRSDDTAVYYCVR EGSPDYGDFASFDYWGQGTLVTVSS** [SEQ ID NO: 228] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 58

ET200-108
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagtgtctgcgcccccgggacagaaggtcaccatctcctgctctggaagcagctcca acattgggaataattatgtatcctggtaccagcagttcccaggaacagcccccaaactcctcatttatgacaataataagcgac cctcagggatttctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcgccggactccagactgggga cgaggccgattattactgcggaacatgggataccagcctgagtggtttttatgtcttcggaagtgggaccaaggtcaccgtcc taggt [SEQ ID NO: 229] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtacagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccagctatactatcagctgggtacgacaggcccctggacaagggcttgagtggatgggatggatcag cacttacaatggtctcacaaactatgcacagaacctccagggcagagtcaccatgactacagacacattcacgacca cagcctacatggagctgaggagcctcagatctgacgacacggccgtgtattactgtgtgagagaggggtcccccgac tacggtgacttcgcgtcctttgactactggggccagggaaccctggtcaccgtctcctca** [SEQ ID NO: 230] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSAPPGQKVTISCSGSSSNIGNNYVSWYQQFPGTAPKLLIYDNNK RPSGISDRFSGSKSGTSATLGIAGLQTGDEADYYCGTWDTSLSGFYVFGSGTK VTVLG [SEQ ID NO: 231] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGASVKVSCKASGYTFTSYTISWVRQAPGQGLEWMG WISTYNGLTNYAQNLQGRVTMTTDTFTTTAYMELRSLRSDDTAVYYCVR EGSPDYGDFASFDYWGQGTLVTVSS** [SEQ ID NO: 232] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 59

ET200-109
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) ctgcctgtgctgactcagccaccctcagcgtctgcgacccccgggcagagggtcaccatctcttgttctggaaccacctcca acatcggaagtaatactgtacactggtaccagcagctcccagggacggcccccaaactcctcatctataataataatcagcg gccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccggtccgag gatgaggctacatattcctgtgcaacatgggatgacagcctgagtggtgtggtcttcggcggagggaccaagctgaccgtcc taggt [SEQ ID NO: 233] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctgg aggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatc atccctatctttggtacagcaaactacgcacagaagttcagggcagagtcacgattaccgcggacgaatccacgag cacagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcgagagatcccgcctacg gtgactacgagtatgatgcttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 234] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) LPVLTQPPSASATPGQRVTISCSGTTSNIGSNTVHWYQQLPGTAPKLLIYNNNQ RPSGVPDRFSGSKSGTSASLAISGLRSEDEATYSCATWDDSLSGVVFGGGTKLT VLG [SEQ ID NO: 235] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMG GIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCARDPA YGDYEYDAFDIWGQGTMVTVSS** [SEQ ID NO: 236] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 60

ET200-110
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaactaatggtgtaaactggttccagcagttcccaggaacggcccccaaactcctcatctatactaatgatcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgcgg atgaggctgattattactgtgcagtgtgggaccacagcctgaatggtccggtgttcggcggagggaccaagctgaccgtcct aggt [SEQ ID NO: 237] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctgg aggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatc atccctatctttggtacagcaaactacgcacagaagttcagggcagagtcacgattaccgcggacgaatccacgag cacagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcgagaggggccggttttg atgcttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 238] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSASGTPGQRVTISCSGSSSNIGTNGVNWFQQFPGTAPKLLIYTNDQ RPSGVPDRFSGSKSGTSASLAISGLQSADEADYYCAVWDHSLNGPVFGGGTKL TVLG [SEQ ID NO: 239] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMG GIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCARGA GFDAFDIWGQGTMVTVSS** [SEQ ID NO: 240] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 61

ET200-111
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcc aacatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagc ggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctg aggatgagactgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgt cctaggt [SEQ ID NO: 241] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctacagcagtggggcgcaggactgttgaagccttcggagaccctgccctcacctgcgctgtctatgg tgggtccttcagtggttactactggagctggatccgccagcccccagggaaggggctggagtggattggggaaatc aatcatagtggaagcaccaactacaacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaac cagttctccctgaagctgagctctgtgaccgccgcggacacggctgtgtattactgtgcgagagaggggctagatgc ttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 242] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNN QRPSGVPDRFSGSKSGTSASLAISGLQSEDETDYYCAAWDDSLNGYVFGTGT KVTVLG [SEQ ID NO: 243] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWI GEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCAREG LDAFDIWGQGTMVTVSS** [SEQ ID NO: 244] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 62

ET200-112
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcc aacatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatgtatagtaatgatcagc ggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctga ggatgaggctgattattattgtgcagcatgggatgacagcctgaatggttatgtcttcgcagctgggacccagctcaccgtttta agt [SEQ ID NO: 245] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctacagcagtggggcgcaggactgttgaagccttcggagaccctgccctcacctgcgctgtctatggt gggtccttcagtggttactactggagctggatccgccagcccccagggaaggggctggagtggattggggaaatca atcatagtggaagcaccaactacaacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaacca gttctccctgaagctgagctctgtgaccgccgcggacacggctgtgtattactgtgcgagagaggggctagatgctttt gatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 246] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLMYSND QRPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFAAGT QLTVLS [SEQ ID NO: 247] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIG EINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCAREGLD AFDIWGQGTMVTVSS** [SEQ ID NO: 248] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 63

ET200-113
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcagctcc aacattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcga ccctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcactggactccagactgggg acgaggccgattattactgcggaacatgggatagcagcctgagtgctgcttatgtcttcggaactgggaccaaggtcaccgt cctaggt [SEQ ID NO: 249] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtccagctggtacagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacagctttaccagctatactatcagctgggttcgacaggcccctggacaaggccttgagtggatgggatgggtcag cacttacaatggtctcagaaactatgcacagaacctccagggcagagtcaccatgactacagacacactcacgacc acagcctacatggagctgaggagcctcagatctgacgacacggccgtgtattattgtgtgagagaggggtcccccga ctacggtgacttcgcggcctttgactactggggccagggcaccctggtcaccgtctcctca** [SEQ ID NO: 250] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVVTQPPSVSAAPGQKVTISCSGSSSNIGNNYVSWYQQLPGTAPKLLIYDNN KRPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSLSAAYVFGTGT KVTVLG [SEQ ID NO: 251] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGASVKVSCKASGYSFTSYTISWVRQAPGQGLEWMG WVSTYNGLRNYAQNLQGRVTMTTDTLTTTAYMELRSLRSDDTAVYYCV REGSPDYGDFAAFDYWGQGTLVTVSS** [SEQ ID NO: 252] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 64

ET200-114
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgctgactcagccaccctcagcgtctgagacccccgggcagagggtcaccatctcttgttctggaagcaggtcc aacatcggaactaatattgtacactggtaccagcagcgcccaggaatggcccccaaactcctcacttatggtagtcggcggc cctcaggggtcccggaccgattctctggctccaagtttggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattattgtgcagcatgggatgacagtctgaatggtccggctttcggcggagggaccaagctgaccgtcctag gt [SEQ ID NO: 253] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctacagcagtggggcgcaggactgttgaagccttcggagaccctgccctcacctgcgctgtctatggt gggtccttcagtggttactactggagctggatccgccagcccccagggaaggggctggagtggattggggaaatca atcatagtggaagcaccaactacaacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaacca gttctccctgaagctgagctctgtgaccgccgcggacacggctgtgtattactgtgcgagagacggtgggggctactt tgactactggggccagggaaccctggtcaccgtctcctca** [SEQ ID NO: 254] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPPSASETPGQRVTISCSGSRSNIGTNIVHWYQQRPGMAPKLLTYGSRR PSGVPDRFSGSKFGTSASLAISGLQSEDEADYYCAAWDDSLNGPAFGGGTKLT VLG [SEQ ID NO: 255] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIG EINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCARDGG GYFDYWGQGTLVTVSS** [SEQ ID NO: 256] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 65

ET200-115
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagctcc aatatcggggcacgttatgatgtacactggtaccagcaactcccaggaacagcccccgactcctcatctctgctaactacga tcggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctccaggct gaggatgaggctgattattactgccagtcctatgacagcagtgtgagtgcttgggtgttcggcggagggaccaaggtcaccg tcctaggt [SEQ ID NO: 257] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaagtgcagctggtgcagtctggggctgaagtgaaggagcctggggcctcagtgaggatctcctgccaggcatctg gatacaacttcatcagttattatatgcactgggtgcggcaggcccctgggcaaggtcttgagtggatgggcaccatca acccaggcagtggtgagacagactactcacagaagttgcagggcagagtcaccatgaccagggacccgtccacgg gtacattcgacatggggctgagcagcctgacatctggggacacggccgtctattattgtgcgacaggtctcatcagag gagctagcgatgcttttaatatctggggccgggggacaatggtcaccgtctcttca** [SEQ ID NO: 258] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSGAPGQRVTISCTGSSSNIGARYDVHWYQQLPGTAPRLLISANY DRPSGVPDRFSGSKSGTSASLAITGLQAEDEADYYCQSYDSSVSAWVFGGGTK VTVLG [SEQ ID NO: 259] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKEPGASVRISCQASGYNFISYYMHWVRQAPGQGLEWMG TINPGSGETDYSQKLQGRVTMTRDPSTGTFDMGLSSLTSGDTAVYYCATG LIRGASDAFNIWGRGTMVTVSS** [SEQ ID NO: 260] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 66

ET200-116
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagcctgtgctgactcagccaccctcagtgtccgtgtccccaggacagacggccgccatcccctgttctggagataagttggggataaatttgcttcctggtatcagcagaagccaggccagtcccctgtgctggtcatctatcaagatactaagcggccctcagggatccctgagcgattctctggctccaactctgggaacacagccactctgaccatcagcgggacccaggctatggatgaggctgactattactgtcagacgtgggccagcggcattgtggtgttcggcggagggaccaagctgaccgtcctaggt [SEQ ID NO: 261] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtacagctgcagcagtcaggtccaggactggtgaagccctcgcagaccctctcactcacctgtgccatctccgggggacagtgtctctagcaacagtgctgcttggaactggatcaggcagtccccatcgagaggccttgagtggctgggaaggacatactacaggtccaagtggtataatgattatgcagtatctgtgaaaagtcgaataaccatcaacccagacacatccaagaaccagttctccctgcagctgaactctgtgactcccgaggacacggctgtgtattactgtgcaagagagcgcagtggctggaagggatttgactactggggccagggaaccctggtcaccgtctcctca** [SEQ ID NO: 262] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QPVLTQPPSVSVSPGQTAAIPCSGDKLGDKFASWYQQKPGQSPVLVIYQDTKRPSGIPERFSGSNSGNTATLTISGTQAMDEADYYCQTWASGIVVFGGGTKLTVLG [SEQ ID NO: 263] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLQQSGPGLVKPSQTLSLTCAISGDSVSSNSAAWNWIRQSPSRGLEWLGRTYYRSKWYNDYAVSVKSRITINPDTSKNQFSLQLNSVTPEDTAVYYCARERSGWKGFDYWGQGTLVTVSS** [SEQ ID NO: 264] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 67

ET200-117
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) gatgttgtgatgactcagtctccaccctccctgtccgtcacccctggagagccggcctccatcacctgcaggtctagtcaga gcctcctggaaagaaatgcatacaactacttggattggtacctgcagaggccaggacagtctccacagctcctgatctactt gggttctaatcgggccgccggggtccctgacaggttcagtggcagtggatcaggcagagattttacactgaaaatcagca gagtggagcctgaggatgttggggtttattactgcatgcaagctctacaagctccgttcactttcggcggagggaccaaggt ggagatcaaacgt [SEQ ID NO: 265] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaagtgcagctggtgcagtctgggggaggcttggtacagcctggggggtccctgagactctcctgtgcagcctctgg attcacctttagcagctatgccatgagctgggtccgccaggctccagggaaggggctggagtgggtctcagctatta gtggtagtggtggtagcacatactacgcagactccgtgaagggccggttcaccatctccagagacaattccaagaa cacgctgtatctgcaaatgaacagcctgagagccgaggacacggccgtatattactgtgcgaaatggggcccgttt caggatgcttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 266] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) DVVMTQSPPSLSVTPGEPASITCRSSQSLLERNAYNYLDWYLQRPGQSPQLLI YLGSNRAAGVPDRFSGSGSGRDFTLKISRVEPEDVGVYYCMQALQAPFTFGG GTKVEIKR [SEQ ID NO: 267] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGGGLVQPGGSLRLSCAASGFTFSSYAMSWVRQAPGKGLEWV SAISGSGGSTYYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCAK WGPFQDAFDIWGQGTMVTVSS** [SEQ ID NO: 268] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 68

ET200-118
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgctgactcagcctgcctccgtgtctgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtgacgttggtggttataactatgtctcctggtaccaacagcacccgggcaaagcccccaaactcatgatttatgaggtcagtaatcggccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggacgaggctgattattactgcagctcatatacaagcagcagcacccccttatgtcttcggagcagggaccaaggtcaccgtcctaggt [SEQ ID NO: 269] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctgggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccatgcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagtggtagcataggctatgcggactctgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctgaggacacggccttgtattactgtgcaaaagccaggtggacagcagtggcatcagaccaccactttgactactggggccagggaacgctggtcaccgtctcctca** [SEQ ID NO: 270] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPASVSGSPGQSITISCTGTSSDVGGYNYVSWYQQHPGKAPKLMIYEVSNRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYTSSSTPYVFGAGTKVTVLG [SEQ ID NO: 271] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGGGLVQPGRSLRLSCAASGFTFDDYAMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTALYYCAKARWTAVASDHHFDYWGQGTLVTVSS** [SEQ ID NO: 272] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 69

ET200-119
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgcttactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcg gccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgag gatgaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaagctgaccgtcct aggt [SEQ ID NO: 273] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctgg aggcaccttcagcagctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatc atccctatctttggtacagcaaactacgcacagaagttcagggcagagtcacgattaccgcggacgaatccacgag cacagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcgagagattgggactaca tggacgtctggggcaaagggaccacggtcaccgtctcctca** [SEQ ID NO: 274] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQ RPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKL TVLG [SEQ ID NO: 275] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAISWVRQAPGQGLEWMG GIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSEDTAVYYCARDW DYMDVWGKGTTVTVSS** [SEQ ID NO: 276] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 70

ET200-120
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgagctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaacatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgaggatgaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgtcctaggt [SEQ ID NO: 277] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtgcagctggtggagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgcacagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatctgacgacacggccgtgtattactgtgcgagagacctatctcgggggagctaacccgcattactactactacggtatggacgtctggggccaagggaccacggtcaccgtctcctca** [SEQ ID NO: 278] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCCGTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYELTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQRPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKVTVLG [SEQ ID NO: 279] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVESGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAYMELRSLRSDDTAVYYCARDLSRGANPHYYYYYGMDVWGQGTTVTVSS** [SEQ ID NO: 280] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 71

ET200-121
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccgtctcctgcactgggagcagatcc aacatcggggcaggatatgatgtacactggtaccagcaacttccaggaacagcccccaaactcctcatctatggaaatagta atcggcctccaggggtccctgaccgattctctgggtctaagtctggcacctcagcctccctggtcatcactgggctccaggct gaggatgccgctgattattactgccagtcctatgacaacactgtgcgtgaatcaccttatgtcttcggaactgggaccaaggtc accgtcctaggt [SEQ ID NO: 281] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtacagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggtttccgg atacaccctcactgaattatccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttga tcctgaagatggtgaaacaatctacgcacagaagttcagggcagagtcaccatgaccgaggacacatctacagac acagcctacatggagctgagcagcctgagatctgaggacacggccgtgtattactgtgcaacagagagtaatttagt gtcccggcactactactactacggtatggacgtctggggccaagggaccacggtcaccgtctcctca** [SEQ ID NO: 282] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QSVLTQPPSVSGAPGQRVTVSCTGSRSNIGAGYDVHWYQQLPGTAPKLLIYGN SNRPPGVPDRFSGSKSGTSASLVITGLQAEDAADYYCQSYDNTVRESPYVFGT GTKVTVLG [SEQ ID NO: 283] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGASVKVSCKVSGYTLTELSMHWVRQAPGKGLEWM GGFDPEDGETIYAQKFQGRVTMTEDTSTDTAYMELSSLRSEDTAVYYCAT ESNLVSRHYYYYGMDVWGQGTTVTVSS** [SEQ ID NO: 284] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 72

ET200-122
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) ctgcctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaaccagctcc aacatcggaagtaattctgtagactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagc ggccctcaggggtccctgaccgaatctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctg aggatgaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgt cctaggt [SEQ ID NO: 285] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaagtgcagctggtgcagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctg gatacaccttcaccggctactatatgcactgggtgcgacaggcccctggacaagggcttgagtggatgggatggat caaccctaacagtggtggcacaaactatgcacagaagtttcagggcagggtcaccatgaccagggacacgtccat cagcacagcctacatggagctgagcaggctgagatctgacgacacggccgtgtattactgtgcgagagattacgg atactatggttcggggagttattcgagcggcccccttttactactactacggtatggacgtctggggccaagggacca cggtcaccgtctcctca** [SEQ ID NO: 286] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) LPVLTQPPSASGTPGQRVTISCSGTSSNIGSNSVDWYQQLPGTAPKLLIYSNNQ RPSGVPDRISGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTK VTVLG [SEQ ID NO: 287] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGASVKVSCKASGYTFTGYYMHWVRQAPGQGLEW MGWINPNSGGTNYAQKFQGRVTMTRDTSISTAYMELSRLRSDDTAVYYC ARDYGYYGSGSYSSGPLYYYYGMDVWGQGTTVTVSS** [SEQ ID NO: 288] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 73

ET200-123
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) caggctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcc aacatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatgtataataatgatcagc ggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctg aggatgaggctgattattactgtgcagcatgggatgacagcctcaatggttatgtcttcggacctgggaccaaggtcaccgt cctaggt [SEQ ID NO: 289] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtggagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctg gttacacctttaccagctatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatc agcgcttacaatggtaacacaaactatgcacagaagctccagggcagagtcaccatgaccacagacacatccacg agcacagcctacatggagctgaggagcctgagatctgacgacacggccgtgtattactgtgcgagagacctatctc ggggagctaacccgcattactactactacggtatggacgtctggggccaagggaccacggtcaccgtctcctc a** [SEQ ID NO: 290] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLMYNN DQRPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGPG TKVTVLG [SEQ ID NO: 291] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVESGAEVKKPGASVKVSCKASGYTFTSYGISWVRQAPGQGLEWM GWISAYNGNTNYAQKLQGRVTMTTDTSTSTAYMELRSLRSDDTAVYYC ARDLSRGANPHYYYYYGMDVWGQGTTVTVSS** [SEQ ID NO: 292] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 74

ET200-125
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) aattttatgctgactcagccccacgctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gtattgccagcaactatgtgcagtggtaccagcagcgcccgggcagttccccccgcactgtgatttatgaggataatcaaag accctctggggtccctggtcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagac tgaggacgaggctgactactactgtcagtcttatgattccaccagtgtgcttttcggcggagggaccaagctgaccgtcctag gt [SEQ ID NO: 293] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **gaggtccagctggtgcagtctggggctgaggtgaagaagccagggtcctcggtgaaggtctcctgcaaggcctcgg gaggcaccttcagcagcaattctctcagctgggtgcgacaggcccctggacaagggcttgagtggatgggaaggat cttccctatcctgggtataacaaactatgcacagaagttccagggcagagtcacgattaccgcggacaaatccacga gcacagcctacatggagctgagcagcctgagatctgaggacacggccgtctattactgtgcgagaggaaactacca atggtatgatgcttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 294] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) NFMLTQPHAVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSSPRTVIYEDNQ RPSGVPGRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSTSVLFGGGTKLTV LG [SEQ ID NO: 295] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **EVQLVQSGAEVKKPGSSVKVSCKASGGTFSSNSLSWVRQAPGQGLEWMG RIFPILGITNYAQKFQGRVTITADKSTSTAYMELSSLRSEDTAVYYCARGN YQWYDAFDIWGQGTMVTVSS** [SEQ ID NO: 296] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 75

ET200-005
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) cagcctgtgctgactcagccaccctcagtgtcagtggtcccaggaaagacggccaggattacctgtgggggaaaaaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtggtggtcatccattatgatagtgaccggccc tcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggat gaggccgactattactgtcaggtgtgggatagtagtagtgatcatccttatgtcttcggaactgggaccaaggtcaccgtccta ggt [SEQ ID NO: 297] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctgg ttacacctttaccaactatggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatca gcgcttacaatggtaacacaaactatgcacataagctccagggcagagtcaccatgaccacagacacatccacgag cacagccaacatggagctgaggagcctgagacctgacgacactgccgtgtattactgtgcgcgctcttacttcggttc tcatgattactggggtcaaggtactctggtgaccgtctcctca** [SEQ ID NO: 298] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) QPVLTQPPSVSVVPGKTARITCGGKNIGSKSVHWYQQKPGQAPVVVIHYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHPYVFGTGTKV TVLG [SEQ ID NO: 299] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVQSGAEVKKPGASVKVSCKASGYTFTNYGISWVRQAPGQGLEWM GWISAYNGNTNYAHKLQGRVTMTTDTSTSTANMELRSLRPDDTAVYYCA RSYFGSHDYWGQGTLVTVSS** [SEQ ID NO: 300] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Table 76

ET200-124
DNA Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) tcctatgtgctgactcagccaccctcggtgtcagtggccccaggaaagacggccaggatttcctgtgggggaaacgacattg gaagtaaaagtgttttctggtatcagcagaggccaggccaggcccctgtgttggtcgtctatgatgatagcgaccggccctca gggctccctgagcgattctctggcttcaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaagtgtgggatagtagtagtgatcattatgtcttcggaactgggaccaaggtcaccgtcctaggt [SEQ ID NO: 301] tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcc [SEQ ID NO: 305] **caggtgcagctggtggagtctgggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctgg attcacctttgatgattatgccatgcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattag ttggaatagtggtagcataggctatgcggactctgtgaagggccgattcaccatctccagagacaacgccaagaact ccctgtatctgcaaatgaacagtctgagagctgaggacacggccttgtattactgtgcaaaagatataacctatggtt cggggagttatggtgcttttgatatctggggccaagggacaatggtcaccgtctcttca** [SEQ ID NO: 302] ACTAGTGGCCAGGCCGGCCAGCACCATCACCATCACCATGGCGCATACCC GTACGACGTTCCGGACTACGCTTCT [SEQ ID NO: 306]
Amino Acid Sequence
(light chain variable region scFv linker **heavy chain variable region** His tag + HA tag) SYVLTQPPSVSVAPGKTARISCGGNDIGSKSVFWYQQRPGQAPVLVVYDDSDR PSGLPERFSGFNSGNTATLTISRVEAGDEADYYCQVWDSSSDHYVFGTGTKVT VLG [SEQ ID NO: 303] SRGGGGSGGGGSGGGGSLEMA [SEQ ID NO: 307] **QVQLVESGGGLVQPGRSLRLSCAASGFTFDDYAMHWVRQAPGKGLEWV SGISWNSGSIGYADSVKGRFTISRDNAKNSLYLQMNSLRAEDTALYYCAKD ITYGSGSYGAFDIWGQGTMVTVSS** [SEQ ID NO: 304] TSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 308]

Exemplary anti-FcRL5 antibodies comprising a heavy chain variable region, a light chain variable region and a linker peptide

Table 77

ET200-001
DNA Sequence
cagtctgtgttgacgcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcg gccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgag gatgaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgtcct aggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctac agcagtggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtgtatggtgggtccttcagtggttac tactggagctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaacta caacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgacc gccgcggacacggccgtgtattactgtgcgcgcgaaggtccgtacgacggtttcgattcttggggtcaaggtactctggtga ccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacg cttct [SEQ ID NO: 593]
Amino Acid Sequence
QSVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQ RPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYG GSFSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSL KLSSVTAADTAVYYCAREGPYDGFDSWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 594]

Table 78

ET200-002
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaa gaccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaaga ctgaggacgaggctgactactactgtcagtcttatgatagcagcaattctgtggtattcggcggagggaccaagctgaccgtc ctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctg gtacagtctggcactgaggtgaagaagcctggggcctcagtgagggtcgcctgcaaggcttctggttaccccttttaacaaat atgacatcaactgggtgcgacaggcccctggacaagggcttgagtggatgggaggcatcatccctatctttcgtacaacaaa ctacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagc ctgagatctgaggacacggccgtatattactgtgcgcgcgaatggttctactgggatatctggggtcaaggtactctggtgac cgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgc ttct [SEQ ID NO: 595]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNSVVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGTEVKKPGASVRVACKASGY PFNKYDINWVRQAPGQGLEWMGGIIPIFRTTNYAQKFQGRVTITADESTSTAY MELSSLRSEDTAVYYCAREWFYWDIWGQGTLVTVSSTSGQAGQHHHHHHGA

YPYDVPDYAS [SEQ ID NO: 596]

Table 79

ET200-003
DNA Sequence
cagtctgtgttgactcagccaccctcagtgtccgtgtccccaggacagacagccagcatctcctgctctggaaataaattggg gactaagtatgtttactggtatcagaagaggccaggccagtcccctgtgttggtcatgtatgaagataatcagcggccctcag ggatcccggagcggttctctggctccaactctgggaacacagccactctgaccatcagagggacccagactgtggatgag gctgactattactgtcaggcgtgggactccgacactttcgtggtcttcggcggagggaccaaggtcaccgtcctaggttctag aggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagacc gggggaggcgtggtccagcctgggaggtccctgagactctcctgtgcagcctctggattcaccttcagtagttatggcatgc actgggtccgccaggctccaggcaaggggctggagtgggtggcagttatatcacatgatggaagtaataaatactacgcag actccgtgaagggccgattcaccatctccagagacaattccaaggacacgctgtatctgcaaatgaacagcctgagaggtg aggacacggccgtatattactgtgcgcgctctaaccagtggtctggttacttctctttcgattactggggtcaaggtactctggt gaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggacta cgcttct [SEQ ID NO: 597]
Amino Acid Sequence
QSVLTQPPSVSVSPGQTASISCSGNKLGTKYVYWYQKRPGQSPVLVMYEDNQ RPSGIPERFSGSNSGNTATLTIRGTQTVDEADYYCQAWDSDTFVVFGGGTKVT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVETGGGVVQPGRSLRLSCAASGFT FSSYGMHWVRQAPGKGLEWVAVISHDGSNKYYADSVKGRFTISRDNSKDTL YLQMNSLRGEDTAVYYCARSNQWSGYFSFDYWGQGTLVTVSSTSGQAGQHH HHHHGAYPYDVPDYAS [SEQ ID NO: 598]

Table 80

ET200-006
DNA Sequence
tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtggtggtcatccattatgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagtgatcatccttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcag tctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccacctatggtatc agctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcaacacttacaatggtcacacaaactatgcac agaagctccagggcagagccacaatgaccgcagacacatccacgaacacagcctacatggagctgaggagcctgagatct gacgacactgccgtgtattactgtgcgcgcgttatctacggttctggtgattactggggtcaaggtactctggtgaccgtctcctc aactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 599]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVVVIHYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHPYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYT FTTYGISWVRQAPGQGLEWMGWINTYNGHTNYAQKLQGRATMTADTSTNTA YMELRSLRSDDTAVYYCARVIYGSGDYWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 600]

Table 81

ET200-007
DNA Sequence
tcctatgtgctgactcagccactctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaactgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatg aggccgactattactgtcaggtgtgggatagtagtagtgatcatcgggtgttcggcggagggaccaagctgaccgtcctagg ttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctgcagg agtcgggcccaggactggtgaagccttcggagaccctgtccctcacctgcaatgtctctggttactccatcagcagtggttac ttttggggctggatccggcagcccccagggaaggggctggagtggattgggagtatctatcatagtaggagcacctactac aacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgaactctgtgaccg ccgcagacacggccgtgtattactgtgcgcgcggttacggttacttcgattactggggtcaaggtactctggtgaccgtctcct caactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 601]
Amino Acid Sequence
SYVLTQPLSVSVAPGKTARITCGGNNIGSKTVHWYQQKPGQAPVLVIYYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHRVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLQESGPGLVKPSETLSLTCNVSGYSI SSGYFWGWIRQPPGKGLEWIGSIYHSRSTYYNPSLKSRVTISVDTSKNQFSLKL NSVTAADTAVYYCARGYGYFDYWGQGTLVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 602]

Table 82

ET200-008
DNA Sequence
caatctgccctgactcagcctgcctccgtgtctgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtgac gttggtggttataactatgtctcctggtaccaacaacacccaggcaaagcccccaaactcatgatttatgatgtcagtaatcggc cctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggacg aggctgattattactgcagctcatatacaagcagcagcacttcgaaggtgttcggcggagggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgga gtctgggggaggtgtggtacggcctggggggtccctgagactctcctgtgcagcctctggattcacctttggtgattatggcat gagctgggtccgccaagctccagggaaggggctggagtgggtctctggtattaattggaatggtggtagcacaggttatgca gactctgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagccg aggacacggccgtatattactgtgcgcgctctaaatacaacttccatgtttactacgattactggggtcaaggtactctggtgacc gtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttc t [SEQ ID NO: 603]
Amino Acid Sequence
QSALTQPASVSGSPGQSITISCTGTSSDVGGYNYVSWYQQHPGKAPKLMIYDVS NRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYTSSSTSKVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGVVRPGGSLRLSCAASGFT FGDYGMSWVRQAPGKGLEWVSGINWNGGSTGYADSVKGRFTISRDNAKNSL YLQMNSLRAEDTAVYYCARSKYNFHVYYDYWGQGTLVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 604]

Table 83

ET200-009
DNA Sequence
cagtctgtgttgacgcagccaccctcagcgtctgggacccccgggcagacagtcaccatctcttgttctggaagcaactccaa catcggaagtaattatgtatactggtaccagcagctcccaggaacggcccccaaactcctcatctataggaataatcagcggc cctcaggggtccctgaccgattctcaggctccaagtctggcacctcagcctccctggccatcagtgggctccgctccgaggat gaggctgattattactgtgcagcatgggatgacagcctgagtgcttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgcag tctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatc agctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgca cagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatc tgacgacactgccgtgtattactgtgcgcgctcttctggtaacatggtttcttggaaagatatgtggggtcaaggtactctggtga ccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgc ttct [SEQ ID NO: 605]
Amino Acid Sequence
QSVLTQPPSASGTPGQTVTISCSGSNSNIGSNYVYWYQQLPGTAPKLLIYRNNQ RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCAAWDDSLSAYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASGY TFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTA YMELRSLRSDDTAVYYCARSSGNMVSWKDMWGQGTLVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 606]

Table 84

ET200-010
DNA Sequence
caatctgccctgactcagcctgcctccgtgtctgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtgac gttggtggttataactctgtctcctggtaccaacaacacccaggcaaagcccccagactcatgatttatgatgtcagtaatcggc cctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggacg aggctgattattactgcagctcatatacaagcagcagcaccccttttagtcttcggaactgggaccaaggtcaccgtcctaggttc tagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgcagtc tggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatcag ctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgcaca gaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatctg acgacacggccgtgtattactgtgcgcgcggtgctgttgcttaccatgattggggtcaaggtactctggtgaccgtctcctcaac tagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 607]
Amino Acid Sequence
QSALTQPASVSGSPGQSITISCTGTSSDVGGYNSVSWYQQHPGKAPRLMIYDVS NRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYTSSSTPLVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASGY TFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTA YMELRSLRSDDTAVYYCARGAVAYHDWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 608]

Table 85

ET200-011
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagagggtcaccatctcctgctctggaagcagctcc aacatttcgatttatgatgtatcctggtatcagcagctcccaggaacagcccccaaactcctcatttatggcaataataagcgac cctcggggattgctgaccgattctctggctccacgtctggcacgtcagccaccctgggcatcaccggactccagactgggg acgaggccgattattactgcggaacatgggatgacagtctgagtgggggggtgttcggcggagggaccaagctgaccgtc ctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagctg gtgcaatctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcgaggcttctggaggcaccctcagcagc tatgctatcaactgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatgtttggtacagcac actacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgaaaacagcctacatggagctgagcag cctgagatctgaggacactgccgtgtattactgtgcgcgcggtgttcattacgcttctttcgatcattggggtcaaggtactctg gtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggac tacgcttct [SEQ ID NO: 609]
Amino Acid Sequence
QSVVTQPPSVSAAPGQRVTISCSGSSSNISIYDVSWYQQLPGTAPKLLIYGNNK RPSGIADRFSGSTSGTSATLGITGLQTGDEADYYCGTWDDSLSGGVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGSSVKVSCEASG GTLSSYAINWVRQAPGQGLEWMGGIIPMFGTAHYAQKFQGRVTITADESTKT AYMELSSLRSEDTAVYYCARGVHYASFDHWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 610]

Table 86

ET200-012
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctgcggccgcaggacagaaggtcaccatctcctgctctggaagcgactcc aacattgggaataattatgtgtcctggtatcaacacctcccagggacagcccccaaactcctcatttatgacgttaaaaatcga ccctcagggattcctgaccggttctccggctccaagtctggctcgtcagccaccctaggcatcgccggactccagcctggg gacgaggccgattattactgcggaacatgggacagtcggctggatgcctatgtcttcggaactgggaccaaggtcaccgtc ctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagctg gtgcaatctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaagacttctggtttccccttaatatctttg gaatcacctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcggttacaacggtaacacagac tacccacagaagttccagggcagagtcaccatgtccacagacacatccacgagtacagcctacatggagctgaggaacct gaaatctgacgacacggccgtgtattactgtgcgcgcggtgcttacggtggtatggatacttggggtcaaggtactctggtga ccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacg cttct [SEQ ID NO: 611]
Amino Acid Sequence
QSVLTQPPSVSAAAGQKVTISCSGSDSNIGNNYVSWYQHLPGTAPKLLIYDVK NRPSGIPDRFSGSKSGSSATLGIAGLQPGDEADYYCGTWDSRLDAYVFGTGTK VTVLGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGASVKVSCKTS GFPFNIFGITWVRQAPGQGLEWMGWISGYNGNTDYPQKFQGRVTMSTDTSTS TAYMELRNLKSDDTAVYYCARGAYGGMDTWGQGTLVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 612]

Table 87

ET200-013
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcacctc caacatcggggcaggttatgatgtacactggtatcagcagcttccaggaacagcccccaaactcctcatctatactaacaactt tcggccctcaggggtccctgaccgattctctgcctccaagtctggcacttcagcttccctggccatcactggtctccaggctga ggatgaggctgattattactgcggaacatgggatagcagcctgagtgccgttgtgttcggcggagggaccaagctgaccgt cctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagc tggtggagtctggaactgaggtgaagaagcctggggcctcagtgaaagtctcctgcaaggcttctggttacatgtttaccagtt atggtctcaactgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgctaacaatggtaagaca aattatgctaagaaattccaggacagagtcaccatgaccagagacacttccacgagcacaggctacatggaactgaggagc ctgagatctgacgacacggccgtatattactgtgcgcgccatatcggtggttcttacttcgatcgttggggtcaaggtactctgg tgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggact acgcttct [SEQ ID NO: 613]
Amino Acid Sequence
QSVVTQPPSVSGAPGQRVTISCTGSTSNIGAGYDVHWYQQLPGTAPKLLIYTN NFRPSGVPDRFSASKSGTSASLAITGLQAEDEADYYCGTWDSSLSAVVFGGGT KLTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGTEVKKPGASVKVSCKA SGYMFTSYGLNWVRQAPGQGLEWMGWISANNGKTNYAKKFQDRVTMTRDT STSTGYMELRSLRSDDTAVYYCARHIGGSYFDRWGQGTLVTVSSTSGQAGQH HHHHHGAYPYDVPDYAS [SEQ ID NO: 614]

Table 88

ET200-014
DNA Sequence
tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagtgatcattatgtcttcggaactgggaccaaggtcaccgtcctaggttct agaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagac tgggggaggcttggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttagcagctatgccatga gctgggtccgccaggctccagggaaggggctggagtgggtctcagctattagtggtagtgatggtagcacatactacgcaga ctccgtgaagggccggttcaccatctccagagacaattccaagaacacgctgtatctgcaaatgaacagcctgagagacgag gacacggccgtatattactgtgcgcgctctcatgaagctaacctggttggtgattggtggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 615]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDRP SGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHYVFGTGTKVTVL GSRGGGGSGGGGSGGGGSLEMAEVQLVETGGGLVQPGGSLRLSCAASGFTFSS YAMSWVRQAPGKGLEWVSAISGSDGSTYYADSVKGRFTISRDNSKNTLYLQM NSLRDEDTAVYYCARSHEANLVGDWWGQGTLVTVSSTSGQAGQHHHHHHGA YPYDVPDYAS [SEQ ID NO: 616]

Table 89

ET200-015
DNA Sequence
cagtctgtggtgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccc tcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggat gaggccgactattactgtcaggtgtgggatagtagtagtgatgtggtattcggcggagggaccaagctgaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtacag tctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctacggtat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgc acagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgaga tctgacgacacggccgtgtattactgtgcgcgctggggtggtttcggtgctgttgatcattggggtcaaggtactctggtgacc gtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgctt ct [SEQ ID NO: 617]
Amino Acid Sequence
QSVVTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDVVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYT FTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTA YMELRSLRSDDTAVYYCARWGGFGAVDHWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 618]

Table 90

ET200-016
DNA Sequence
tcttctgagctgactcaggaccctgctgtgtctgtggccttgggacagacagtcaagatcacgtgccaaggagacagcctca cagactaccatgcaacctggtaccagcagaagccaggacaggcccctgtcgctgtcatctatgctacaaacaaccggccca ctgggatcccagaccgattctctggttccagttccggaaacacagcttctttgaccatcactggggctcaggcggaagatgag gctgactattactgtaattcccgggacagcggcacggacgaagtgttattcggcggagggaccaagctgaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgga gactgggggaggcctggtcaagcctgggggtccctgagactctcctgtgcagcctctggattcaccttcagtagctatagc atgaactgggtccgccaggctccagggaaggggctggagtgggtctcatccattagtagtagtagtagttacatatactacgc agactcagtgaagggccgattcaccatctccagagacaacgccaagaactcactgtatctgcaaatgaacagcctgagagc cgaggacacggccgtgtattactgtgcgcgcggtcagggttacgattactggggtcaaggtactctggtgaccgtctcctca actagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 619]
Amino Acid Sequence
SSELTQDPAVSVALGQTVKITCQGDSLTDYHATWYQQKPGQAPVAVIYATNN RPTGIPDRFSGSSSGNTASLTITGAQAEDEADYYCNSRDSGTDEVLFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVETGGGLVKPGGSLRLSCAASGFT FSSYSMNWVRQAPGKGLEWVSSISSSSSYIYYADSVKGRFTISRDNAKNSLYL QMNSLRAEDTAVYYCARGQGYDYWGQGTLVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 620]

Table 91

ET200-017
DNA Sequence
tcctatgtgctgactcagccaccctcggtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcgtctatgatgatagcgaccggcc ctcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgagcatcagcagggtcgaagccggggg atgaggccgactattactgtcaggtgtgggatagtagtagtgatcatactgtcttcggaactgggaccaaggtcaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctaca gcagtggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttact actggagctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaacta caacccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgacc gccgcggacacggccgtgtattactgtgcgcgctactacccgggtatggatatgtggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 621]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVVYDDSD RPSGIPERFSGSNSGNTATLSISRVEAGDEADYYCQVWDSSSDHTVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGG SFSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLK LSSVTAADTAVYYCARYYPGMDMWGQGTLVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 622]

Table 92

ET200-018
DNA Sequence
caggctgtgctgactcagccgccctcaacgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcc aacatcgggagaaatggtgtaaactggtaccagcagctcccaggagcggcccccaaagtcctcatctataatgataatcagc gaccctcaggggtccctgaccgagtctctggctcccagtctggctcctcaggcaccctggccatcgatgggcttcggtctga ggatgaggctgattattactgtgcggcatgggatgacagcctgcatggtgtggtattcggcggagggaccaagctgaccgtc ctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctg gtacagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggtttccggatacaccctcaatgaat tatccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttgatcctgaagatggtgaaacaat ctacgcacagaagttccagggcagagtcaccatgaccgaggacacatctacagacacagcctacatggagctgagcagcc tgagatctgaggacactgccgtgtattactgtgcgcgcggtggttacggtgattcttggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 623]
Amino Acid Sequence
QAVLTQPPSTSGTPGQRVTISCSGSSSNIGRNGVNWYQQLPGAAPKVLIYNDN QRPSGVPDRVSGSQSGSSGTLAIDGLRSEDEADYYCAAWDDSLHGVVFGGGT KLTVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKV SGYTLNELSMHWVRQAPGKGLEWMGGFDPEDGETIYAQKFQGRVTMTEDTS TDTAYMELSSLRSEDTAVYYCARGGYGDSWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 624]

Table 93

ET200-019
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcagcaattcttgggtgttcggcggagggaccaagctgaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtg caatctggggctgaggtgaagaggcctgggtcctcggtgaaggtctcctgcacggcttctggaggcaccttcagcagcgatg ctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggaggaatcatccctatgtttggtacagcaaactac gcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgag atctgaggacacggccgtgtattactgtgcgcgcgaaggttactactacccgtctgcttacctgggttctgttctgaacgacatct cttctgtttacgatgaatggggtcaaggtactctggtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatc accatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 625]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNSWVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKRPGSSVKVSCTASGGT FSSDAISWVRQAPGQGLEWMGGIIPMFGTANYAQKFQGRVTITADESTSTAYM ELSSLRSEDTAVYYCAREGYYYPSAYLGSVLNDISSVYDEWGQGTLVTVSSTS GQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 626]

Table 94

ET200-020
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcacctcca acattggaaataatgatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcgac cctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactgggga cgaggccgattattactgcggaacatgggatagcagcgtgagtgcttcttgggtcttcggcagagggaccaagctgaccgtc ctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctg gtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctat ggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaact atccacagaagctccagggcagagtcaccatgaccacagacccatccacgagcacagcctacatggagctgaggagcctg agatctgacgacacggccgtgtattactgtgcgcgctctatgacttctttcgattactggggtcaaggtactctggtgaccgtctc ctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 627]
Amino Acid Sequence
QSVVTQPPSVSAAPGQKVTISCSGSTSNIGNNDVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSVSASWVFGRGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASG YTFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYPQKLQGRVTMTTDPSTST AYMELRSLRSDDTAVYYCARSMTSFDYWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 628]

Table 95

ET200-021
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcaactccaa cattgggaataattatgtatcctggtatcagcaactcccagggacagcccccaaactcctcatttatgacaataataagcgaccc tcagggattcctgaccgattctctggctccaggtctggcacgtcagccaccctgggcatcaccggactccagactggggacg aggccgattattactgcggaacatggaataccactgtgactcctggctatgtcttcggaactgggaccaaggtcaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaagtgcagctggtgc agtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggta tcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgc acagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagat ctgacgacaccgccatgtattactgtgcgcgctctgtttacgacctggatacttggggtcaaggtactctggtgaccgtctcctc aactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 629]
Amino Acid Sequence
QSVLTQPPSVSAAPGQKVTISCSGSNSNIGNNYVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSRSGTSATLGITGLQTGDEADYYCGTWNTTVTPGYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGY TFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTA YMELRSLRSDDTAMYYCARSVYDLDTWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 630]

Table 96

ET200-022
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcagctcca acattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcgacc ctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactggggac gaggccgattattactgcggaacatgggatagcagcctgggggccccttatgtcttcggaactgggaccaaggtcaccgtcct aggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggt gcagtcttggggaggctcggaacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgc catgcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagcggtagcataggctat gcggactctgtgaagggccgattcaccatctccagagacaacgccaagaattccctgtatctgcaaatgaacagtctgagagc tgaggacaccgccatgtattactgtgcgcgctaccgtcaggttggttctgcttacgattcttggggtcaaggtactctggtgacc gtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttc t [SEQ ID NO: 631]
Amino Acid Sequence
QSVVTQPPSVSAAPGQKVTISCSGSSSNIGNNYVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSLGAPYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSWGGSEQPGRSLRLSCAASGF TFDDYAMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSL YLQMNSLRAEDTAMYYCARYRQVGSAYDSWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 632]

Table 97

ET200-023
DNA Sequence
ctgcctgtgctgactcagccaccctcggtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaagtgtgcactggtatcagcagaagccaggccaggcccctgtgctggtcgtctatgctgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagttatcataattatgtcttcggaactgggaccaaggtcaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcagt ctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatca gctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgcac agaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgagcagcctgagatct gaggacaccgccatgtattactgtgcgcgctactggggtttcggtgtttctgatcgttggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 633]
Amino Acid Sequence
LPVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVVYADSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSYHNYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYT FTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAY MELSSLRSEDTAMYYCARYWGFGVSDRWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 634]

Table 98

ET200-024
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccccgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgacagcagcaatctttgggtgttcggcggagggaccaagctgaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagctggtg cagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatg ctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactac gcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgag atctgaggacactgccgtgtattactgtgcgcgctacaactactactactacgattcttggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 635]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTGSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNLWVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGSSVKVSCKASGG TFSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYM ELSSLRSEDTAVYYCARYNYYYYDSWGQGTLVTVSSTSGQAGQHHHHHHGA YPYDVPDYAS [SEQ ID NO: 636]

Table 99

ET200-025
DNA Sequence
gacatccagatgacccagtctccatcctccctgtctgcatctgtaggagacagagtcaccatcacttgccgggcaagtcagag cattagcagctatttaaattggtatcagcagaaaccagggaaagcccctaagctcctgatctatgctgcatccagtttgcaaagt ggggtcccatcaaggttcagtggcagtggatctgggacagatttcactctcaccatcagcagtctgcaacctgaagattttgca acttactactgtcaacagagttacagtaccccattcactttcggccctgggaccaaagtggatatcaaacgttctagaggtggtg gtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcagtctggggctgag gtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctatcagctgggtgcg acaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgcacagaagttccag ggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatctgaggacaccgc catgtattactgtgcgcgctactggggttacgactcttacgatgaatggggtcaaggtactctggtgaccgtctcctcaactagt ggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 637]
Amino Acid Sequence
DIQMTQSPSSLSASVGDRVTITCRASQSISSYLNWYQQKPGKAPKLLIYAASSLQ SGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQSYSTPFTFGPGTKVDIKRSRG GGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAIS WVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSE DTAMYYCARYWGYDSYDEWGQGTLVTVSSTSGQAGQHHHHHHGAYPYDVP DYAS [SEQ ID NO: 638]

Table 100

ET200-026
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcagcaattgggtgttcggcggagggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgcag tctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgca cagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatct gaggacacggccgtgtattactgtgcgcgcaacaaccattactacaacgattactggggtcaaggtactctggtgaccgtctc ctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 639]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTGSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNWVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTF SSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMEL SSLRSEDTAVYYCARNNHYYNDYWGQGTLVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 640]

Table 101

ET200-027
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagggggtcaccatcccctgcactgggagcagctcc aacatcggggcaggttatgatgtacactggtaccagcagcttccagggacagcccccaaactcctcatctatggtaacaacaa tcggccctcaggggtccctgaccgcttctctggctccaggtctggctcctcagcctccctggccatcactgggctccaggctg aggatgaggctgattattactgccagtcctatgacagcagcctgagtgatgtggtattcggcggagggaccaaggtcaccgtc ctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctg gtgcagtctggggctgaggtgaagaagcctggggctacagtgaaaatctcctgcaaggtttctggatacaccttcaccgacta ctacatgcactgggtgcaacaggcccctggaaaagggcttgagtggatgggacttgttgatcctgaagatggtgaaacaatat acgcagagaagttccagggcagagtcaccataaccgcggacacgtctacagacacagcctacatggagctgagcagcctg agatctgaggacacggccgtgtattactgtgcgcgctactggtcttactctttcgactacctgtacatgccggaaggtaacgatt ggtggggtcaaggtactctggtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcata cccgtacgacgttccggactacgcttct [SEQ ID NO: 641]
Amino Acid Sequence
QSVLTQPPSVSGAPGQGVTIPCTGSSSNIGAGYDVHWYQQLPGTAPKLLIYGNN NRPSGVPDRFSGSRSGSSASLAITGLQAEDEADYYCQSYDSSLSDVVFGGGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGATVKISCKVSGY TFTDYYMHWVQQAPGKGLEWMGLVDPEDGETIYAEKFQGRVTITADTSTDTA YMELSSLRSEDTAVYYCARYWSYSFDYLYMPEGNDWWGQGTLVTVSSTSGQ AGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 642]

Table 102

ET200-028
DNA Sequence
cagtctgtgttgactcagccacccgcagcgtctgggacccccggacagagagtcaccatctcttgttctgggggcgtctccaa catcgggagtggtgctctaaattggtaccagcaactcccaggaacggcccccaaactcctcatctatagttacaatcagcggc cctcaggggtctctgaccgattctctggctccaggtctgccacctcagcctccctggccatcagtgggctccagtctgaggatg aggctgattattactgtgcaacctgggatgatagtgtgaatggttgggtgttcggcggagggaccaagctgaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtacagt ctggagctgaggtgaagaagcctggggattcagtgaaggtctcctgcaagccttctggttacaattttctcaactatggtatcaa ctgggtgcgacaggcccctggacaagggcttgagtggatgggatggattagcacttacaccggtaacacaaactatgcaca gaagctgcagggcagagtcaccttcaccacagacacatccacgagcacagcctacatggagatgaggagcctgagatctga cgacacggccgtgtattactgtgcgcgcgacctgtactactacgaaggtgttgattactggggtcaaggtactctggtgaccgt ctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 643]
Amino Acid Sequence
QSVLTQPPAASGTPGQRVTISCSGGVSNIGSGALNWYQQLPGTAPKLLIYSYNQ RPSGVSDRFSGSRSATSASLAISGLQSEDEADYYCATWDDSVNGWVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGDSVKVSCKPSGY NFLNYGINWVRQAPGQGLEWMGWISTYTGNTNYAQKLQGRVTFTTDTSTSTA YMEMRSLRSDDTAVYYCARDLYYYEGVDYWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 644]

Table 103

ET200-029
DNA Sequence
caggctgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccagggttacctgtgggggaaacaacatt ggaagtgaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgttggtcatctattatgataccgaccggccct cagggatccctgagcgattctctggctcccactctgggaccacggccaccctgaccatcagcagggtcgaagccggggatg aggccgactattactgtcaggtgtgggatagtagtagggatcatgtggtattcggcggagggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgcag tctgggggaggcgtggtccagcctgggaggtccctgagactctcctgtgcggcctctggattcaccttcagtagctatgctatg cactgggtccgccaggctccaggcaagggactggagtgggtggcagttatatcatatgatggaagcaataaatactacgcag actccgtgaagggcctattcaccatctccagagacaattccaagaacacgctgtatctgcaaatgaacagcctgagagctgag gacacggccgtgtattactgtgcgcgctcttacttcacttctggtttctacgattactggggtcaaggtactctggtgaccgtctcc tcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 645]
Amino Acid Sequence
QAVLTQPPSVSVAPGKTARVTCGGNNIGSESVHWYQQKPGQAPVLVIYYDTDR PSGIPERFSGSHSGTTATLTISRVEAGDEADYYCQVWDSSRDHVVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGGGVVQPGRSLRLSCAASGFTF SSYAMHWVRQAPGKGLEWVAVISYDGSNKYYADSVKGLFTISRDNSKNTLYL QMNSLRAEDTAVYYCARSYFTSGFYDYWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 646]

Table 104

ET200-030
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagttcc aacatcggggcaggttatgatgtaaattggtatcagcagtttccaggaacagcccccaaactcctcatctatggtaacagcaat cggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctccaggctga ggatgaggctgattattactgccagtcctatgacagcagcctgagtggctcttatgtcttcggaactgggaccaaggtcaccgt cctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagct ggtgcagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttccggatacaccctcactgaa ttatccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttgatcctgaagatggtgaaacaat ctacgcacagaagttccagggcagagtcaccatgaccgaggacacatctacagacacagcctacatggagctgagcagcct gagatctgaggacactgccgtgtattactgtgcgcgcatgtcttctatgtactacgattggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 647]
Amino Acid Sequence
QSVVTQPPSVSGAPGQRVTISCTGSSSNIGAGYDVNWYQQFPGTAPKLLIYGNS NRPSGVPDRFSGSKSGTSASLAITGLQAEDEADYYCQSYDSSLSGSYVFGTGTK VTVLGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGASVKVSCKAS GYTLTELSMHWVRQAPGKGLEWMGGFDPEDGETIYAQKFQGRVTMTEDTSTD TAYMELSSLRSEDTAVYYCARMSSMYYDWGQGTLVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 648]

Table 105

ET200-031
DNA Sequence
tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagtgattatgtcttcggaactgggaccaaggtcaccgtcctaggttctaga ggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagactgg gggaggcttggtcaagcctggagggtccctgagactctcctgtgcagcctctggattcaccgtcagtgactactacatgagct ggatccgccaggctccagggaagggcctggagtggatttcatacattagtggtagtggtaatagcatatactacgcagactct gtgaagggccgattcaccatctccagggacaacgccaagaactcactggatctgcaaatgaccagcctgagagccgaggac acggccgtatattactgtgcgcgctctactaaattcgattactggggtcaaggtactctggtgaccgtctcctcaactagtggcc aggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 649]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDRP SGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDYVFGTGTKVTVLG SRGGGGSGGGGSGGGGSLEMAEVQLVETGGGLVKPGGSLRLSCAASGFTVSD YYMSWIRQAPGKGLEWISYISGSGNSIYYADSVKGRFTISRDNAKNSLDLQMTS LRAEDTAVYYCARSTKFDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPYDVP DYAS [SEQ ID NO: 650]

Table 106

ET200-032
DNA Sequence
ctgcctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa cgtcggaagttacactgtaaactggtaccggcaactcccaggaacggcccccacactcctcatctataataataatcagcggc cctcaggggtccctgaccgattctctgactccaagtctggcacctcggcctccctgaccattagtgggctccagcctgaggat gaggctgattattattgtgcagcatgggatgacaggctgggtggttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcag tctggagcagaggtgaaaaagccgggggagtctctgaagatctcctgtaagggttctggatacagctttaccaactactggat cggctgggtgcgccagatgcccgggaaaggcctggagtggatggggatcatctatcctggtgactctgataccagatacag cccgtccttccaaggccaggtcaccatctcagccgacaagtccatcagcaccgcctacctacagtggagcagcctgaaggc ctcggacaccgccatgtattactgtgcgcgctctactggttcttctatatgtctgatgaatggggtcaaggtactctggtgaccg tctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 651]
Amino Acid Sequence
LPVLTQPPSASGTPGQRVTISCSGSSSNVGSYTVNWYRQLPGTAPTLLIYNNNQ RPSGVPDRFSDSKSGTSASLTISGLQPEDEADYYCAAWDDRLGGYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGESLKISCKGSGYS FTNYWIGWVRQMPGKGLEWMGIIYPGDSDTRYSPSFQGQVTISADKSISTAYLQ WSSLKASDTAMYYCARSTGSSHMSDEWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 652]

Table 107

ET200-033
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcagcaatcattgggtgttcggcggagggaccaagctgaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaagtgcagctacag cagtggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactac tggagctggatccgccagcccccagggaaggggctggagtggattggggagatcactcatagtggaaggtccaactacaa cccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccg cggacacggccgtgtattactgtgcgcgctcttctatcatgtctgattactggggtcaaggtactctggtgaccgtctcctcaact agtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 653]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTGSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNHWVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGS FSGYYWSWIRQPPGKGLEWIGEITHSGRSNYNPSLKSRVTISVDTSKNQFSLKLS SVTAADTAVYYCARSSIMSDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPYD VPDYAS [SEQ ID NO: 654]

Table 108

ET200-034
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcacctcca acatcggggcaggttatgatgtacactggtaccagcagcttccaggaacagcccccaaactcctcatcaacaataacaggaat cggccctcaggggtccctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactg gggacgaggccgattattactgcggaacatgggatggcagcctgactggtgcagtgttcggcggagggaccaagctgacc gtcctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccag ctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcatgcaaggcttctggaggcaccttcagca gctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagca aactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcag cctgagatctgaggacacggccgtgtattactgtgcgcgcggttctgctctggaccattacgatcgttggggtcaaggtactct ggtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggac tacgcttct [SEQ ID NO: 655]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTISCTGSTSNIGAGYDVHWYQQLPGTAPKLLINNNR NRPSGVPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDGSLTGAVFGGGTK LTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASG GTFSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAY MELSSLRSEDTAVYYCARGSALDHYDRWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 656]

Table 109

ET200-035
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcaccaattgggtgttcggcggagggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgcag tctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgca cagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatct gaggacactgccgtgtattactgtgcgcgctacaactactacttcaacgattactggggtcaaggtactctggtgaccgtctcct caactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 657]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSTNWVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGGT FSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYME LSSLRSEDTAVYYCARYNYYFNDYWGQGTLVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 658]

Table 110

ET200-037
DNA Sequence
tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagtgatcatccttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagctggtgcag tctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatc agctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgca cagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatc tgacgacactgccgtgtattactgtgcgcgctctatgttcggtgctcatgattcttggggtcaaggtactctggtgaccgtctcctc aactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 659]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDRP SGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHPYVFGTGTKVTV LGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGASVKVSCKASGYT FTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAY MELRSLRSDDTAVYYCARSMFGAHDSWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 660]

Table 111

ET200-038
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagctcc aacatcggggcaggttttgatgtacactggtaccagctacttccaggaacagcccccaaactcctcatctatgctaacagcaat cggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctcctggctga ggatgaggctgattattactgccagtcctatgacagcagcctgagtggtgtggtattcggcggagggaccaagctgaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctgg tgcaatctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctat gctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaact acgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctg agatctgaggacactgccgtgtattactgtgcgcgcggtgcttctttcgaccgtcatgataactggggtcaaggtactctggtga ccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgc ttct [SEQ ID NO: 661]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTISCTGSSSNIGAGFDVHWYQLLPGTAPKLLIYANSN RPSGVPDRFSGSKSGTSASLAITGLLAEDEADYYCQSYDSSLSGVVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGGT FSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYME LSSLRSEDTAVYYCARGASFDRHDNWGQGTLVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 662]

Table 112

ET200-039
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagttcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcagcaattgggtgttcggcggagggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgcag tctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgca cagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatct gaggacacggccgtgtattactgtgcgcgctctaactactactacaacgattactggggtcaaggtactctggtgaccgtctcct caactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 663]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSSPTTVIYEDNQR PSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNWVFGGGTKLTVL GSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTFS SYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMELS SLRSEDTAVYYCARSNYYYNDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPY DVPDYAS [SEQ ID NO: 664]

Table 113

ET200-040
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagctcc aacatcggggcaggttatgatgtacactggtaccagcagcttccaggaacagcccccaaactcctcatctatggtaacagcaa tcggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctccaggctg aggatgaggctgattattactgccagtcctatgacagcagcctgagtggttatgtcttcggaactgggaccaaggtcaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctgg tgcagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggtttccggatacaccctcactgaatta tccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttgatcctgaagatggtgaaacaatcta cgcacagaagttccagggcagagtcaccatgaccgaggacacatctacagacacagcctacatggagctgagcagcctga gatctgaggacactgccgtgtattactgtgcgcgctactctggtgtttactacgattggggtcaaggtactctggtgaccgtctcc tcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 665]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTISCTGSSSNIGAGYDVHWYQQLPGTAPKLLIYGNS NRPSGVPDRFSGSKSGTSASLAITGLQAEDEADYYCQSYDSSLSGYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKVSG YTLTELSMHWVRQAPGKGLEWMGGFDPEDGETIYAQKFQGRVTMTEDTSTDT AYMELSSLRSEDTAVYYCARYSGVYYDWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 666]

Table 114

ET200-041
DNA Sequence
aattttatgctgactcagccccactctgtgtcggggtctccggggaagacggtaaccatctcctgcaccggcagcagtggcag cattgccgacaactttgtgcagtggtaccagcagcgcccgggcggtgtccccaccactgtgatctttaatgatgacgaaagac cctctggcgtccctgatcggttctctggctccatcgacacctcctccaattctgcctccctcaccatctctggactgaagactgag gacgaggctgactactactgtcagtcttatgataataataatcgaggggtgttcggcggagggaccaagctgaccgtcctagg ttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtgca gtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgcta tcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatgaaccctaacagtggtaacacaggctatg cacagaagttccagggcagagtcaccatgaccaggaacacctccataagcacagcctacatggagctgagcaacctgagat ctgaggacacggccgtgtattactgtgcgcgctactactcttacggttacgattggggtcaaggtactctggtgaccgtctcctc aactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 667]
Amino Acid Sequence
NFMLTQPHSVSGSPGKTVTISCTGSSGSIADNFVQWYQQRPGGVPTTVIFNDDE RPSGVPDRFSGSIDTSSNSASLTISGLKTEDEADYYCQSYDNNNRGVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGG TFSSYAISWVRQAPGQGLEWMGWMNPNSGNTGYAQKFQGRVTMTRNTSISTA YMELSNLRSEDTAVYYCARYYSYGYDWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 668]

Table 115

ET200-042
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctggggccccagggcagacggtcaccatctcctgcactgggggcagctcc aacatcgggacaggttattttgtaaattggtaccagcaggttccaggaaaagcccccaaactcctcatcctgggtaacaataatc ggccctcgggggtccctgaccgactctccggctccacgtccggcacctcagcctccctggccatcactgggctccaggctg aggatgagggtacttattactgccagtcctatgacagcagcctgagtggttatgtcttcggaactgggaccaaggtcaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtacagctgc agcagtcaggtccaggactggtgaagccctcgcagaccctctcactcacctgtggcatctccggggacagtgtctctaccaac agtgttgcttggcactggatcaggcagtccccatcgagaggccttgagtggctgggaaggacatactacaggtccaagtggt ctaatgactatggagtatctgtgaaaagtcgaatcaccatcatcccagacacatccaagaaccagttctccctgcagctgaactc tgtgactcccgaggacacggctgtgtattactgtgcgcgctcttcttcttggtaccagatcttcgattactggggtcaaggtactct ggtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggac tacgcttct [SEQ ID NO: 669]
Amino Acid Sequence
QSVVTQPPSVSGAPGQTVTISCTGGSSNIGTGYFVNWYQQVPGKAPKLLILGNN NRPSGVPDRLSGSTSGTSASLAITGLQAEDEGTYYCQSYDSSLSGYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAQVQLQQSGPGLVKPSQTLSLTCGISGDS VSTNSVAWHWIRQSPSRGLEWLGRTYYRSKWSNDYGVSVKSRITIIPDTSKNQF SLQLNSVTPEDTAVYYCARSSSWYQIFDYWGQGTLVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 670]

Table 116

ET200-043
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagcgacag catagccaacaactatgttcagtggtaccagcagcgcccgggcagtgcccccaccaatgtgatctacgaagatgtccaaaga ccctctggggtccctgatcggttctctgggtccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgtctactattgtcagtcttatcatagcgacaatcgttgggtgttcggcggcgggaccaagctgaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgg agtctgggggaggcttggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttagcagctatgcca tgagctgggtccgccaggctccagggaaggggctggagtgggtctcagctattagtggtagtggtggtagcacatactacgc agactccgtgaagggccggttcaccatctccagagacaattccaagaacacgctgtatctgcaaatgaacagcctgagagcc gaggacacggccgtatattactgtgcgcgctctggtgcttactgggactactctgtttacgatgaatggggtcaaggtactctgg tgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggacta cgcttct [SEQ ID NO: 671]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTGSSDSIANNYVQWYQQRPGSAPTNVIYEDVQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEAVYYCQSYHSDNRWVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVESGGGLVQPGGSLRLSCAASGF TFSSYAMSWVRQAPGKGLEWVSAISGSGGSTYYADSVKGRFTISRDNSKNTLY LQMNSLRAEDTAVYYCARSGAYWDYSVYDEWGQGTLVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 672]

Table 117

ET200-044
DNA Sequence
cagtctgtgttgactcagccaccctcagtgtccgtgtccccaggacagacagccaccatcgcctgttctggacataaattgggg gataaatatgcttcctggtatcagcagaagtcgggccagtcccctgtgttgatcatctatcaggataataagcggccctcaggg attcctgagcgattctctggctccaactctgggaacacagccactctgaccatcagcgggacccaggctctggatgaggctga ctattattgtcaggcgtgggacagtagtacttatgtggcattcggcggagggaccaagctgaccgtcctaggttctagaggtgg tggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctgcaggagtccggcccag gactggtgaagccttcggagaccctgtccctcacctgcgttgtctctggtggctccatcagcagtagtaactggtggagctggg tccgccagcccccagggaaggggctggagtggattggggaaatctatcatagtgggagccccaactacaacccatccctca agagtcgagtcaccatatcagtagacaagtccaagaaccagttctccctgaagctgagctctgtgaccgccgcggacacggc cgtgtattactgtgcgcgcatgactactcatactttcggttacgatgcttggggtcaaggtactctggtgaccgtctcctcaacta gtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 673]
Amino Acid Sequence
QSVLTQPPSVSVSPGQTATIACSGHKLGDKYASWYQQKSGQSPVLIIYQDNKRP SGIPERFSGSNSGNTATLTISGTQALDEADYYCQAWDSSTYVAFGGGTKLTVLG SRGGGGSGGGGSGGGGSLEMAQVQLQESGPGLVKPSETLSLTCVVSGGSISSSN WWSWVRQPPGKGLEWIGEIYHSGSPNYNPSLKSRVTISVDKSKNQFSLKLSSVT AADTAVYYCARMTTHTFGYDAWGQGTLVTVSSTSGQAGQHHHHHHGAYPY DVPDYAS [SEQ ID NO: 674]

Table 118

ET200-045
DNA Sequence
cagcctgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccacgattacttgtgggggaaacaacattg gaagtgaaagtgtgcactggtaccaccagaagccaggccaggcccctgtgttggtcatctatgatgatgccggccggccctc agggatccctgagcgattcactggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatg aggccgactattactgtcaggtgtgggacagaaatagtgctcagtttgtcttcggacctgggaccaaggtcaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgcagt ctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatca gctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgcac agaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatct gacgacacggccgtgtattactgtgcgcgcggtgttcatctggattggtggggtcaaggtactctggtgaccgtctcctcaact agtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 675]
Amino Acid Sequence
QPVLTQPPSVSVAPGKTATITCGGNNIGSESVHWYHQKPGQAPVLVIYDDAGRP SGIPERFTGSNSGNTATLTISRVEAGDEADYYCQVWDRNSAQFVFGPGTKVTVL GSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYTFT SYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAYM ELRSLRSDDTAVYYCARGVHLDWWGQGTLVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 676]

Table 119

ET200-069
DNA Sequence
cagtctgtcgtgacgcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaattatgtatactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccggtccgaggat gaggctgattattactgtgcagcatgggatgacagcctgagtggttatgtcttcggaactgggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagcag tggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactactgg agctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaaccc gtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcgg acacggccgtgtattactgtgcgcgcctgtacgaaggtggttaccatggttggggttcttggctgtcttctgattcttggggtcaa ggtactctggtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacg ttccggactacgcttct [SEQ ID NO: 677]
Amino Acid Sequence
QSVVTQPPSASGTPGQRVTISCSGSSSNIGSNYVYWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCAAWDDSLSGYVFGTGTKLTV LGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGSF SGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLSS VTAADTAVYYCARLYEGGYHGWGSWLSSDSWGQGTLVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 678]

Table 120

ET200-078
DNA Sequence
cagtctgtgttgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa catcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcagcatgggatgacagcctgaatggttattgggtgttcggcggagggaccaagctgaccgtcct aggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctaca gcagtggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttacta ctggagctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactaca acccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgcc gcggacacggctgtgtattactgtgcgcgcgaaggggcatttgatgcttttgatatctggggccaagggacaatggtcaccgt ctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 679]
Amino Acid Sequence
QSVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYWVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGG SFSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKL SSVTAADTAVYYCAREGAFDAFDIWGQGTMVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 680]

Table 121

ET200-079
DNA Sequence
tcctatgagctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa catcggaagtaattatgtatactggtaccagcagctcccaggaacggcccccaaactcttcatctataggaataatcagcggcc ctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccggtccgaggatg aggctgattattactgtgcagcatgggatgacagcctgagtggttatctcttcggaactgggaccaaggtcaccgtcctaggttc tagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagt ctgggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccatgca ctgggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagtggtagcataggctatgcggac tctgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctgagga cacggccttgtattactgtgcaaatggcgactccaactactactacggtatggacgtctggggccaagggaccacggtcaccg tctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 681]
Amino Acid Sequence
SYELTQPPSASGTPGQRVTISCSGSSSNIGSNYVYWYQQLPGTAPKLFIYRNNQR PSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCAAWDDSLSGYLFGTGTKVTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGRSLRLSCAASGFTFD DYAMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSLYLQ MNSLRAEDTALYYCANGDSNYYYGMDVWGQGTTVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 682]

Table 122

ET200-081
DNA Sequence
cagtctgccctgactcagcctgcctccgtgtcccgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtga cattggtggttataactatgtctcctggtaccaacaacacccaggcaaagcccccaaactcatgatttatgatgtcagtaatcgg ccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggac gaggctgattattactgcatctcatatacacgcacctggaacccctatgtcttcgggagtgggaccaaggtcaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcagt ctgggggaggcgtggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccatgc actgggtccgtcaagctccagggaagggtctggagtgggtctctcttattagtggggatggtggtagcacatactatgcagact ctgtgaagggccgattcaccatctccagagacaacagcaaaaactccctgtatctgcaaatgaacagtctgagaactgaggac accgccttgtattactgtgcaaaagatcgggcagcagctggctactactactacggtatggacgtctggggccaagggacca cggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccgga ctacgcttct [SEQ ID NO: 683]
Amino Acid Sequence
QSALTQPASVSGSPGQSITISCTGTSSDIGGYNYVSWYQQHPGKAPKLMIYDVS NRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCISYTRTWNPYVFGSGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGGGVVQPGGSLRLSCAASGF TFDDYAMHWVRQAPGKGLEWVSLISGDGGSTYYADSVKGRFTISRDNSKNSL YLQMNSLRTEDTALYYCAKDRAAAGYYYYGMDVWGQGTTVTVSSTSGQAG QHHHHHHGAYPYDVPDYAS [SEQ ID NO: 684]

Table 123

ET200-097
DNA Sequence
ctgcctgtgctgactcagccaccctcagtgtccgtgtccccaggacagacagccatcatcacctgctctggagataaattggg ggaaaaatatgtttcctggtatcagcagaagccaggccagtcccctgtactggtcatcgatcaagataccaggaggccctcag ggatccctgagcgattctctggctccaactctgggaccacagccactctgaccatcagcgggacccaggctatggatgaggc tgactattactgtcaggcgtgggacaggggtgtggtattcggcggagggaccaagctgaccgtcctaggttctagaggtggt ggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagtctgggggaga cttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttaatgattatgccatgcactgggtccgg caagctccagggaagggcctggagtgggtctcaggtattagttggagtggtaataacataggctatgcggactctgtgaagg gccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctgaggacacggcctt gtattactgtgcaaaagatagtatacggtatggcatcacctggggaggttttgactactggggccagggaaccctggtcaccgt ctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 685]
Amino Acid Sequence
LPVLTQPPSVSVSPGQTAIITCSGDKLGEKYVSWYQQKPGQSPVLVIDQDTRRPS GIPERFSGSNSGTTATLTISGTQAMDEADYYCQAWDRGVVFGGGTKLTVLGSR GGGGSGGGGSGGGGSLEMAEVQLVESGGDLVQPGRSLRLSCAASGFTFNDYA MHWVRQAPGKGLEWVSGISWSGNNIGYADSVKGRFTISRDNAKNSLYLQMNS LRAEDTALYYCAKDSIRYGITWGGFDYWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 686]

Table 124

ET200-098
DNA Sequence
cagcctgtgctgactcagccaccctcggtgtccaagggcttgagacagaccgccacactcacctgcactgggaacagcaac aatgttggcaacctaggagtagcttggctgcagcagcaccagggccaccctcccaaactcctatcctacaggaataacaacc ggccctcagggatctcagagagattatctgcatccaggtcaggaaacacagcctccctgaccattactggactccagcctgag gacgaggctgactattactgctcagcatgggacagtagcctcagtgcttgggtgttcggcggagggaccaagctgaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctgg tggagtctgggggagtcgtggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttgatgattatg ccatgcactgggtccgtcaagctccggggaagggtctggagtgggtctctcttattaattgggatggtggtagcacctactatg cagactctgtgaagggtcgattcaccatctccagagacaacagcaaaaactccctgtatctgcaaatgaacagtctgagagct gaggacaccgccttgtattactgtgcaaaagggatgggcctgagggcgtttgactactggggccagggaaccctggtcacc gtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttc t [SEQ ID NO: 687]
Amino Acid Sequence
QPVLTQPPSVSKGLRQTATLTCTGNSNNVGNLGVAWLQQHQGHPPKLLSYRN NNRPSGISERLSASRSGNTASLTITGLQPEDEADYYCSAWDSSLSAWVFGGGTK LTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGVVVQPGGSLRLSCAASG FTFDDYAMHWVRQAPGKGLEWVSLINWDGGSTYYADSVKGRFTISRDNSKNS LYLQMNSLRAEDTALYYCAKGMGLRAFDYWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 688]

Table 125

ET200-099
DNA Sequence
cagtctgtgttgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcctgttctggaagcagctccaa catcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaatgatcagcggc cctcaggggtccctgaccgattctctggctccaagtccggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcttcatgggatgacagcctgaatggccgttatgtcttcggaactgggaccaaggtcaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtac agtctggggctgaggtgaggaagcctggggcctcagtgaaggtttcctgcaagacttctggatacaccttcagttggtatgcta tacattgggtgcgccaggcccccggacaaaggcttgagtggatgggatggatcaacgctggcaatggaaacacaaaatattc acagaaatttcagggcagagtcagtcttaccagggacacatccgcgagcacagcctacatggagctgagcagcctgagatct gatgacacggctgtgtattactgtgcgagacccgataattatggttcgggtggggatgtttttgatatctggggccaagggaca atggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccgg actacgcttct [SEQ ID NO: 689]
Amino Acid Sequence
QSVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNDQR PSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCASWDDSLNGRYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVRKPGASVKVSCKTSGYT FSWYAIHWVRQAPGQRLEWMGWINAGNGNTKYSQKFQGRVSLTRDTSASTA YMELSSLRSDDTAVYYCARPDNYGSGGDVFDIWGQGTMVTVSSTSGQAGQHH HHHHGAYPYDVPDYAS [SEQ ID NO: 690]

Table 126

ET200-100
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag cattgccagcaactttgtgcagtggtaccagcagcgcccgggcagtgcccccacccctatgatctatgaggataacaacaga ccccctggggtccctgatcggttctctgcctccgtcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgataccagcaatgtggtattcggcgggggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgga gtctgggggaggcttggtacagcctggagggtccctgagactctcctgtgcagcctctggattcaccttcagtagttatgaaat gaactgggtccgccaggctccagggaaggggctggagtgggtttcatacattagtagtagtggtagtaccatatactacgcag actctgtgaagggccgattcaccatctccagagacaacgccaagaactcactgtatctgcaaatgaacagcctgagagccga ggacacggctgtttattactgtgcacgctgggactacggtatggacgtctggggccaagggaccacggtcaccgtctcctcaa ctagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 691]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNFVQWYQQRPGSAPTPMIYEDNNR PPGVPDRFSASVDSSSNSASLTISGLKTEDEADYYCQSYDTSNVVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGGSLRLSCAASGFTFS SYEMNWVRQAPGKGLEWVSYISSSGSTIYYADSVKGRFTISRDNAKNSLYLQM NSLRAEDTAVYYCARWDYGMDVWGQGTTVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 692]

Table 127

ET200-101
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctggggcccccgggcagagggtcaccgtctcttgttctggaagcaactcca acatcggaagtaactacgttaactggtaccagcagttcccaggaacggcccccaaactcctcatgtatagtagtagtcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccactctgaggat gaggctgattattactgtgctacatgggatgacagcctgaatgcttgggtgttcggcggagggaccaagctgaccgtcctagg ttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgca gtctggggctgaggtgaggaagcctggggcctcagtgaaggtttcctgcaagacttctggatacaccttcacttggtatgctat acattgggtgcgccaggcccccggacaaaggcttgagtggatgggatggatcaacgctggcagtggaaacacaaaatattc acagaaatttcagggcagagtcacccttaccagggacacatccgcgagcacagcgtacatggagctgagcagcctgagatc tgatgacacggctgtgtattactgtgcgagacccaataactatggttcgggtggggatgtttttgatatctggggccaagggaca atggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccgg actacgcttct [SEQ ID NO: 693]
Amino Acid Sequence
QAVLTQPPSASGAPGQRVTVSCSGSNSNIGSNYVNWYQQFPGTAPKLLMYSSS QRPSGVPDRFSGSKSGTSASLAISGLHSEDEADYYCATWDDSLNAWVFGGGTK LTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVRKPGASVKVSCKTSG YTFTWYAIHWVRQAPGQRLEWMGWINAGSGNTKYSQKFQGRVTLTRDTSAST AYMELSSLRSDDTAVYYCARPNNYGSGGDVFDIWGQGTMVTVSSTSGQAGQH HHHHHGAYPYDVPDYAS [SEQ ID NO: 694]

Table 128

ET200-102
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcagctcca acattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcgacc ctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactggggac gaggccgattattactgcggaacatgggatagcagcctgagtgcttatgtcttcggaactgggaccaaggtcaccgtcctagg ttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtgca gtctggggctgaggtgaagaagcctggggcctcagtgaaagtttcctgcaaggcttctggatacaccttcacgaactatgctct gcattgggtgcgccaggcccccggacaagggcttgagtggatggcatggatcaacggtggcaatggtaacacaaaatattc acagaacttccagggcagagtcaccattaccagggacacatccgcgagcacagcctatatggagctgagcagcctgagatc tgaagacacggctgtgtattactgtgcgaaaccggaggaaacagctggaacaatccactttgactactggggccagggaacc ccggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccgg actacgcttct [SEQ ID NO: 695]
Amino Acid Sequence
QSVVTQPPSVSAAPGQKVTISCSGSSSNIGNNYVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSLSAYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASGY TFTNYALHWVRQAPGQGLEWMAWINGGNGNTKYSQNFQGRVTITRDTSASTA YMELSSLRSEDTAVYYCAKPEETAGTIHFDYWGQGTPVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 696]

Table 129

ET200-103
DNA Sequence
caggctgtgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaag accctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagact gaggacgaggctgactactactgtcagtcttatgatagcaccatcacggtgttcggcggagggaccaagctgaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtac agtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgct atcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacg cacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgaga tctgaggacacggccgtgtattactgtgcgggggagggttactatgatagtagtggttattccaacggtgatgcttttgatatctg gggccaagggacaatggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccc gtacgacgttccggactacgcttct [SEQ ID NO: 697]
Amino Acid Sequence
QAVLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSTITVFGGGTKLTVL GSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGGTFS SYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMELS SLRSEDTAVYYCAGEGYYDSSGYSNGDAFDIWGQGTMVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 698]

Table 130

ET200-104
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcagcaatgtggtattcggcggagggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgga gtctgggggaggcttggtacagcctggagggtccctgagactctcctgtgcagcctctggattcaccttcagtagttatgaaat gaactgggtccgccaggctccagggaaggggctggagtgggtttcatacattagtagtagtggtagtaccatatactacgcag actctgtgaagggccgattcaccatctccagagacaacgccaagaactcactgtatctgcaaatgaacagcctgagagccga ggacacggctgtttattactgtgcacgctgggactacggtatggacgtctggggccaagggaccacggtcaccgtctcctcaa ctagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 699]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNVVFGGGTKVTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGGSLRLSCAASGFTFS SYEMNWVRQAPGKGLEWVSYISSSGSTIYYADSVKGRFTISRDNAKNSLYLQM NSLRAEDTAVYYCARWDYGMDVWGQGTTVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 700]

Table 131

ET200-105
DNA Sequence
tcctatgtgctgactcagccaccctcagtgtccgtgtccccaggacagacagccagcatcacctgctctggagatagattgac gaataaatatgtttcctggtatcaacagaagccaggccagtcccctgtgttggtcatctatgaggatgccaagcggccctcagg gatccctgcgcgattctctggctccaactctgggaacacagccactctgaccatcagcgggacccaggctatggatgagtctg aatattactgtcaggcgtgggacagcagtgtggtggtttttggcggagggaccaagctgaccgtcctaggttctagaggtggt ggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagtctgggggag gcttggtacagcctggcaggtccctgagactctcctgtgcagcctctggatttacctttgatgattatgccatgcactgggtccg gcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagtggtagtataggctatgcggactctgtgaagg gccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagatgaggacacggcctt gtattactgtgcaaaagaccgagggggggagttatcgttaaggatgcttttgatatctggggccaagggacaatggtcaccg tctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 701]
Amino Acid Sequence
SYVLTQPPSVSVSPGQTASITCSGDRLTNKYVSWYQQKPGQSPVLVIYEDAKRP SGIPARFSGSNSGNTATLTISGTQAMDESEYYCQAWDSSVVVFGGGTKLTVLGS RGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGRSLRLSCAASGFTFDDY AMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSLYLQMN SLRDEDTALYYCAKDRGGGVIVKDAFDIWGQGTMVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 702]

Table 132

ET200-106
DNA Sequence
tcctatgagctgactcagccacccgcagcgtctgggacccccggacagagagtcaccatctcttgttctgggggcgtctccaa catcgggagtggtgctctaaattggtaccagcaactcccaggaacggcccccaaactcctcatctatagttacaatcagcggc cctcaggggtctctgaccgattctctggctccaggtctgccacctcagcctccctggccatcagtgggctccagtctgaggatg aggctgattattactgtgcaacctgggatgatagtgtgaatggttgggtgttcggcggagggaccaagctgaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggag tctggagctgaggtgaagaagcctggggattcagtgaaggtctcctgcaagccttctggttacaattttctcaactatggtatcaa ctgggtgcgacaggcccctggacaagggcttgagtggatgggatggattagcacttacaccggtaacacaaactatgcaca gaagctgcagggcagagtcaccttcaccacagacacatccacgagcacagcctacatggagatgaggagcctgagatctga cgacacggccgtgtattactgtgcgcgccagcagggtggtggttggtacgatgtttggggtcaaggtactctggtcaccgtctc ctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 703]
Amino Acid Sequence
SYELTQPPAASGTPGQRVTISCSGGVSNIGSGALNWYQQLPGTAPKLLIYSYNQ RPSGVSDRFSGSRSATSASLAISGLQSEDEADYYCATWDDSVNGWVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGAEVKKPGDSVKVSCKPSGY NFLNYGINWVRQAPGQGLEWMGWISTYTGNTNYAQKLQGRVTFTTDTSTSTA YMEMRSLRSDDTAVYYCARQQGGGWYDVWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 704]

Table 133

ET200-107
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggagagaaggtcaccatctcctgctctggaagcaacttca atgttggaaataatgatgtatcctggtatcagcaactcccaggtgcagcccccaaactcctcatttatgacaataataagcgacc ctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctggacatcaccgggctccacagtgacgacg aggccgattattactgcggaacatgggatagcagcctgaatactgggggggtcttcggaactgggaccaaggtcaccgtcct aggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggt gcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctata ctatcagctgggtacgacaggcccctggacaagggcttgagtggatgggatggatcagcacttacaatggtctcacaaactat gcacagaacctccagggcagagtcaccatgactacagacacattcacgaccacagcctacatggagctgaggagcctcaga tctgacgacacggccgtgtattactgtgtgagagaggggtcccccgactacggtgacttcgcgtcctttgactactggggcca gggaaccctggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacga cgttccggactacgcttct [SEQ ID NO: 705]
Amino Acid Sequence
QSVVTQPPSVSAAPGEKVTISCSGSNFNVGNNDVSWYQQLPGAAPKLLIYDNN KRPSGIPDRFSGSKSGTSATLDITGLHSDDEADYYCGTWDSSLNTGGVFGTGTK VTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASG YTFTSYTISWVRQAPGQGLEWMGWISTYNGLTNYAQNLQGRVTMTTDTFTTT AYMELRSLRSDDTAVYYCVREGSPDYGDFASFDYWGQGTLVTVSSTSGQAGQ HHHHHHGAYPYDVPDYAS [SEQ ID NO: 706]

Table 134

ET200-108
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctgcgcccccgggacagaaggtcaccatctcctgctctggaagcagctcca acattgggaataattatgtatcctggtaccagcagttcccaggaacagcccccaaactcctcatttatgacaataataagcgacc ctcagggatttctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcgccggactccagactggggac gaggccgattattactgcggaacatgggataccagcctgagtggtttttatgtcttcggaagtgggaccaaggtcaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggta cagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatact atcagctgggtacgacaggcccctggacaagggcttgagtggatgggatggatcagcacttacaatggtctcacaaactatg cacagaacctccagggcagagtcaccatgactacagacacattcacgaccacagcctacatggagctgaggagcctcagat ctgacgacacggccgtgtattactgtgtgagagaggggtcccccgactacggtgacttcgcgtcctttgactactggggccag ggaaccctggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgac gttccggactacgcttct [SEQ ID NO: 707]
Amino Acid Sequence
QSVLTQPPSVSAPPGQKVTISCSGSSSNIGNNYVSWYQQFPGTAPKLLIYDNNKR PSGISDRFSGSKSGTSATLGIAGLQTGDEADYYCGTWDTSLSGFYVFGSGTKVT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYT FTSYTISWVRQAPGQGLEWMGWISTYNGLTNYAQNLQGRVTMTTDTFTTTAY MELRSLRSDDTAVYYCVREGSPDYGDFASFDYWGQGTLVTVSSTSGQAGQHH HHHHGAYPYDVPDYAS [SEQ ID NO: 708]

Table 135

ET200-109
DNA Sequence
ctgcctgtgctgactcagccaccctcagcgtctgcgacccccgggcagagggtcaccatctcttgttctggaaccacctccaa catcggaagtaatactgtacactggtaccagcagctcccagggacggcccccaaactcctcatctataataataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccggtccgaggat gaggctacatattcctgtgcaacatgggatgacagcctgagtggtgtggtcttcggcggagggaccaagctgaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgc agtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgct atcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacg cacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgaga tctgaggacacggccgtgtattactgtgcgagagatcccgcctacggtgactacgagtatgatgcttttgatatctggggccaa gggacaatggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacg ttccggactacgcttct [SEQ ID NO: 709]
Amino Acid Sequence
LPVLTQPPSASATPGQRVTISCSGTTSNIGSNTVHWYQQLPGTAPKLLIYNNNQR PSGVPDRFSGSKSGTSASLAISGLRSEDEATYSCATWDDSLSGVVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTF SSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMEL SSLRSEDTAVYYCARDPAYGDYEYDAFDIWGQGTMVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 710]

Table 136

ET200-110
DNA Sequence
cagtctgtgttgacgcagccgccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaactaatggtgtaaactggttccagcagttcccaggaacggcccccaaactcctcatctatactaatgatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgcggat gaggctgattattactgtgcagtgtgggaccacagcctgaatggtccggtgttcggcggagggaccaagctgaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgc agtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgct atcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacg cacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgaga tctgaggacacggccgtgtattactgtgcgagaggggccggttttgatgcttttgatatctggggccaagggacaatggtcacc gtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttc t [SEQ ID NO: 711]
Amino Acid Sequence
QSVLTQPPSASGTPGQRVTISCSGSSSNIGTNGVNWFQQFPGTAPKLLIYTNDQR PSGVPDRFSGSKSGTSASLAISGLQSADEADYYCAVWDHSLNGPVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGGT FSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYME LSSLRSEDTAVYYCARGAGFDAFDIWGQGTMVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 712]

Table 137

ET200-111
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgagga tgagactgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagcag tggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactactgg agctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaaccc gtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcgg acacggctgtgtattactgtgcgagagaggggctagatgcttttgatatctggggccaagggacaatggtcaccgtctcttcaa ctagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 713]
Amino Acid Sequence
QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLQSEDETDYYCAAWDDSLNGYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGS FSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLS SVTAADTAVYYCAREGLDAFDIWGQGTMVTVSSTSGQAGQHHHHHHGAYPY DVPDYAS [SEQ ID NO: 714]

Table 138

ET200-112
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatgtatagtaatgatcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgagga tgaggctgattattattgtgcagcatgggatgacagcctgaatggttatgtcttcgcagctgggacccagctcaccgttttaagtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagcagt ggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactactgga gctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaacccg tccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcgga cacggctgtgtattactgtgcgagagaggggctagatgcttttgatatctggggccaagggacaatggtcaccgtctcttcaac tagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 715]
Amino Acid Sequence
QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLMYSNDQ RPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFAAGTQL TVLSSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGG SFSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKL SSVTAADTAVYYCAREGLDAFDIWGQGTMVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 716]

Table 139

ET200-113
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcagctcca acattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcgacc ctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcactggactccagactggggacg aggccgattattactgcggaacatgggatagcagcctgagtgctgcttatgtcttcggaactgggaccaaggtcaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggta cagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacagctttaccagctatact atcagctgggttcgacaggcccctggacaaggccttgagtggatgggatgggtcagcacttacaatggtctcagaaactatgc acagaacctccagggcagagtcaccatgactacagacacactcacgaccacagcctacatggagctgaggagcctcagatc tgacgacacggccgtgtattattgtgtgagagaggggtcccccgactacggtgacttcgcggcctttgactactggggccagg gcaccctggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgt tccggactacgcttct [SEQ ID NO: 717]
Amino Acid Sequence
QSVVTQPPSVSAAPGQKVTISCSGSSSNIGNNYVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSLSAAYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASG YSFTSYTISWVRQAPGQGLEWMGWVSTYNGLRNYAQNLQGRVTMTTDTLTTT AYMELRSLRSDDTAVYYCVREGSPDYGDFAAFDYWGQGTLVTVSSTSGQAGQ HHHHHHGAYPYDVPDYAS [SEQ ID NO: 718]

Table 140

ET200-114
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctgagacccccgggcagagggtcaccatctcttgttctggaagcaggtcca acatcggaactaatattgtacactggtaccagcagcgcccaggaatggcccccaaactcctcacttatggtagtcggcggccc tcaggggtcccggaccgattctctggctccaagtttggcacctcagcctccctggccatcagtgggctccagtctgaggatga ggctgattattattgtgcagcatgggatgacagtctgaatggtccggctttcggcggagggaccaagctgaccgtcctaggttc tagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagcagt ggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactactgga gctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaacccg tccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcgga cacggctgtgtattactgtgcgagagacggtgggggctactttgactactggggccagggaaccctggtcaccgtctcctcaa ctagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 719]
Amino Acid Sequence
QAVLTQPPSASETPGQRVTISCSGSRSNIGTNIVHWYQQRPGMAPKLLTYGSRR PSGVPDRFSGSKFGTSASLAISGLQSEDEADYYCAAWDDSLNGPAFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGS FSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLS SVTAADTAVYYCARDGGGYFDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPY DVPDYAS [SEQ ID NO: 720]

Table 141

ET200-115
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagctcc aatatcggggcacgttatgatgtacactggtaccagcaactcccaggaacagccccccgactcctcatctctgctaactacgat cggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctccaggctga ggatgaggctgattattactgccagtcctatgacagcagtgtgagtgcttgggtgttcggcggagggaccaaggtcaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaagtgcagctgg tgcagtctggggctgaagtgaaggagcctggggcctcagtgaggatctcctgccaggcatctggatacaacttcatcagttatt atatgcactgggtgcggcaggcccctgggcaaggtcttgagtggatgggcaccatcaacccaggcagtggtgagacagact actcacagaagttgcagggcagagtcaccatgaccagggacccgtccacgggtacattcgacatggggctgagcagcctg acatctggggacacggccgtctattattgtgcgacaggtctcatcagaggagctagcgatgcttttaatatctggggccgggg gacaatggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttc cggactacgcttct [SEQ ID NO: 721]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTISCTGSSSNIGARYDVHWYQQLPGTAPRLLISANY DRPSGVPDRFSGSKSGTSASLAITGLQAEDEADYYCQSYDSSVSAWVFGGGTK VTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKEPGASVRISCQASG YNFISYYMHWVRQAPGQGLEWMGTINPGSGETDYSQKLQGRVTMTRDPSTGT FDMGLSSLTSGDTAVYYCATGLIRGASDAFNIWGRGTMVTVSSTSGQAGQHH HHHHGAYPYDVPDYAS [SEQ ID NO: 722]

Table 142

ET200-116
DNA Sequence
cagcctgtgctgactcagccaccctcagtgtccgtgtccccaggacagacggccgccatcccctgttctggagataagttggg ggataaatttgcttcctggtatcagcagaagccaggccagtcccctgtgctggtcatctatcaagatactaagcggccctcagg gatccctgagcgattctctggctccaactctgggaacacagccactctgaccatcagcgggacccaggctatggatgaggct gactattactgtcagacgtgggccagcggcattgtggtgttcggcggagggaccaagctgaccgtcctaggttctagaggtg gtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtacagctgcagcagtcaggtcca ggactggtgaagccctcgcagaccctctcactcacctgtgccatctccggggacagtgtctctagcaacagtgctgcttggaa ctggatcaggcagtccccatcgagaggccttgagtggctgggaaggacatactacaggtccaagtggtataatgattatgcag tatctgtgaaaagtcgaataaccatcaacccagacacatccaagaaccagttctccctgcagctgaactctgtgactcccgagg acacggctgtgtattactgtgcaagagagcgcagtggctggaagggatttgactactggggccagggaaccctggtcaccgt ctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 723]
Amino Acid Sequence
QPVLTQPPSVSVSPGQTAAIPCSGDKLGDKFASWYQQKPGQSPVLVIYQDTKRP SGIPERFSGSNSGNTATLTISGTQAMDEADYYCQTWASGIVVFGGGTKLTVLGS RGGGGSGGGGSGGGGSLEMAQVQLQQSGPGLVKPSQTLSLTCAISGDSVSSNS AAWNWIRQSPSRGLEWLGRTYYRSKWYNDYAVSVKSRITINPDTSKNQFSLQL NSVTPEDTAVYYCARERSGWKGFDYWGQGTLVTVSSTSGQAGQHHHHHHGA YPYDVPDYAS [SEQ ID NO: 724]

Table 143

ET200-117
DNA Sequence
gatgttgtgatgactcagtctccaccctccctgtccgtcacccctggagagccggcctccatcacctgcaggtctagtcagagc ctcctggaaagaaatgcatacaactacttggattggtacctgcagaggccaggacagtctccacagctcctgatctacttgggt tctaatcgggccgccggggtccctgacaggttcagtggcagtggatcaggcagagattttacactgaaaatcagcagagtgg agcctgaggatgttggggtttattactgcatgcaagctctacaagctccgttcactttcggcggagggaccaaggtggagatca aacgttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaagtgcagctgg tgcagtctgggggaggcttggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttagcagctatg ccatgagctgggtccgccaggctccagggaaggggctggagtgggtctcagctattagtggtagtggtggtagcacatacta cgcagactccgtgaagggccggttcaccatctccagagacaattccaagaacacgctgtatctgcaaatgaacagcctgaga gccgaggacacggccgtatattactgtgcgaaatggggcccgtttcaggatgcttttgatatctggggccaagggacaatggt caccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactac gcttct [SEQ ID NO: 725]
Amino Acid Sequence
DVVMTQSPPSLSVTPGEPASITCRSSQSLLERNAYNYLDWYLQRPGQSPQLLIYL GSNRAAGVPDRFSGSGSGRDFTLKISRVEPEDVGVYYCMQALQAPFTFGGGTK VEIKRSRGGGGSGGGGSGGGGSLEMAEVQLVQSGGGLVQPGGSLRLSCAASGF TFSSYAMSWVRQAPGKGLEWVSAISGSGGSTYYADSVKGRFTISRDNSKNTLY LQMNSLRAEDTAVYYCAKWGPFQDAFDIWGQGTMVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 726]

Table 144

ET200-118
DNA Sequence
caggctgtgctgactcagcctgcctccgtgtctgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtga cgttggtggttataactatgtctcctggtaccaacagcacccgggcaaagcccccaaactcatgatttatgaggtcagtaatcg gccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgagga cgaggctgattattactgcagctcatatacaagcagcagcacccttatgtcttcggagcagggaccaaggtcaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgg agtctgggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccat gcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagtggtagcataggctatgcg gactctgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctga ggacacggccttgtattactgtgcaaaagccaggtggacagcagtggcatcagaccaccactttgactactggggccaggga acgctggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttc cggactacgcttct [SEQ ID NO: 727]
Amino Acid Sequence
QAVLTQPASVSGSPGQSITISCTGTSSDVGGYNYVSWYQQHPGKAPKLMIYEVS NRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYTSSSTPYVFGAGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGRSLRLSCAASGFT FDDYAMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSLY LQMNSLRAEDTALYYCAKARWTAVASDHHFDYWGQGTLVTVSSTSGQAGQH HHHHHGAYPYDVPDYAS [SEQ ID NO: 728]

Table 145

ET200-119
DNA Sequence
caggctgtgcttactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa catcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcag tctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgca cagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatct gaggacacggccgtgtattactgtgcgagagattgggactacatggacgtctggggcaaagggaccacggtcaccgtctcct caactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 729]
Amino Acid Sequence
QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKLT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGT FSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYME LSSLRSEDTAVYYCARDWDYMDVWGKGTTVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 730]

Table 146

ET200-120
DNA Sequence
tcctatgagctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa catcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgga gtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgc acagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagat ctgacgacacggccgtgtattactgtgcgagagacctatctcggggagctaacccgcattactactactactacggtatggac gtctggggccaagggaccacggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgca tacccgtacgacgttccggactacgcttct [SEQ ID NO: 731]
Amino Acid Sequence
SYELTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGAEVKKPGASVKVSCKASGYT FTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAY MELRSLRSDDTAVYYCARDLSRGANPHYYYYYGMDVWGQGTTVTVSSTSGQ AGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 732]

Table 147

ET200-121
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccgtctcctgcactgggagcagatcc aacatcggggcaggatatgatgtacactggtaccagcaacttccaggaacagcccccaaactcctcatctatggaaatagtaa tcggcctccaggggtccctgaccgattctctgggtctaagtctggcacctcagcctccctggtcatcactgggctccaggctga ggatgccgctgattattactgccagtcctatgacaacactgtgcgtgaatcaccttatgtcttcggaactgggaccaaggtcacc gtcctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccag ctggtacagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggtttccggatacaccctcactg aattatccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttgatcctgaagatggtgaaaca atctacgcacagaagttccagggcagagtcaccatgaccgaggacacatctacagacacagcctacatggagctgagcagc ctgagatctgaggacacggccgtgtattactgtgcaacagagagtaatttagtgtcccggcactactactactacggtatggac gtctggggccaagggaccacggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgca tacccgtacgacgttccggactacgcttct [SEQ ID NO: 733]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTVSCTGSRSNIGAGYDVHWYQQLPGTAPKLLIYGN SNRPPGVPDRFSGSKSGTSASLVITGLQAEDAADYYCQSYDNTVRESPYVFGTG TKVTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCK VSGYTLTELSMHWVRQAPGKGLEWMGGFDPEDGETIYAQKFQGRVTMTEDTS TDTAYMELSSLRSEDTAVYYCATESNLVSRHYYYYGMDVWGQGTTVTVSSTS GQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 734]

Table 148

ET200-122
DNA Sequence
ctgcctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaaccagctccaa catcggaagtaattctgtagactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgaatctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaagtgcagctggtgcag tctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggatacaccttcaccggctactatat gcactgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcaaccctaacagtggtggcacaaactatgc acagaagtttcagggcagggtcaccatgaccagggacacgtccatcagcacagcctacatggagctgagcaggctgagatc tgacgacacggccgtgtattactgtgcgagagattacggatactatggttcggggagttattcgagcggcccccctttactactac tacggtatggacgtctggggccaagggaccacggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccat caccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 735]
Amino Acid Sequence
LPVLTQPPSASGTPGQRVTISCSGTSSNIGSNSVDWYQQLPGTAPKLLIYSNNQR PSGVPDRISGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKVTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYTF TGYYMHWVRQAPGQGLEWMGWINPNSGGTNYAQKFQGRVTMTRDTSISTAY MELSRLRSDDTAVYYCARDYGYYGSGSYSSGPLYYYYGMDVWGQGTTVTVS STSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 736]

Table 149

ET200-123
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatgtataataatgatcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgagga tgaggctgattattactgtgcagcatgggatgacagcctcaatggttatgtcttcggacctgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtggag tctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatc agctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgca cagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatc tgacgacacggccgtgtattactgtgcgagagacctatctcggggagctaacccgcattactactactactacggtatggacgt ctggggccaagggaccacggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcata cccgtacgacgttccggactacgcttct [SEQ ID NO: 737]
Amino Acid Sequence
QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLMYNNDQ RPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGPGTKV TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVESGAEVKKPGASVKVSCKASGY TFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTA YMELRSLRSDDTAVYYCARDLSRGANPHYYYYYGMDVWGQGTTVTVSSTSG QAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 738]

Table 150

ET200-125
DNA Sequence
aattttatgctgactcagccccacgctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag tattgccagcaactatgtgcagtggtaccagcagcgcccgggcagttccccccgcactgtgatttatgaggataatcaaagac cctctggggtccctggtcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactga ggacgaggctgactactactgtcagtcttatgattccaccagtgtgcttttcggcggagggaccaagctgaccgtcctaggttct agaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgcagtct ggggctgaggtgaagaagccagggtcctcggtgaaggtctcctgcaaggcctcgggaggcaccttcagcagcaattctctc agctgggtgcgacaggcccctggacaagggcttgagtggatgggaaggatcttccctatcctgggtataacaaactatgcac agaagttccagggcagagtcacgattaccgcggacaaatccacgagcacagcctacatggagctgagcagcctgagatctg aggacacggccgtctattactgtgcgagaggaaactaccaatggtatgatgcttttgatatctggggccaagggacaatggtc accgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacg cttct [SEQ ID NO: 739]
Amino Acid Sequence
NFMLTQPHAVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSSPRTVIYEDNQ RPSGVPGRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSTSVLFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTF SSNSLSWVRQAPGQGLEWMGRIFPILGITNYAQKFQGRVTITADKSTSTAYMEL SSLRSEDTAVYYCARGNYQWYDAFDIWGQGTMVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 740]

Table 151

ET200-005
DNA Sequence
cagcctgtgctgactcagccaccctcagtgtcagtggtcccaggaaagacggccaggattacctgtgggggaaaaaacattg gaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtggtggtcatccattatgatagtgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagtgatcatccttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgcag tctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccaactatggtatc agctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgca cataagctccagggcagagtcaccatgaccacagacacatccacgagcacagccaacatggagctgaggagcctgagacc tgacgacactgccgtgtattactgtgcgcgctcttacttcggttctcatgattactggggtcaaggtactctggtgaccgtctcctc aactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 741]
Amino Acid Sequence
QPVLTQPPSVSVVPGKTARITCGGKNIGSKSVHWYQQKPGQAPVVVIHYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHPYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASGY TFTNYGISWVRQAPGQGLEWMGWISAYNGNTNYAHKLQGRVTMTTDTSTSTA NMELRSLRPDDTAVYYCARSYFGSHDYWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 742]

Table 152

ET200-124
DNA Sequence
tcctatgtgctgactcagccaccctcggtgtcagtggccccaggaaagacggccaggatttcctgtgggggaaacgacattg gaagtaaaagtgttttctggtatcagcagaggccaggccaggcccctgtgttggtcgtctatgatgatagcgaccggccctca gggctccctgagcgattctctggcttcaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatgag gccgactattactgtcaagtgtgggatagtagtagtgatcattatgtcttcggaactgggaccaaggtcaccgtcctaggttcta gaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtggagtct gggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccatgcact gggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagtggtagcataggctatgcggactc tgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctgaggac acggccttgtattactgtgcaaaagatataacctatggttcggggagttatggtgcttttgatatctggggccaagggacaatggt caccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactac gcttct [SEQ ID NO: 743]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARISCGGNDIGSKSVFWYQQRPGQAPVLVVYDDSDR PSGLPERFSGFNSGNTATLTISRVEAGDEADYYCQVWDSSSDHYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVESGGGLVQPGRSLRLSCAASGFT FDDYAMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSLY LQMNSLRAEDTALYYCAKDITYGSGSYGAFDIWGQGTMVTVSSTSGQAGQHH HHHHGAYPYDVPDYAS [SEQ ID NO: 744]

Exemplary anti-FcRL5 antibodies comprising a heavy chain variable region, a light chain variable region, a linker peptide and a His-tag and HA-tag

Table 153

ET200-001
DNA Sequence
Cagtctgtgttgacgcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgagga tgaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgtcctagg ttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagca gtggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtgtatggtgggtccttcagtggttactactg gagctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaacc cgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcg gacacggccgtgtattactgtgcgcgcgaaggtccgtacgacggtttcgattcttggggtcaaggtactctggtgaccgtctcc tcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 745]
Amino Acid Sequence
QSVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGS FSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLS SVTAADTAVYYCAREGPYDGFDSWGQGTLVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 746]

Table 154

ET200-002
DNA Sequence
Aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaag accctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagact gaggacgaggctgactactactgtcagtcttatgatagcagcaattctgtggtattcggcggagggaccaagctgaccgtcct aggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggt acagtctggcactgaggtgaagaagcctggggcctcagtgagggtcgcctgcaaggcttctggttaccccttaacaaatatg acatcaactgggtgcgacaggcccctggacaagggcttgagtggatgggaggcatcatccctatctttcgtacaacaaactac gcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgag atctgaggacacggccgtatattactgtgcgcgcgaatggttctactgggatatctggggtcaaggtactctggtgaccgtctc ctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 747]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNSVVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGTEVKKPGASVRVACKASGY PFNKYDINWVRQAPGQGLEWMGGIIPIFRTTNYAQKFQGRVTITADESTSTAYM ELSSLRSEDTAVYYCAREWFYWDIWGQGTLVTVSSTSGQAGQHHHHHHGAYP

YDVPDYAS [SEQ ID NO: 748]

Table 155

ET200-003
DNA Sequence
Cagtctgtgttgactcagccaccctcagtgtccgtgtccccaggacagacagccagcatctcctgctctggaaataaattggg gactaagtatgtttactggtatcagaagaggccaggccagtcccctgtgttggtcatgtatgaagataatcagcggccctcagg gatcccggagcggttctctggctccaactctgggaacacagccactctgaccatcagagggacccagactgtggatgaggct gactattactgtcaggcgtgggactccgacactttcgtggtcttcggcggagggaccaaggtcaccgtcctaggttctagaggt ggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagaccgggg gaggcgtggtccagcctgggaggtccctgagactctcctgtgcagcctctggattcaccttcagtagttatggcatgcactggg tccgccaggctccaggcaaggggctggagtgggtggcagttatatcacatgatggaagtaataaatactacgcagactccgt gaagggccgattcaccatctccagagacaattccaaggacacgctgtatctgcaaatgaacagcctgagaggtgaggacac ggccgtatattactgtgcgcgctctaaccagtggtctggttacttctctttcgattactggggtcaaggtactctggtgaccgtctc ctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 749]
Amino Acid Sequence
QSVLTQPPSVSVSPGQTASISCSGNKLGTKYVYWYQKRPGQSPVLVMYEDNQR PSGIPERFSGSNSGNTATLTIRGTQTVDEADYYCQAWDSDTFVVFGGGTKVTVL GSRGGGGSGGGGSGGGGSLEMAEVQLVETGGGVVQPGRSLRLSCAASGFTFSS YGMHWVRQAPGKGLEWVAVISHDGSNKYYADSVKGRFTISRDNSKDTLYLQ MNSLRGEDTAVYYCARSNQWSGYFSFDYWGQGTLVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 750]

Table 156

ET200-006
DNA Sequence
Tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtggtggtcatccattatgatagcgaccggccct cagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatg aggccgactattactgtcaggtgtgggatagtagtagtgatcatccttatgtcttcggaactgggaccaaggtcaccgtcctagg ttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgca gtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccacctatggtat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcaacacttacaatggtcacacaaactatgca cagaagctccagggcagagccacaatgaccgcagacacatccacgaacacagcctacatggagctgaggagcctgagatc tgacgacactgccgtgtattactgtgcgcgcgttatctacggttctggtgattactggggtcaaggtactctggtgaccgtctcct caactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 751]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVVVIHYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHPYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYT FTTYGISWVRQAPGQGLEWMGWINTYNGHTNYAQKLQGRATMTADTSTNTA YMELRSLRSDDTAVYYCARVIYGSGDYWGQGTLVTVSSTSGQAGQHHHHHH

GAYPYDVPDYAS [SEQ ID NO: 752]

Table 157

ET200-007
DNA Sequence
Tcctatgtgctgactcagccactctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaactgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagtgatcatcgggtgttcggcggagggaccaagctgaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctgcaggag tcgggcccaggactggtgaagccttcggagaccctgtccctcacctgcaatgtctctggttactccatcagcagtggttactttt ggggctggatccggcagcccccagggaaggggctggagtggattgggagtatctatcatagtaggagcacctactacaacc cgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgaactctgtgaccgccgca gacacggccgtgtattactgtgcgcgcggttacggttacttcgattactggggtcaaggtactctggtgaccgtctcctcaacta gtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 753]
Amino Acid Sequence
SYVLTQPLSVSVAPGKTARITCGGNNIGSKTVHWYQQKPGQAPVLVIYYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHRVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAQVQLQESGPGLVKPSETLSLTCNVSGYSISS GYFWGWIRQPPGKGLEWIGSIYHSRSTYYNPSLKSRVTISVDTSKNQFSLKLNS VTAADTAVYYCARGYGYFDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPYD VPDYAS [SEQ ID NO: 754]

Table 158

ET200-008
DNA Sequence
Caatctgccctgactcagcctgcctccgtgtctgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtga cgttggtggttataactatgtctcctggtaccaacaacacccaggcaaagcccccaaactcatgatttatgatgtcagtaatcgg ccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggac gaggctgattattactgcagctcatatacaagcagcagcacttcgaaggtgttcggcggagggaccaagctgaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgg agtctgggggaggtgtggtacggcctgggggtccctgagactctcctgtgcagcctctggattcacctttggtgattatggca tgagctgggtccgccaagctccagggaaggggctggagtgggtctctggtattaattggaatggtggtagcacaggttatgca gactctgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagccg aggacacggccgtatattactgtgcgcgctctaaatacaacttccatgtttactacgattactggggtcaaggtactctggtgacc gtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttc t [SEQ ID NO: 755]
Amino Acid Sequence
QSALTQPASVSGSPGQSITISCTGTSSDVGGYNYVSWYQQHPGKAPKLMIYDVS NRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYTSSSTSKVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGVVRPGGSLRLSCAASGFT FGDYGMSWVRQAPGKGLEWVSGINWNGGSTGYADSVKGRFTISRDNAKNSL YLQMNSLRAEDTAVYYCARSKYNFHVYYDYWGQGTLVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 756]

Table 159

ET200-009
DNA Sequence
Cagtctgtgttgacgcagccaccctcagcgtctgggacccccgggcagacagtcaccatctcttgttctggaagcaactcca acatcggaagtaattatgtatactggtaccagcagctcccaggaacggcccccaaactcctcatctataggaataatcagcgg ccctcaggggtccctgaccgattctcaggctccaagtctggcacctcagcctccctggccatcagtgggctccgctccgagg atgaggctgattattactgtgcagcatgggatgacagcctgagtgcttatgtcttcggaactgggaccaaggtcaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgc agtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggta tcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgc acagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagat ctgacgacactgccgtgtattactgtgcgcgctcttctggtaacatggtttcttggaaagatatgtggggtcaaggtactctggtg accgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacg cttct [SEQ ID NO: 757]
Amino Acid Sequence
QSVLTQPPSASGTPGQTVTISCSGSNSNIGSNYVYWYQQLPGTAPKLLIYRNNQ RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCAAWDDSLSAYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASGY TFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTA YMELRSLRSDDTAVYYCARSSGNMVSWKDMWGQGTLVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 758]

Table 160

ET200-010
DNA Sequence
Caatctgccctgactcagcctgcctccgtgtctgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtga cgttggtggttataactctgtctcctggtaccaacaacacccaggcaaagcccccagactcatgatttatgatgtcagtaatcgg ccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggac gaggctgattattactgcagctcatatacaagcagcagcaccccttttagtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgcag tctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatc agctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgca cagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatc tgacgacacggccgtgtattactgtgcgcgcggtgctgttgcttaccatgattggggtcaaggtactctggtgaccgtctcctca actagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 759]
Amino Acid Sequence
QSALTQPASVSGSPGQSITISCTGTSSDVGGYNSVSWYQQHPGKAPRLMIYDVS NRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYTSSSTPLVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASGY TFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTA YMELRSLRSDDTAVYYCARGAVAYHDWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 760]

Table 161

ET200-011
DNA Sequence
Cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagagggtcaccatctcctgctctggaagcagctcc aacatttcgatttatgatgtatcctggtatcagcagctcccaggaacagcccccaaactcctcatttatggcaataataagcgacc ctcggggattgctgaccgattctctggctccacgtctggcacgtcagccaccctgggcatcaccggactccagactggggac gaggccgattattactgcggaacatgggatgacagtctgagtgggggggtgttcggcggagggaccaagctgaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagctggtg caatctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcgaggcttctggaggcaccctcagcagctatg ctatcaactgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatgtttggtacagcacactac gcacagaagttccagggcagagtcacgattaccgcggacgaatccacgaaaacagcctacatggagctgagcagcctgag atctgaggacactgccgtgtattactgtgcgcgcggtgttcattacgcttctttcgatcattggggtcaaggtactctggtgaccg tctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 761]
Amino Acid Sequence
QSVVTQPPSVSAAPGQRVTISCSGSSSNISIYDVSWYQQLPGTAPKLLIYGNNKR PSGIADRFSGSTSGTSATLGITGLQTGDEADYYCGTWDDSLSGGVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGSSVKVSCEASGGTL SSYAINWVRQAPGQGLEWMGGIIPMFGTAHYAQKFQGRVTITADESTKTAYM ELSSLRSEDTAVYYCARGVHYASFDHWGQGTLVTVSSTSGQAGQHHHHHHGA YPYDVPDYAS [SEQ ID NO: 762]

Table 162

ET200-012
DNA Sequence
Cagtctgtgttgacgcagccgccctcagtgtctgcggccgcaggacagaaggtcaccatctcctgctctggaagcgactcca acattgggaataattatgtgtcctggtatcaacacctcccagggacagcccccaaactcctcatttatgacgttaaaaatcgacc ctcagggattcctgaccggttctccggctccaagtctggctcgtcagccaccctaggcatcgccggactccagcctggggac gaggccgattattactgcggaacatgggacagtcggctggatgcctatgtcttcggaactgggaccaaggtcaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagctggtgc aatctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaagacttctggtttccccttaatatctttggaatc acctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcggttacaacggtaacacagactaccca cagaagttccagggcagagtcaccatgtccacagacacatccacgagtacagcctacatggagctgaggaacctgaaatctg acgacacggccgtgtattactgtgcgcgcggtgcttacggtggtatggatacttggggtcaaggtactctggtgaccgtctcct caactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 763]
Amino Acid Sequence
QSVLTQPPSVSAAAGQKVTISCSGSDSNIGNNYVSWYQHLPGTAPKLLIYDVKN RPSGIPDRFSGSKSGSSATLGIAGLQPGDEADYYCGTWDSRLDAYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGASVKVSCKTSGFP FNIFGITWVRQAPGQGLEWMGWISGYNGNTDYPQKFQGRVTMSTDTSTSTAY MELRNLKSDDTAVYYCARGAYGGMDTWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 764]

Table 163

ET200-013
DNA Sequence
Cagtctgtcgtgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcacctcc aacatcggggcaggttatgatgtacactggtatcagcagcttccaggaacagcccccaaactcctcatctatactaacaactttc ggccctcaggggtccctgaccgattctctgcctccaagtctggcacttcagcttccctggccatcactggtctccaggctgagg atgaggctgattattactgcggaacatgggatagcagcctgagtgccgttgtgttcggcggagggaccaagctgaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtg gagtctggaactgaggtgaagaagcctggggcctcagtgaaagtctcctgcaaggcttctggttacatgtttaccagttatggt ctcaactgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgctaacaatggtaagacaaattatg ctaagaaattccaggacagagtcaccatgaccagagacacttccacgagcacaggctacatggaactgaggagcctgagat ctgacgacacggccgtatattactgtgcgcgccatatcggtggttcttacttcgatcgttggggtcaaggtactctggtgaccgt ctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 765]
Amino Acid Sequence
QSVVTQPPSVSGAPGQRVTISCTGSTSNIGAGYDVHWYQQLPGTAPKLLIYTNN FRPSGVPDRFSASKSGTSASLAITGLQAEDEADYYCGTWDSSLSAVVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGTEVKKPGASVKVSCKASGY MFTSYGLNWVRQAPGQGLEWMGWISANNGKTNYAKKFQDRVTMTRDTSTST GYMELRSLRSDDTAVYYCARHIGGSYFDRWGQGTLVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 766]

Table 164

ET200-014
DNA Sequence
Tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccct cagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatg aggccgactattactgtcaggtgtgggatagtagtagtgatcattatgtcttcggaactgggaccaaggtcaccgtcctaggttc tagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggaga ctgggggaggcttggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttagcagctatgccatga gctgggtccgccaggctccagggaaggggctggagtgggtctcagctattagtggtagtgatggtagcacatactacgcaga ctccgtgaagggccggttcaccatctccagagacaattccaagaacacgctgtatctgcaaatgaacagcctgagagacgag gacacggccgtatattactgtgcgcgctctcatgaagctaacctggttggtgattggtggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 767]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDRP SGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHYVFGTGTKVTVL GSRGGGGSGGGGSGGGGSLEMAEVQLVETGGGLVQPGGSLRLSCAASGFTFSS YAMSWVRQAPGKGLEWVSAISGSDGSTYYADSVKGRFTISRDNSKNTLYLQM NSLRDEDTAVYYCARSHEANLVGDWWGQGTLVTVSSTSGQAGQHHHHHHGA YPYDVPDYAS [SEQ ID NO: 768]

Table 165

ET200-015
DNA Sequence
Cagtctgtggtgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccct cagggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatg aggccgactattactgtcaggtgtgggatagtagtagtgatgtggtattcggcggagggaccaagctgaccgtcctaggttcta gaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtacagtctg gagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctacggtatcagc tgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgcacag aagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatctga cgacacggccgtgtattactgtgcgcgctggggtggtttcggtgctgttgatcattggggtcaaggtactctggtgaccgtctcc tcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 769]
Amino Acid Sequence
QSVVTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDVVFGGGTKLTVL GSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYTFT SYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAYM ELRSLRSDDTAVYYCARWGGFGAVDHWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 770]

Table 166

ET200-016
DNA Sequence
Tcttctgagctgactcaggaccctgctgtgtctgtggccttgggacagacagtcaagatcacgtgccaaggagacagcctca cagactaccatgcaacctggtaccagcagaagccaggacaggcccctgtcgctgtcatctatgctacaaacaaccggcccac tgggatcccagaccgattctctggttccagttccggaaacacagcttctttgaccatcactggggctcaggcggaagatgagg ctgactattactgtaattcccgggacagcggcacggacgaagtgttattcggcggagggaccaagctgaccgtcctaggttct agaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagac tgggggaggcctggtcaagcctgggggtccctgagactctcctgtgcagcctctggattcaccttcagtagctatagcatga actgggtccgccaggctccagggaaggggctggagtgggtctcatccattagtagtagtagtagttacatatactacgcagac tcagtgaagggccgattcaccatctccagagacaacgccaagaactcactgtatctgcaaatgaacagcctgagagccgagg acacggccgtgtattactgtgcgcgcggtcagggttacgattactggggtcaaggtactctggtgaccgtctcctcaactagtg gccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 771]
Amino Acid Sequence
SSELTQDPAVSVALGQTVKITCQGDSLTDYHATWYQQKPGQAPVAVIYATNNR PTGIPDRFSGSSSGNTASLTITGAQAEDEADYYCNSRDSGTDEVLFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVETGGGLVKPGGSLRLSCAASGFTFS SYSMNWVRQAPGKGLEWVSSISSSSSYIYYADSVKGRFTISRDNAKNSLYLQM NSLRAEDTAVYYCARGQGYDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPYD VPDYAS [SEQ ID NO: 772]

Table 167

ET200-017
DNA Sequence
Tcctatgtgctgactcagccaccctcggtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacatt ggaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcgtctatgatgatagcgaccggccc tcagggatccctgagcgattctctggctccaactctgggaacacggccaccctgagcatcagcagggtcgaagccggggat gaggccgactattactgtcaggtgtgggatagtagtagtgatcatactgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagcag tggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactactgg agctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaaccc gtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcgg acacggccgtgtattactgtgcgcgctactacccgggtatggatatgtggggtcaaggtactctggtgaccgtctcctcaacta gtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 773]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVVYDDSDR PSGIPERFSGSNSGNTATLSISRVEAGDEADYYCQVWDSSSDHTVFGTGTKVTV LGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGSF SGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLSS VTAADTAVYYCARYYPGMDMWGQGTLVTVSSTSGQAGQHHHHHHGAYPYD VPDYAS [SEQ ID NO: 774]

Table 168

ET200-018
DNA Sequence
Caggctgtgctgactcagccgccctcaacgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcgggagaaatggtgtaaactggtaccagcagctcccaggagcggcccccaaagtcctcatctataatgataatcagcg accctcaggggtccctgaccgagtctctggctcccagtctggctcctcaggcaccctggccatcgatgggcttcggtctgagg atgaggctgattattactgtgcggcatgggatgacagcctgcatggtgtggtattcggcggagggaccaagctgaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggta cagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggtttccggatacaccctcaatgaattatc catgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttgatcctgaagatggtgaaacaatctacg cacagaagttccagggcagagtcaccatgaccgaggacacatctacagacacagcctacatggagctgagcagcctgagat ctgaggacactgccgtgtattactgtgcgcgcggtggttacggtgattcttggggtcaaggtactctggtgaccgtctcctcaac tagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 775]
Amino Acid Sequence
QAVLTQPPSTSGTPGQRVTISCSGSSSNIGRNGVNWYQQLPGAAPKVLIYNDNQ RPSGVPDRVSGSQSGSSGTLAIDGLRSEDEADYYCAAWDDSLHGVVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKVSG YTLNELSMHWVRQAPGKGLEWMGGFDPEDGETIYAQKFQGRVTMTEDTSTDT AYMELSSLRSEDTAVYYCARGGYGDSWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 776]

Table 169

ET200-019
DNA Sequence
Aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaag accctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagact gaggacgaggctgactactactgtcagtcttatgatagcagcaattcttgggtgttcggcggagggaccaagctgaccgtcct aggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggt gcaatctggggctgaggtgaagaggcctgggtcctcggtgaaggtctcctgcacggcttctggaggcaccttcagcagcgat gctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggaggaatcatccctatgtttggtacagcaaact acgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctg agatctgaggacacggccgtgtattactgtgcgcgcgaaggttactactacccgtctgcttacctgggttctgttctgaacgaca tctcttctgtttacgatgaatggggtcaaggtactctggtgaccgtctcctcaactagtggccaggccggccagcaccatcacc atcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 777]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNSWVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKRPGSSVKVSCTASGGT FSSDAISWVRQAPGQGLEWMGGIIPMFGTANYAQKFQGRVTITADESTSTAYM ELSSLRSEDTAVYYCAREGYYYPSAYLGSVLNDISSVYDEWGQGTLVTVSSTS GQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 778]

Table 170

ET200-020
DNA Sequence
Cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcacctcca acattggaaataatgatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcgac cctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactgggga cgaggccgattattactgcggaacatgggatagcagcgtgagtgcttcttgggtcttcggcagagggaccaagctgaccgtc ctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctg gtgcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctat ggtatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaact atccacagaagctccagggcagagtcaccatgaccacagacccatccacgagcacagcctacatggagctgaggagcctg agatctgacgacacggccgtgtattactgtgcgcgctctatgacttctttcgattactggggtcaaggtactctggtgaccgtctc ctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 779]
Amino Acid Sequence
QSVVTQPPSVSAAPGQKVTISCSGSTSNIGNNDVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSVSASWVFGRGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASG YTFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYPQKLQGRVTMTTDPSTST AYMELRSLRSDDTAVYYCARSMTSFDYWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 780]

Table 171

ET200-021
DNA Sequence
Cagtctgtgttgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcaactcca acattgggaataattatgtatcctggtatcagcaactcccagggacagcccccaaactcctcatttatgacaataataagcgacc ctcagggattcctgaccgattctctggctccaggtctggcacgtcagccaccctgggcatcaccggactccagactggggac gaggccgattattactgcggaacatggaataccactgtgactcctggctatgtcttcggaactgggaccaaggtcaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaagtgcagctggtg cagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggt atcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatg cacagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgaga tctgacgacaccgccatgtattactgtgcgcgctctgtttacgacctggatacttggggtcaaggtactctggtgaccgtctcctc aactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 781]
Amino Acid Sequence
QSVLTQPPSVSAAPGQKVTISCSGSNSNIGNNYVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSRSGTSATLGITGLQTGDEADYYCGTWNTTVTPGYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGY TFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTA YMELRSLRSDDTAMYYCARSVYDLDTWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 782]

Table 172

ET200-022
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcagctcca acattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcgacc ctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactggggac gaggccgattattactgcggaacatgggatagcagcctgggggccccttatgtcttcggaactgggaccaaggtcaccgtcct aggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggt gcagtcttggggaggctcggaacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgc catgcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagcggtagcataggctat gcggactctgtgaagggccgattcaccatctccagagacaacgccaagaattccctgtatctgcaaatgaacagtctgagagc tgaggacaccgccatgtattactgtgcgcgctaccgtcaggttggttctgcttacgattcttggggtcaaggtactctggtgacc gtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttc t [SEQ ID NO: 783]
Amino Acid Sequence
QSVVTQPPSVSAAPGQKVTISCSGSSSNIGNNYVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSLGAPYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSWGGSEQPGRSLRLSCAASGF TFDDYAMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSL YLQMNSLRAEDTAMYYCARYRQVGSAYDSWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 784]

Table 173

ET200-023
DNA Sequence
ctgcctgtgctgactcagccaccctcggtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaagtgtgcactggtatcagcagaagccaggccaggcccctgtgctggtcgtctatgctgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagttatcataattatgtcttcggaactgggaccaaggtcaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcagt ctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatca gctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgcac agaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgagcagcctgagatct gaggacaccgccatgtattactgtgcgcgctactggggtttcggtgtttctgatcgttggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 785]
Amino Acid Sequence
LPVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVVYADSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSYHNYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYT FTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAY MELSSLRSEDTAMYYCARYWGFGVSDRWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 786]

Table 174

ET200-024
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccccgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgacagcagcaatctttgggtgttcggcggagggaccaagctgaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagctggtg cagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatg ctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactac gcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgag atctgaggacactgccgtgtattactgtgcgcgctacaactactactactacgattcttggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 787]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTGSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNLWVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGSSVKVSCKASGG TFSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYM ELSSLRSEDTAVYYCARYNYYYYDSWGQGTLVTVSSTSGQAGQHHHHHHGA YPYDVPDYAS [SEQ ID NO: 788]

Table 175

ET200-025
DNA Sequence
gacatccagatgacccagtctccatcctccctgtctgcatctgtaggagacagagtcaccatcacttgccgggcaagtcagag cattagcagctatttaaattggtatcagcagaaaccagggaaagcccctaagctcctgatctatgctgcatccagtttgcaaagt ggggtcccatcaaggttcagtggcagtggatctgggacagatttcactctcaccatcagcagtctgcaacctgaagattttgca acttactactgtcaacagagttacagtaccccattcactttcggccctgggaccaaagtggatatcaaacgttctagaggtggtg gtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcagtctggggctgag gtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctatcagctgggtgcg acaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgcacagaagttccag ggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatctgaggacaccgc catgtattactgtgcgcgctactggggttacgactcttacgatgaatggggtcaaggtactctggtgaccgtctcctcaactagt ggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 789]
Amino Acid Sequence
DIQMTQSPSSLSASVGDRVTITCRASQSISSYLNWYQQKPGKAPKLLIYAASSLQ SGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQSYSTPFTFGPGTKVDIKRSRG GGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTFSSYAIS WVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMELSSLRSE DTAMYYCARYWGYDSYDEWGQGTLVTVSSTSGQAGQHHHHHHGAYPYDVP DYAS [SEQ ID NO: 790]

Table 176

ET200-026
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcagcaattgggtgttcggcggagggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgcag tctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgca cagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatct gaggacacggccgtgtattactgtgcgcgcaacaaccattactacaacgattactggggtcaaggtactctggtgaccgtctc ctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 791]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTGSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNWVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTF SSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMEL SSLRSEDTAVYYCARNNHYYNDYWGQGTLVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 792]

Table 177

ET200-027
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagggggtcaccatcccctgcactgggagcagctcc aacatcggggcaggttatgatgtacactggtaccagcagcttccagggacagcccccaaactcctcatctatggtaacaacaa tcggccctcaggggtccctgaccgcttctctggctccaggtctggctcctcagcctccctggccatcactgggctccaggctg aggatgaggctgattattactgccagtcctatgacagcagcctgagtgatgtggtattcggcggagggaccaaggtcaccgtc ctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctg gtgcagtctggggctgaggtgaagaagcctggggctacagtgaaaatctcctgcaaggtttctggatacaccttcaccgacta ctacatgcactgggtgcaacaggcccctggaaaagggcttgagtggatgggacttgttgatcctgaagatggtgaaacaatat acgcagagaagttccagggcagagtcaccataaccgcggacacgtctacagacacagcctacatggagctgagcagcctg agatctgaggacacggccgtgtattactgtgcgcgctactggtcttactctttcgactacctgtacatgccggaaggtaacgatt ggtggggtcaaggtactctggtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcata cccgtacgacgttccggactacgcttct [SEQ ID NO: 793]
Amino Acid Sequence
QSVLTQPPSVSGAPGQGVTIPCTGSSSNIGAGYDVHWYQQLPGTAPKLLIYGNN NRPSGVPDRFSGSRSGSSASLAITGLQAEDEADYYCQSYDSSLSDVVFGGGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGATVKISCKVSGY TFTDYYMHWVQQAPGKGLEWMGLVDPEDGETIYAEKFQGRVTITADTSTDTA YMELSSLRSEDTAVYYCARYWSYSFDYLYMPEGNDWWGQGTLVTVSSTSGQ AGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 794]

Table 178

ET200-028
DNA Sequence
cagtctgtgttgactcagccacccgcagcgtctgggacccccggacagagagtcaccatctcttgttctgggggcgtctccaa catcgggagtggtgctctaaattggtaccagcaactcccaggaacggcccccaaactcctcatctatagttacaatcagcggc cctcaggggtctctgaccgattctctggctccaggtctgccacctcagcctccctggccatcagtgggctccagtctgaggatg aggctgattattactgtgcaacctgggatgatagtgtgaatggttgggtgttcggcggagggaccaagctgaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtacagt ctggagctgaggtgaagaagcctggggattcagtgaaggtctcctgcaagccttctggttacaattttctcaactatggtatcaa ctgggtgcgacaggcccctggacaagggcttgagtggatgggatggattagcacttacaccggtaacacaaactatgcaca gaagctgcagggcagagtcaccttcaccacagacacatccacgagcacagcctacatggagatgaggagcctgagatctga cgacacggccgtgtattactgtgcgcgcgacctgtactactacgaaggtgttgattactggggtcaaggtactctggtgaccgt ctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 795]
Amino Acid Sequence
QSVLTQPPAASGTPGQRVTISCSGGVSNIGSGALNWYQQLPGTAPKLLIYSYNQ RPSGVSDRFSGSRSATSASLAISGLQSEDEADYYCATWDDSVNGWVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGDSVKVSCKPSGY NFLNYGINWVRQAPGQGLEWMGWISTYTGNTNYAQKLQGRVTFTTDTSTSTA YMEMRSLRSDDTAVYYCARDLYYYEGVDYWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 796]

Table 179

ET200-029
DNA Sequence
caggctgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccagggttacctgtgggggaaacaacatt ggaagtgaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgttggtcatctattatgataccgaccggccct cagggatccctgagcgattctctggctcccactctgggaccacggccaccctgaccatcagcagggtcgaagccggggatg aggccgactattactgtcaggtgtgggatagtagtagggatcatgtggtattcggcggagggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgcag tctgggggaggcgtggtccagcctgggaggtccctgagactctcctgtgcggcctctggattcaccttcagtagctatgctatg cactgggtccgccaggctccaggcaagggactggagtgggtggcagttatatcatatgatggaagcaataaatactacgcag actccgtgaagggcctattcaccatctccagagacaattccaagaacacgctgtatctgcaaatgaacagcctgagagctgag gacacggccgtgtattactgtgcgcgctcttacttcacttctggtttctacgattactggggtcaaggtactctggtgaccgtctcc tcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 797]
Amino Acid Sequence
QAVLTQPPSVSVAPGKTARVTCGGNNIGSESVHWYQQKPGQAPVLVIYYDTDR PSGIPERFSGSHSGTTATLTISRVEAGDEADYYCQVWDSSRDHVVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGGGVVQPGRSLRLSCAASGFTF SSYAMHWVRQAPGKGLEWVAVISYDGSNKYYADSVKGLFTISRDNSKNTLYL QMNSLRAEDTAVYYCARSYFTSGFYDYWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 798]

Table 180

ET200-030
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagttcc aacatcggggcaggttatgatgtaaattggtatcagcagtttccaggaacagcccccaaactcctcatctatggtaacagcaat cggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctccaggctga ggatgaggctgattattactgccagtcctatgacagcagcctgagtggctcttatgtcttcggaactgggaccaaggtcaccgt cctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagct ggtgcagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttccggatacaccctcactgaa ttatccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttgatcctgaagatggtgaaacaat ctacgcacagaagttccagggcagagtcaccatgaccgaggacacatctacagacacagcctacatggagctgagcagcct gagatctgaggacactgccgtgtattactgtgcgcgcatgtcttctatgtactacgattggggtcaaggtactctggtgaccgtct cctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 799]
Amino Acid Sequence
QSVVTQPPSVSGAPGQRVTISCTGSSSNIGAGYDVNWYQQFPGTAPKLLIYGNS NRPSGVPDRFSGSKSGTSASLAITGLQAEDEADYYCQSYDSSLSGSYVFGTGTK VTVLGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGASVKVSCKAS GYTLTELSMHWVRQAPGKGLEWMGGFDPEDGETIYAQKFQGRVTMTEDTSTD TAYMELSSLRSEDTAVYYCARMSSMYYDWGQGTLVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 800]

Table 181

ET200-031
DNA Sequence
tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagtgattatgtcttcggaactgggaccaaggtcaccgtcctaggttctaga ggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagactgg gggaggcttggtcaagcctggagggtccctgagactctcctgtgcagcctctggattcaccgtcagtgactactacatgagct ggatccgccaggctccagggaagggcctggagtggatttcatacattagtggtagtggtaatagcatatactacgcagactct gtgaagggccgattcaccatctccagggacaacgccaagaactcactggatctgcaaatgaccagcctgagagccgaggac acggccgtatattactgtgcgcgctctactaaattcgattactggggtcaaggtactctggtgaccgtctcctcaactagtggcc aggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 801]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDRP SGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDYVFGTGTKVTVLG SRGGGGSGGGGSGGGGSLEMAEVQLVETGGGLVKPGGSLRLSCAASGFTVSD YYMSWIRQAPGKGLEWISYISGSGNSIYYADSVKGRFTISRDNAKNSLDLQMTS LRAEDTAVYYCARSTKFDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPYDVP DYAS [SEQ ID NO: 802]

Table 182

ET200-032
DNA Sequence
ctgcctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa cgtcggaagttacactgtaaactggtaccggcaactcccaggaacggcccccacactcctcatctataataataatcagcggc cctcaggggtccctgaccgattctctgactccaagtctggcacctcggcctccctgaccattagtgggctccagcctgaggat gaggctgattattattgtgcagcatgggatgacaggctgggtggttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcag tctggagcagaggtgaaaaagccgggggagtctctgaagatctcctgtaagggttctggatacagctttaccaactactggat cggctgggtgcgccagatgcccgggaaaggcctggagtggatggggatcatctatcctggtgactctgataccagatacag cccgtccttccaaggccaggtcaccatctcagccgacaagtccatcagcaccgcctacctacagtggagcagcctgaaggc ctcggacaccgccatgtattactgtgcgcgctctactggttcttctatatgtctgatgaatggggtcaaggtactctggtgaccg tctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 803]
Amino Acid Sequence
LPVLTQPPSASGTPGQRVTISCSGSSSNVGSYTVNWYRQLPGTAPTLLIYNNNQ RPSGVPDRFSDSKSGTSASLTISGLQPEDEADYYCAAWDDRLGGYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGESLKISCKGSGYS FTNYWIGWVRQMPGKGLEWMGIIYPGDSDTRYSPSFQGQVTISADKSISTAYLQ WSSLKASDTAMYYCARSTGSSHMSDEWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 804]

Table 183

ET200-033
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcagcaatcattgggtgttcggcggagggaccaagctgaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaagtgcagctacag cagtggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactac tggagctggatccgccagcccccagggaaggggctggagtggattggggagatcactcatagtggaaggtccaactacaa cccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccg cggacacggccgtgtattactgtgcgcgctcttctatcatgtctgattactggggtcaaggtactctggtgaccgtctcctcaact agtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 805]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTGSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNHWVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGS FSGYYWSWIRQPPGKGLEWIGEITHSGRSNYNPSLKSRVTISVDTSKNQFSLKLS SVTAADTAVYYCARSSIMSDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPYD VPDYAS [SEQ ID NO: 806]

Table 184

ET200-034
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcacctcca acatcggggcaggttatgatgtacactggtaccagcagcttccaggaacagcccccaaactcctcatcaacaataacaggaat cggccctcaggggtccctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactg gggacgaggccgattattactgcggaacatgggatggcagcctgactggtgcagtgttcggcggagggaccaagctgacc gtcctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccag ctggtgcagtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcatgcaaggcttctggaggcaccttcagca gctatgctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagca aactacgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcag cctgagatctgaggacacggccgtgtattactgtgcgcgcggttctgctctggaccattacgatcgttggggtcaaggtactct ggtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggac tacgcttct [SEQ ID NO: 807]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTISCTGSTSNIGAGYDVHWYQQLPGTAPKLLINNNR NRPSGVPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDGSLTGAVFGGGTK LTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASG GTFSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAY MELSSLRSEDTAVYYCARGSALDHYDRWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 808]

Table 185

ET200-035
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcaccaattgggtgttcggcggagggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgcag tctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgca cagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatct gaggacactgccgtgtattactgtgcgcgctacaactactacttcaacgattactggggtcaaggtactctggtgaccgtctcct caactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 809]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSTNWVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGGT FSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYME LSSLRSEDTAVYYCARYNYYFNDYWGQGTLVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 810]

Table 186

ET200-037
DNA Sequence
tcctatgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccaggattacctgtgggggaaacaacattg gaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtgctggtcatctattatgatagcgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagtgatcatccttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccagatgcagctggtgcag tctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatc agctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgca cagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatc tgacgacactgccgtgtattactgtgcgcgctctatgttcggtgctcatgattcttggggtcaaggtactctggtgaccgtctcctc aactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 811]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARITCGGNNIGSKSVHWYQQKPGQAPVLVIYYDSDRP SGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHPYVFGTGTKVTV LGSRGGGGSGGGGSGGGGSLEMAQMQLVQSGAEVKKPGASVKVSCKASGYT FTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAY MELRSLRSDDTAVYYCARSMFGAHDSWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 812]

Table 187

ET200-038
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagctcc aacatcggggcaggttttgatgtacactggtaccagctacttccaggaacagcccccaaactcctcatctatgctaacagcaat cggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctcctggctga ggatgaggctgattattactgccagtcctatgacagcagcctgagtggtgtggtattcggcggagggaccaagctgaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctgg tgcaatctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctat gctatcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaact acgcacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctg agatctgaggacactgccgtgtattactgtgcgcgcggtgcttctttcgaccgtcatgataactggggtcaaggtactctggtga ccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgc ttct [SEQ ID NO: 813]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTISCTGSSSNIGAGFDVHWYQLLPGTAPKLLIYANSN RPSGVPDRFSGSKSGTSASLAITGLLAEDEADYYCQSYDSSLSGVVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGGT FSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYME LSSLRSEDTAVYYCARGASFDRHDNWGQGTLVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 814]

Table 188

ET200-039
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagttcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcagcaattgggtgttcggcggagggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgcag tctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgca cagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatct gaggacacggccgtgtattactgtgcgcgctctaactactactacaacgattactggggtcaaggtactctggtgaccgtctcct caactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 815]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSSPTTVIYEDNQR PSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNWVFGGGTKLTVL GSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTFS SYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMELS SLRSEDTAVYYCARSNYYYNDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPY DVPDYAS [SEQ ID NO: 816]

Table 189

ET200-040
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagctcc aacatcggggcaggttatgatgtacactggtaccagcagcttccaggaacagcccccaaactcctcatctatggtaacagcaa tcggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctccaggctg aggatgaggctgattattactgccagtcctatgacagcagcctgagtggttatgtcttcggaactgggaccaaggtcaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctgg tgcagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggtttccggatacaccctcactgaatta tccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttgatcctgaagatggtgaaacaatcta cgcacagaagttccagggcagagtcaccatgaccgaggacacatctacagacacagcctacatggagctgagcagcctga gatctgaggacactgccgtgtattactgtgcgcgctactctggtgtttactacgattggggtcaaggtactctggtgaccgtctcc tcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 817]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTISCTGSSSNIGAGYDVHWYQQLPGTAPKLLIYGNS NRPSGVPDRFSGSKSGTSASLAITGLQAEDEADYYCQSYDSSLSGYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKVSG YTLTELSMHWVRQAPGKGLEWMGGFDPEDGETIYAQKFQGRVTMTEDTSTDT AYMELSSLRSEDTAVYYCARYSGVYYDWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 818]

Table 190

ET200-041
DNA Sequence
aattttatgctgactcagccccactctgtgtcggggtctccggggaagacggtaaccatctcctgcaccggcagcagtggcag cattgccgacaactttgtgcagtggtaccagcagcgcccgggcggtgtccccaccactgtgatctttaatgatgacgaaagac cctctggcgtccctgatcggttctctggctccatcgacacctcctccaattctgcctccctcaccatctctggactgaagactgag gacgaggctgactactactgtcagtcttatgataataataatcgaggggtgttcggcggagggaccaagctgaccgtcctagg ttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtgca gtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgcta tcagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatgaaccctaacagtggtaacacaggctatg cacagaagttccagggcagagtcaccatgaccaggaacacctccataagcacagcctacatggagctgagcaacctgagat ctgaggacacggccgtgtattactgtgcgcgctactactcttacggttacgattggggtcaaggtactctggtgaccgtctcctc aactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 819]
Amino Acid Sequence
NFMLTQPHSVSGSPGKTVTISCTGSSGSIADNFVQWYQQRPGGVPTTVIFNDDE RPSGVPDRFSGSIDTSSNSASLTISGLKTEDEADYYCQSYDNNNRGVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGG TFSSYAISWVRQAPGQGLEWMGWMNPNSGNTGYAQKFQGRVTMTRNTSISTA YMELSNLRSEDTAVYYCARYYSYGYDWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 820]

Table 191

ET200-042
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctggggccccagggcagacggtcaccatctcctgcactgggggcagctcc aacatcgggacaggttattttgtaaattggtaccagcaggttccaggaaaagcccccaaactcctcatcctgggtaacaataatc ggccctcgggggtccctgaccgactctccggctccacgtccggcacctcagcctccctggccatcactgggctccaggctg aggatgagggtacttattactgccagtcctatgacagcagcctgagtggttatgtcttcggaactgggaccaaggtcaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtacagctgc agcagtcaggtccaggactggtgaagccctcgcagaccctctcactcacctgtggcatctccggggacagtgtctctaccaac agtgttgcttggcactggatcaggcagtccccatcgagaggccttgagtggctgggaaggacatactacaggtccaagtggt ctaatgactatggagtatctgtgaaaagtcgaatcaccatcatcccagacacatccaagaaccagttctccctgcagctgaactc tgtgactcccgaggacacggctgtgtattactgtgcgcgctcttcttcttggtaccagatcttcgattactggggtcaaggtactct ggtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggac tacgcttct [SEQ ID NO: 821]
Amino Acid Sequence
QSVVTQPPSVSGAPGQTVTISCTGGSSNIGTGYFVNWYQQVPGKAPKLLILGNN NRPSGVPDRLSGSTSGTSASLAITGLQAEDEGTYYCQSYDSSLSGYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAQVQLQQSGPGLVKPSQTLSLTCGISGDS VSTNSVAWHWIRQSPSRGLEWLGRTYYRSKWSNDYGVSVKSRITIIPDTSKNQF SLQLNSVTPEDTAVYYCARSSSWYQIFDYWGQGTLVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 822]

Table 192

ET200-043
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcaccggcagcagcgacag catagccaacaactatgttcagtggtaccagcagcgcccgggcagtgcccccaccaatgtgatctacgaagatgtccaaaga ccctctggggtccctgatcggttctctgggtccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgtctactattgtcagtcttatcatagcgacaatcgttgggtgttcggcggcgggaccaagctgaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgg agtctgggggaggcttggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttagcagctatgcca tgagctgggtccgccaggctccagggaaggggctggagtgggtctcagctattagtggtagtggtggtagcacatactacgc agactccgtgaagggccggttcaccatctccagagacaattccaagaacacgctgtatctgcaaatgaacagcctgagagcc gaggacacggccgtatattactgtgcgcgctctggtgcttactgggactactctgtttacgatgaatggggtcaaggtactctgg tgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggacta cgcttct [SEQ ID NO: 823]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTGSSDSIANNYVQWYQQRPGSAPTNVIYEDVQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEAVYYCQSYHSDNRWVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVESGGGLVQPGGSLRLSCAASGF TFSSYAMSWVRQAPGKGLEWVSAISGSGGSTYYADSVKGRFTISRDNSKNTLY LQMNSLRAEDTAVYYCARSGAYWDYSVYDEWGQGTLVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 824]

Table 193

ET200-044
DNA Sequence
cagtctgtgttgactcagccaccctcagtgtccgtgtccccaggacagacagccaccatcgcctgttctggacataaattgggg gataaatatgcttcctggtatcagcagaagtcgggccagtcccctgtgttgatcatctatcaggataataagcggccctcaggg attcctgagcgattctctggctccaactctgggaacacagccactctgaccatcagcgggacccaggctctggatgaggctga ctattattgtcaggcgtgggacagtagtacttatgtggcattcggcggagggaccaagctgaccgtcctaggttctagaggtgg tggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctgcaggagtccggcccag gactggtgaagccttcggagaccctgtccctcacctgcgttgtctctggtggctccatcagcagtagtaactggtggagctggg tccgccagcccccagggaaggggctggagtggattggggaaatctatcatagtgggagccccaactacaacccatccctca agagtcgagtcaccatatcagtagacaagtccaagaaccagttctccctgaagctgagctctgtgaccgccgcggacacggc cgtgtattactgtgcgcgcatgactactcatactttcggttacgatgcttggggtcaaggtactctggtgaccgtctcctcaacta gtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 825]
Amino Acid Sequence
QSVLTQPPSVSVSPGQTATIACSGHKLGDKYASWYQQKSGQSPVLIIYQDNKRP SGIPERFSGSNSGNTATLTISGTQALDEADYYCQAWDSSTYVAFGGGTKLTVLG SRGGGGSGGGGSGGGGSLEMAQVQLQESGPGLVKPSETLSLTCVVSGGSISSSN WWSWVRQPPGKGLEWIGEIYHSGSPNYNPSLKSRVTISVDKSKNQFSLKLSSVT AADTAVYYCARMTTHTFGYDAWGQGTLVTVSSTSGQAGQHHHHHHGAYPY DVPDYAS [SEQ ID NO: 826]

Table 194

ET200-045
DNA Sequence
cagcctgtgctgactcagccaccctcagtgtcagtggccccaggaaagacggccacgattacttgtgggggaaacaacattg gaagtgaaagtgtgcactggtaccaccagaagccaggccaggcccctgtgttggtcatctatgatgatgccggccggccctc agggatccctgagcgattcactggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatg aggccgactattactgtcaggtgtgggacagaaatagtgctcagtttgtcttcggacctgggaccaaggtcaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgcagt ctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatca gctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgcac agaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatct gacgacacggccgtgtattactgtgcgcgcggtgttcatctggattggtggggtcaaggtactctggtgaccgtctcctcaact agtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 827]
Amino Acid Sequence
QPVLTQPPSVSVAPGKTATITCGGNNIGSESVHWYHQKPGQAPVLVIYDDAGRP SGIPERFTGSNSGNTATLTISRVEAGDEADYYCQVWDRNSAQFVFGPGTKVTVL GSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYTFT SYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAYM ELRSLRSDDTAVYYCARGVHLDWWGQGTLVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 828]

Table 195

ET200-069
DNA Sequence
cagtctgtcgtgacgcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaattatgtatactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccggtccgaggat gaggctgattattactgtgcagcatgggatgacagcctgagtggttatgtcttcggaactgggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagcag tggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactactgg agctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaaccc gtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcgg acacggccgtgtattactgtgcgcgcctgtacgaaggtggttaccatggttggggttcttggctgtcttctgattcttggggtcaa ggtactctggtgaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacg ttccggactacgcttct [SEQ ID NO: 829]
Amino Acid Sequence
QSVVTQPPSASGTPGQRVTISCSGSSSNIGSNYVYWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCAAWDDSLSGYVFGTGTKLTV LGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGSF SGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLSS VTAADTAVYYCARLYEGGYHGWGSWLSSDSWGQGTLVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 830]

Table 196

ET200-078
DNA Sequence
cagtctgtgttgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa catcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcagcatgggatgacagcctgaatggttattgggtgttcggcggagggaccaagctgaccgtcct aggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctaca gcagtggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttacta ctggagctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactaca acccgtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgcc gcggacacggctgtgtattactgtgcgcgcgaaggggcatttgatgcttttgatatctggggccaagggacaatggtcaccgt ctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 831]
Amino Acid Sequence
QSVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYWVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGG SFSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKL SSVTAADTAVYYCAREGAFDAFDIWGQGTMVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 832]

Table 197

ET200-079
DNA Sequence
tcctatgagctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa catcggaagtaattatgtatactggtaccagcagctcccaggaacggcccccaaactcttcatctataggaataatcagcggcc ctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccggtccgaggatg aggctgattattactgtgcagcatgggatgacagcctgagtggttatctcttcggaactgggaccaaggtcaccgtcctaggttc tagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagt ctgggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccatgca ctgggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagtggtagcataggctatgcggac tctgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctgagga cacggccttgtattactgtgcaaatggcgactccaactactactacggtatggacgtctggggccaagggaccacggtcaccg tctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 833]
Amino Acid Sequence
SYELTQPPSASGTPGQRVTISCSGSSSNIGSNYVYWYQQLPGTAPKLFIYRNNQR PSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCAAWDDSLSGYLFGTGTKVTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGRSLRLSCAASGFTFD DYAMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSLYLQ MNSLRAEDTALYYCANGDSNYYYGMDVWGQGTTVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 834]

Table 198

ET200-081
DNA Sequence
cagtctgccctgactcagcctgcctccgtgtccgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtga cattggtggttataactatgtctcctggtaccaacaacacccaggcaaagcccccaaactcatgatttatgatgtcagtaatcgg ccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgaggac gaggctgattattactgcatctcatatacacgcacctggaacccctatgtcttcgggagtgggaccaaggtcaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcagt ctgggggaggcgtggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccatgc actgggtccgtcaagctccagggaagggtctggagtgggtctctcttattagtggggatggtggtagcacatactatgcagact ctgtgaagggccgattcaccatctccagagacaacagcaaaaactccctgtatctgcaaatgaacagtctgagaactgaggac accgccttgtattactgtgcaaaagatcgggcagcagctggctactactactacggtatggacgtctggggccaagggacca cggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccgga ctacgcttct [SEQ ID NO: 835]
Amino Acid Sequence
QSALTQPASVSGSPGQSITISCTGTSSDIGGYNYVSWYQQHPGKAPKLMIYDVS NRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCISYTRTWNPYVFGSGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGGGVVQPGGSLRLSCAASGF TFDDYAMHWVRQAPGKGLEWVSLISGDGGSTYYADSVKGRFTISRDNSKNSL YLQMNSLRTEDTALYYCAKDRAAAGYYYYGMDVWGQGTTVTVSSTSGQAG QHHHHHHGAYPYDVPDYAS [SEQ ID NO: 836]

Table 199

ET200-097
DNA Sequence
ctgcctgtgctgactcagccaccctcagtgtccgtgtccccaggacagacagccatcatcacctgctctggagataaattggg ggaaaaatatgtttcctggtatcagcagaagccaggccagtcccctgtactggtcatcgatcaagataccaggaggccctcag ggatccctgagcgattctctggctccaactctgggaccacagccactctgaccatcagcgggacccaggctatggatgaggc tgactattactgtcaggcgtgggacaggggtgtggtattcggcggagggaccaagctgaccgtcctaggttctagaggtggt ggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagtctgggggaga cttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattacctttaatgattatgccatgcactgggtccgg caagctccagggaagggcctggagtgggtctcaggtattagttggagtggtaataacataggctatgcggactctgtgaagg gccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctgaggacacggcctt gtattactgtgcaaaagatagtatacggtatggcatcacctggggaggttttgactactggggccagggaaccctggtcaccgt ctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 837]
Amino Acid Sequence
LPVLTQPPSVSVSPGQTAIITCSGDKLGEKYVSWYQQKPGQSPVLVIDQDTRRPS GIPERFSGSNSGTTATLTISGTQAMDEADYYCQAWDRGVVFGGGTKLTVLGSR GGGGSGGGGSGGGGSLEMAEVQLVESGGDLVQPGRSLRLSCAASGFTFNDYA MHWVRQAPGKGLEWVSGISWSGNNIGYADSVKGRFTISRDNAKNSLYLQMNS LRAEDTALYYCAKDSIRYGITWGGFDYWGQGTLVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 838]

Table 200

ET200-098
DNA Sequence
cagcctgtgctgactcagccaccctcggtgtccaagggcttgagacagaccgccacactcacctgcactgggaacagcaac aatgttggcaacctaggagtagcttggctgcagcagcaccagggccaccctcccaaactcctatcctacaggaataacaacc ggccctcagggatctcagagagattatctgcatccaggtcaggaaacacagcctccctgaccattactggactccagcctgag gacgaggctgactattactgctcagcatgggacagtagcctcagtgcttgggtgttcggcggagggaccaagctgaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctgg tggagtctgggggagtcgtggtacagcctgggggtccctgagactctcctgtgcagcctctggattacctttgatgattatg ccatgcactgggtccgtcaagctccggggaagggtctggagtgggtctctcttattaattgggatggtggtagcacctactatg cagactctgtgaagggtcgattcaccatctccagagacaacagcaaaaactccctgtatctgcaaatgaacagtctgagagct gaggacaccgccttgtattactgtgcaaaagggatgggcctgagggcgtttgactactggggccagggaaccctggtcacc gtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttc t [SEQ ID NO: 839]
Amino Acid Sequence
QPVLTQPPSVSKGLRQTATLTCTGNSNNVGNLGVAWLQQHQGHPPKLLSYRN NNRPSGISERLSASRSGNTASLTITGLQPEDEADYYCSAWDSSLSAWVFGGGTK LTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGVVVQPGGSLRLSCAASG FTFDDYAMHWVRQAPGKGLEWVSLINWDGGSTYYADSVKGRFTISRDNSKNS LYLQMNSLRAEDTALYYCAKGMGLRAFDYWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 840]

Table 201

ET200-099
DNA Sequence
cagtctgtgttgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcctgttctggaagcagctccaa catcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaatgatcagcggc cctcaggggtccctgaccgattctctggctccaagtccggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcttcatgggatgacagcctgaatggccgttatgtcttcggaactgggaccaaggtcaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtac agtctggggctgaggtgaggaagcctggggcctcagtgaaggtttcctgcaagacttctggatacaccttcagttggtatgcta tacattgggtgcgccaggcccccggacaaaggcttgagtggatgggatggatcaacgctggcaatggaaacacaaaatattc acagaaatttcagggcagagtcagtcttaccagggacacatccgcgagcacagcctacatggagctgagcagcctgagatct gatgacacggctgtgtattactgtgcgagacccgataattatggttcgggtggggatgtttttgatatctggggccaagggaca atggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccgg actacgcttct [SEQ ID NO: 841]
Amino Acid Sequence
QSVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNDQR PSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCASWDDSLNGRYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVRKPGASVKVSCKTSGYT FSWYAIHWVRQAPGQRLEWMGWINAGNGNTKYSQKFQGRVSLTRDTSASTA YMELSSLRSDDTAVYYCARPDNYGSGGDVFDIWGQGTMVTVSSTSGQAGQHH HHHHGAYPYDVPDYAS [SEQ ID NO: 842]

Table 202

ET200-100
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag cattgccagcaactttgtgcagtggtaccagcagcgcccgggcagtgcccccacccctatgatctatgaggataacaacaga ccccctggggtccctgatcggttctctgcctccgtcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgataccagcaatgtggtattcggcgggggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgga gtctgggggaggcttggtacagcctggagggtccctgagactctcctgtgcagcctctggattcaccttcagtagttatgaaat gaactgggtccgccaggctccagggaaggggctggagtgggtttcatacattagtagtagtggtagtaccatatactacgcag actctgtgaagggccgattcaccatctccagagacaacgccaagaactcactgtatctgcaaatgaacagcctgagagccga ggacacggctgtttattactgtgcacgctgggactacggtatggacgtctggggccaagggaccacggtcaccgtctcctcaa ctagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 843]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNFVQWYQQRPGSAPTPMIYEDNNR PPGVPDRFSASVDSSSNSASLTISGLKTEDEADYYCQSYDTSNVVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGGSLRLSCAASGFTFS SYEMNWVRQAPGKGLEWVSYISSSGSTIYYADSVKGRFTISRDNAKNSLYLQM NSLRAEDTAVYYCARWDYGMDVWGQGTTVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 844]

Table 203

ET200-101
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctggggcccccgggcagagggtcaccgtctcttgttctggaagcaactcca acatcggaagtaactacgttaactggtaccagcagttcccaggaacggcccccaaactcctcatgtatagtagtagtcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccactctgaggat gaggctgattattactgtgctacatgggatgacagcctgaatgcttgggtgttcggcggagggaccaagctgaccgtcctagg ttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgca gtctggggctgaggtgaggaagcctggggcctcagtgaaggtttcctgcaagacttctggatacaccttcacttggtatgctat acattgggtgcgccaggcccccggacaaaggcttgagtggatgggatggatcaacgctggcagtggaaacacaaaatattc acagaaatttcagggcagagtcacccttaccagggacacatccgcgagcacagcgtacatggagctgagcagcctgagatc tgatgacacggctgtgtattactgtgcgagacccaataactatggttcgggtggggatgtttttgatatctggggccaagggaca atggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccgg actacgcttct [SEQ ID NO: 845]
Amino Acid Sequence
QAVLTQPPSASGAPGQRVTVSCSGSNSNIGSNYVNWYQQFPGTAPKLLMYSSS QRPSGVPDRFSGSKSGTSASLAISGLHSEDEADYYCATWDDSLNAWVFGGGTK LTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVRKPGASVKVSCKTSG YTFTWYAIHWVRQAPGQRLEWMGWINAGSGNTKYSQKFQGRVTLTRDTSAST AYMELSSLRSDDTAVYYCARPNNYGSGGDVFDIWGQGTMVTVSSTSGQAGQH HHHHHGAYPYDVPDYAS [SEQ ID NO: 846]

Table 204

ET200-102
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcagctcca acattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcgacc ctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcaccggactccagactggggac gaggccgattattactgcggaacatgggatagcagcctgagtgcttatgtcttcggaactgggaccaaggtcaccgtcctagg ttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtgca gtctggggctgaggtgaagaagcctggggcctcagtgaaagtttcctgcaaggcttctggatacaccttcacgaactatgctct gcattgggtgcgccaggcccccggacaagggcttgagtggatggcatggatcaacggtggcaatggtaacacaaaatattc acagaacttccagggcagagtcaccattaccagggacacatccgcgagcacagcctatatggagctgagcagcctgagatc tgaagacacggctgtgtattactgtgcgaaaccggaggaaacagctggaacaatccactttgactactggggccagggaacc ccggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccgg actacgcttct [SEQ ID NO: 847]
Amino Acid Sequence
QSVVTQPPSVSAAPGQKVTISCSGSSSNIGNNYVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSLSAYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASGY TFTNYALHWVRQAPGQGLEWMAWINGGNGNTKYSQNFQGRVTITRDTSASTA YMELSSLRSEDTAVYYCAKPEETAGTIHFDYWGQGTPVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 848]

Table 205

ET200-103
DNA Sequence
caggctgtgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggca gcattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaag accctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagact gaggacgaggctgactactactgtcagtcttatgatagcaccatcacggtgttcggcggagggaccaagctgaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggtac agtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgct atcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacg cacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgaga tctgaggacacggccgtgtattactgtgcgggggagggttactatgatagtagtggttattccaacggtgatgcttttgatatctg gggccaagggacaatggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccc gtacgacgttccggactacgcttct [SEQ ID NO: 849]
Amino Acid Sequence
QAVLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSTITVFGGGTKLTVL GSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGGTFS SYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMELS SLRSEDTAVYYCAGEGYYDSSGYSNGDAFDIWGQGTMVTVSSTSGQAGQHHH HHHGAYPYDVPDYAS [SEQ ID NO: 850]

Table 206

ET200-104
DNA Sequence
aattttatgctgactcagccccactctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag cattgccagcaactatgtgcagtggtaccagcagcgcccgggcagtgcccccaccactgtgatctatgaggataaccaaaga ccctctggggtccctgatcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactg aggacgaggctgactactactgtcagtcttatgatagcagcaatgtggtattcggcggagggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgga gtctgggggaggcttggtacagcctggagggtccctgagactctcctgtgcagcctctggattcaccttcagtagttatgaaat gaactgggtccgccaggctccagggaaggggctggagtgggtttcatacattagtagtagtggtagtaccatatactacgcag actctgtgaagggccgattcaccatctccagagacaacgccaagaactcactgtatctgcaaatgaacagcctgagagccga ggacacggctgtttattactgtgcacgctgggactacggtatggacgtctggggccaagggaccacggtcaccgtctcctcaa ctagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 851]
Amino Acid Sequence
NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSAPTTVIYEDNQ RPSGVPDRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSSNVVFGGGTKVTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGGSLRLSCAASGFTFS SYEMNWVRQAPGKGLEWVSYISSSGSTIYYADSVKGRFTISRDNAKNSLYLQM NSLRAEDTAVYYCARWDYGMDVWGQGTTVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 852]

Table 207

ET200-105
DNA Sequence
tcctatgtgctgactcagccaccctcagtgtccgtgtccccaggacagacagccagcatcacctgctctggagatagattgac gaataaatatgtttcctggtatcaacagaagccaggccagtcccctgtgttggtcatctatgaggatgccaagcggccctcagg gatccctgcgcgattctctggctccaactctgggaacacagccactctgaccatcagcgggacccaggctatggatgagtctg aatattactgtcaggcgtgggacagcagtgtggtggtttttggcggagggaccaagctgaccgtcctaggttctagaggtggt ggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggagtctgggggag gcttggtacagcctggcaggtccctgagactctcctgtgcagcctctggatttacctttgatgattatgccatgcactgggtccg gcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagtggtagtataggctatgcggactctgtgaagg gccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagatgaggacacggcctt gtattactgtgcaaaagaccgagggggggagttatcgttaaggatgcttttgatatctggggccaagggacaatggtcaccg tctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 853]
Amino Acid Sequence
SYVLTQPPSVSVSPGQTASITCSGDRLTNKYVSWYQQKPGQSPVLVIYEDAKRP SGIPARFSGSNSGNTATLTISGTQAMDESEYYCQAWDSSVVVFGGGTKLTVLGS RGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGRSLRLSCAASGFTFDDY AMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSLYLQMN SLRDEDTALYYCAKDRGGGVIVKDAFDIWGQGTMVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 854]

Table 208

ET200-106
DNA Sequence
tcctatgagctgactcagccacccgcagcgtctgggacccccggacagagagtcaccatctcttgttctgggggcgtctccaa catcgggagtggtgctctaaattggtaccagcaactcccaggaacggcccccaaactcctcatctatagttacaatcagcggc cctcaggggtctctgaccgattctctggctccaggtctgccacctcagcctccctggccatcagtgggctccagtctgaggatg aggctgattattactgtgcaacctgggatgatagtgtgaatggttgggtgttcggcggagggaccaagctgaccgtcctaggtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtggag tctggagctgaggtgaagaagcctggggattcagtgaaggtctcctgcaagccttctggttacaattttctcaactatggtatcaa ctgggtgcgacaggcccctggacaagggcttgagtggatgggatggattagcacttacaccggtaacacaaactatgcaca gaagctgcagggcagagtcaccttcaccacagacacatccacgagcacagcctacatggagatgaggagcctgagatctga cgacacggccgtgtattactgtgcgcgccagcagggtggtggttggtacgatgtttggggtcaaggtactctggtcaccgtctc ctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 855]
Amino Acid Sequence
SYELTQPPAASGTPGQRVTISCSGGVSNIGSGALNWYQQLPGTAPKLLIYSYNQ RPSGVSDRFSGSRSATSASLAISGLQSEDEADYYCATWDDSVNGWVFGGGTKL TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGAEVKKPGDSVKVSCKPSGY NFLNYGINWVRQAPGQGLEWMGWISTYTGNTNYAQKLQGRVTFTTDTSTSTA YMEMRSLRSDDTAVYYCARQQGGGWYDVWGQGTLVTVSSTSGQAGQHHHH HHGAYPYDVPDYAS [SEQ ID NO: 856]

Table 209

ET200-107
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggagagaaggtcaccatctcctgctctggaagcaacttca atgttggaaataatgatgtatcctggtatcagcaactcccaggtgcagcccccaaactcctcatttatgacaataataagcgacc ctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctggacatcaccgggctccacagtgacgacg aggccgattattactgcggaacatgggatagcagcctgaatactgggggggtcttcggaactgggaccaaggtcaccgtcct aggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggt gcagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctata ctatcagctgggtacgacaggcccctggacaagggcttgagtggatgggatggatcagcacttacaatggtctcacaaactat gcacagaacctccagggcagagtcaccatgactacagacacattcacgaccacagcctacatggagctgaggagcctcaga tctgacgacacggccgtgtattactgtgtgagagaggggtcccccgactacggtgacttcgcgtcctttgactactggggcca gggaaccctggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacga cgttccggactacgcttct [SEQ ID NO: 857]
Amino Acid Sequence
QSVVTQPPSVSAAPGEKVTISCSGSNFNVGNNDVSWYQQLPGAAPKLLIYDNN KRPSGIPDRFSGSKSGTSATLDITGLHSDDEADYYCGTWDSSLNTGGVFGTGTK VTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASG YTFTSYTISWVRQAPGQGLEWMGWISTYNGLTNYAQNLQGRVTMTTDTFTTT AYMELRSLRSDDTAVYYCVREGSPDYGDFASFDYWGQGTLVTVSSTSGQAGQ HHHHHHGAYPYDVPDYAS [SEQ ID NO: 858]

Table 210

ET200-108
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctgcgcccccgggacagaaggtcaccatctcctgctctggaagcagctcca acattgggaataattatgtatcctggtaccagcagttcccaggaacagcccccaaactcctcatttatgacaataataagcgacc ctcagggatttctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcgccggactccagactggggac gaggccgattattactgcggaacatgggataccagcctgagtggtttttatgtcttcggaagtgggaccaaggtcaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggta cagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatact atcagctgggtacgacaggcccctggacaagggcttgagtggatgggatggatcagcacttacaatggtctcacaaactatg cacagaacctccagggcagagtcaccatgactacagacacattcacgaccacagcctacatggagctgaggagcctcagat ctgacgacacggccgtgtattactgtgtgagagaggggtcccccgactacggtgacttcgcgtcctttgactactggggccag ggaaccctggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgac gttccggactacgcttct [SEQ ID NO: 859]
Amino Acid Sequence
QSVLTQPPSVSAPPGQKVTISCSGSSSNIGNNYVSWYQQFPGTAPKLLIYDNNKR PSGISDRFSGSKSGTSATLGIAGLQTGDEADYYCGTWDTSLSGFYVFGSGTKVT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYT FTSYTISWVRQAPGQGLEWMGWISTYNGLTNYAQNLQGRVTMTTDTFTTTAY MELRSLRSDDTAVYYCVREGSPDYGDFASFDYWGQGTLVTVSSTSGQAGQHH HHHHHGAYPYDVPDYAS [SEQ ID NO: 860]

Table 211

ET200-109
DNA Sequence
ctgcctgtgctgactcagccaccctcagcgtctgcgacccccgggcagagggtcaccatctcttgttctggaaccacctccaa catcggaagtaatactgtacactggtaccagcagctcccagggacggcccccaaactcctcatctataataataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccggtccgaggat gaggctacatattcctgtgcaacatgggatgacagcctgagtggtgtggtcttcggcggagggaccaagctgaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgc agtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgct atcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacg cacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgaga tctgaggacacggccgtgtattactgtgcgagagatcccgcctacggtgactacgagtatgatgcttttgatatctggggccaa gggacaatggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacg ttccggactacgcttct [SEQ ID NO: 861]
Amino Acid Sequence
LPVLTQPPSASATPGQRVTISCSGTTSNIGSNTVHWYQQLPGTAPKLLIYNNNQR PSGVPDRFSGSKSGTSASLAISGLRSEDEATYSCATWDDSLSGVVFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTF SSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYMEL SSLRSEDTAVYYCARDPAYGDYEYDAFDIWGQGTMVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 862]

Table 212

ET200-110
DNA Sequence
cagtctgtgttgacgcagccgccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaactaatggtgtaaactggttccagcagttcccaggaacggcccccaaactcctcatctatactaatgatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgcggat gaggctgattattactgtgcagtgtgggaccacagcctgaatggtccggtgttcggcggagggaccaagctgaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgc agtctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgct atcagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacg cacagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgaga tctgaggacacggccgtgtattactgtgcgagaggggccggttttgatgcttttgatatctggggccaagggacaatggtcacc gtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttc t [SEQ ID NO: 863]
Amino Acid Sequence
QSVLTQPPSASGTPGQRVTISCSGSSSNIGTNGVNWFQQFPGTAPKLLIYTNDQR PSGVPDRFSGSKSGTSASLAISGLQSADEADYYCAVWDHSLNGPVFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGSSVKVSCKASGGT FSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYME LSSLRSEDTAVYYCARGAGFDAFDIWGQGTMVTVSSTSGQAGQHHHHHHGAY PYDVPDYAS [SEQ ID NO: 864]

Table 213

ET200-111
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgagga tgagactgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagcag tggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactactgg agctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaaccc gtccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcgg acacggctgtgtattactgtgcgagagaggggctagatgcttttgatatctggggccaagggacaatggtcaccgtctcttcaa ctagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 865]
Amino Acid Sequence
QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLQSEDETDYYCAAWDDSLNGYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGS FSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLS SVTAADTAVYYCAREGLDAFDIWGQGTMVTVSSTSGQAGQHHHHHHGAYPY DVPDYAS [SEQ ID NO: 866]

Table 214

ET200-112
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatgtatagtaatgatcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgagga tgaggctgattattattgtgcagcatgggatgacagcctgaatggttatgtcttcgcagctgggacccagctcaccgttttaagtt ctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagcagt ggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactactgga gctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaacccg tccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcgga cacggctgtgtattactgtgcgagagaggggctagatgcttttgatatctggggccaagggacaatggtcaccgtctcttcaac tagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 867]
Amino Acid Sequence
QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLMYSNDQ RPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFAAGTQL TVLSSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGG SFSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKL SSVTAADTAVYYCAREGLDAFDIWGQGTMVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 868]

Table 215

ET200-113
DNA Sequence
cagtctgtcgtgacgcagccgccctcagtgtctgcggccccaggacagaaggtcaccatctcctgctctggaagcagctcca acattgggaataattatgtatcctggtaccagcagctcccaggaacagcccccaaactcctcatttatgacaataataagcgacc ctcagggattcctgaccgattctctggctccaagtctggcacgtcagccaccctgggcatcactggactccagactggggacg aggccgattattactgcggaacatgggatagcagcctgagtgctgcttatgtcttcggaactgggaccaaggtcaccgtccta ggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtccagctggta cagtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacagctttaccagctatact atcagctgggttcgacaggcccctggacaaggccttgagtggatgggatgggtcagcacttacaatggtctcagaaactatgc acagaacctccagggcagagtcaccatgactacagacacactcacgaccacagcctacatggagctgaggagcctcagatc tgacgacacggccgtgtattattgtgtgagagaggggtcccccgactacggtgacttcgcggcctttgactactggggccagg gcaccctggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgt tccggactacgcttct [SEQ ID NO: 869]
Amino Acid Sequence
QSVVTQPPSVSAAPGQKVTISCSGSSSNIGNNYVSWYQQLPGTAPKLLIYDNNK RPSGIPDRFSGSKSGTSATLGITGLQTGDEADYYCGTWDSSLSAAYVFGTGTKV TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASG YSFTSYTISWVRQAPGQGLEWMGWVSTYNGLRNYAQNLQGRVTMTTDTLTTT AYMELRSLRSDDTAVYYCVREGSPDYGDFAAFDYWGQGTLVTVSSTSGQAGQ HHHHHHGAYPYDVPDYAS [SEQ ID NO: 870]

Table 216

ET200-114
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctgagacccccgggcagagggtcaccatctcttgttctggaagcaggtcca acatcggaactaatattgtacactggtaccagcagcgcccaggaatggcccccaaactcctcacttatggtagtcggcggccc tcaggggtcccggaccgattctctggctccaagtttggcacctcagcctccctggccatcagtgggctccagtctgaggatga ggctgattattattgtgcagcatgggatgacagtctgaatggtccggctttcggcggagggaccaagctgaccgtcctaggttc tagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctacagcagt ggggcgcaggactgttgaagccttcggagaccctgtccctcacctgcgctgtctatggtgggtccttcagtggttactactgga gctggatccgccagcccccagggaaggggctggagtggattggggaaatcaatcatagtggaagcaccaactacaacccg tccctcaagagtcgagtcaccatatcagtagacacgtccaagaaccagttctccctgaagctgagctctgtgaccgccgcgga cacggctgtgtattactgtgcgagagacggtgggggctactttgactactggggccagggaaccctggtcaccgtctcctcaa ctagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 871]
Amino Acid Sequence
QAVLTQPPSASETPGQRVTISCSGSRSNIGTNIVHWYQQRPGMAPKLLTYGSRR PSGVPDRFSGSKFGTSASLAISGLQSEDEADYYCAAWDDSLNGPAFGGGTKLT VLGSRGGGGSGGGGSGGGGSLEMAQVQLQQWGAGLLKPSETLSLTCAVYGGS FSGYYWSWIRQPPGKGLEWIGEINHSGSTNYNPSLKSRVTISVDTSKNQFSLKLS SVTAADTAVYYCARDGGGYFDYWGQGTLVTVSSTSGQAGQHHHHHHGAYPY DVPDYAS [SEQ ID NO: 872]

Table 217

ET200-115
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccatctcctgcactgggagcagctcc aatatcggggcacgttatgatgtacactggtaccagcaactcccaggaacagccccccgactcctcatctctgctaactacgat cggccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcactgggctccaggctga ggatgaggctgattattactgccagtcctatgacagcagtgtgagtgcttgggtgttcggcggagggaccaaggtcaccgtcc taggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaagtgcagctgg tgcagtctggggctgaagtgaaggagcctggggcctcagtgaggatctcctgccaggcatctggatacaacttcatcagttatt atatgcactgggtgcggcaggcccctgggcaaggtcttgagtggatgggcaccatcaacccaggcagtggtgagacagact actcacagaagttgcagggcagagtcaccatgaccagggacccgtccacgggtacattcgacatggggctgagcagcctg acatctggggacacggccgtctattattgtgcgacaggtctcatcagaggagctagcgatgcttttaatatctggggccgggg gacaatggtcaccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttc cggactacgcttct [SEQ ID NO: 873]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTISCTGSSSNIGARYDVHWYQQLPGTAPRLLISANY DRPSGVPDRFSGSKSGTSASLAITGLQAEDEADYYCQSYDSSVSAWVFGGGTK VTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKEPGASVRISCQASG YNFISYYMHWVRQAPGQGLEWMGTINPGSGETDYSQKLQGRVTMTRDPSTGT FDMGLSSLTSGDTAVYYCATGLIRGASDAFNIWGRGTMVTVSSTSGQAGQHH HHHHGAYPYDVPDYAS [SEQ ID NO: 874]

Table 218

ET200-116
DNA Sequence
cagcctgtgctgactcagccaccctcagtgtccgtgtccccaggacagacggccgccatcccctgttctggagataagttggg ggataaatttgcttcctggtatcagcagaagccaggccagtcccctgtgctggtcatctatcaagatactaagcggccctcagg gatccctgagcgattctctggctccaactctgggaacacagccactctgaccatcagcgggacccaggctatggatgaggct gactattactgtcagacgtgggccagcggcattgtggtgttcggcggagggaccaagctgaccgtcctaggttctagaggtg gtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtacagctgcagcagtcaggtcca ggactggtgaagccctcgcagaccctctcactcacctgtgccatctccggggacagtgtctctagcaacagtgctgcttggaa ctggatcaggcagtccccatcgagaggccttgagtggctgggaaggacatactacaggtccaagtggtataatgattatgcag tatctgtgaaaagtcgaataaccatcaacccagacacatccaagaaccagttctccctgcagctgaactctgtgactcccgagg acacggctgtgtattactgtgcaagagagcgcagtggctggaagggatttgactactggggccagggaaccctggtcaccgt ctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 875]
Amino Acid Sequence
QPVLTQPPSVSVSPGQTAAIPCSGDKLGDKFASWYQQKPGQSPVLVIYQDTKRP SGIPERFSGSNSGNTATLTISGTQAMDEADYYCQTWASGIVVFGGGTKLTVLGS RGGGGSGGGGSGGGGSLEMAQVQLQQSGPGLVKPSQTLSLTCAISGDSVSSNS AAWNWIRQSPSRGLEWLGRTYYRSKWYNDYAVSVKSRITINPDTSKNQFSLQL NSVTPEDTAVYYCARERSGWKGFDYWGQGTLVTVSSTSGQAGQHHHHHHGA YPYDVPDYAS [SEQ ID NO: 876]

Table 219

ET200-117
DNA Sequence
gatgttgtgatgactcagtctccaccctccctgtccgtcacccctggagagccggcctccatcacctgcaggtctagtcagagc ctcctggaaagaaatgcatacaactacttggattggtacctgcagaggccaggacagtctccacagctcctgatctacttgggt tctaatcgggccgccggggtccctgacaggttcagtggcagtggatcaggcagagattttacactgaaaatcagcagagtgg agcctgaggatgttggggtttattactgcatgcaagctctacaagctccgttcactttcggcggagggaccaaggtggagatca aacgttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaagtgcagctgg tgcagtctgggggaggcttggtacagcctgggggtccctgagactctcctgtgcagcctctggattcacctttagcagctatg ccatgagctgggtccgccaggctccagggaaggggctggagtgggtctcagctattagtggtagtggtggtagcacatacta cgcagactccgtgaagggccggttcaccatctccagagacaattccaagaacacgctgtatctgcaaatgaacagcctgaga gccgaggacacggccgtatattactgtgcgaaatggggcccgtttcaggatgcttttgatatctggggccaagggacaatggt caccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactac gcttct [SEQ ID NO: 877]
Amino Acid Sequence
DVVMTQSPPSLSVTPGEPASITCRSSQSLLERNAYNYLDWYLQRPGQSPQLLIYL GSNRAAGVPDRFSGSGSGRDFTLKISRVEPEDVGVYYCMQALQAPFTFGGGTK VEIKRSRGGGGSGGGGSGGGGSLEMAEVQLVQSGGGLVQPGGSLRLSCAASGF TFSSYAMSWVRQAPGKGLEWVSAISGSGGSTYYADSVKGRFTISRDNSKNTLY LQMNSLRAEDTAVYYCAKWGPFQDAFDIWGQGTMVTVSSTSGQAGQHHHHH HGAYPYDVPDYAS [SEQ ID NO: 878]

Table 220

ET200-118
DNA Sequence
caggctgtgctgactcagcctgcctccgtgtctgggtctcctggacagtcgatcaccatctcctgcactggaaccagcagtga cgttggtggttataactatgtctcctggtaccaacagcacccgggcaaagcccccaaactcatgatttatgaggtcagtaatcg gccctcaggggtttctaatcgcttctctggctccaagtctggcaacacggcctccctgaccatctctgggctccaggctgagga cgaggctgattattactgcagctcatatacaagcagcagcacccttatgtcttcggagcagggaccaaggtcaccgtcctag gttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgg agtctgggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccat gcactgggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagtggtagcataggctatgcg gactctgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctga ggacacggccttgtattactgtgcaaaagccaggtggacagcagtggcatcagaccaccactttgactactggggccaggga acgctggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttc cggactacgcttct [SEQ ID NO: 879]
Amino Acid Sequence
QAVLTQPASVSGSPGQSITISCTGTSSDVGGYNYVSWYQQHPGKAPKLMIYEVS NRPSGVSNRFSGSKSGNTASLTISGLQAEDEADYYCSSYTSSSTPYVFGAGTKV TVLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGGGLVQPGRSLRLSCAASGFT FDDYAMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSLY LQMNSLRAEDTALYYCAKARWTAVASDHHFDYWGQGTLVTVSSTSGQAGQH HHHHHGAYPYDVPDYAS [SEQ ID NO: 880]

Table 221

ET200-119
DNA Sequence
caggctgtgcttactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa catcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaagctgaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgcag tctggggctgaggtgaagaagcctgggtcctcggtgaaggtctcctgcaaggcttctggaggcaccttcagcagctatgctat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggagggatcatccctatctttggtacagcaaactacgca cagaagttccagggcagagtcacgattaccgcggacgaatccacgagcacagcctacatggagctgagcagcctgagatct gaggacacggccgtgtattactgtgcgagagattgggactacatggacgtctggggcaaagggaccacggtcaccgtctcct caactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO:881]
Amino Acid Sequence
QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKLT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGT FSSYAISWVRQAPGQGLEWMGGIIPIFGTANYAQKFQGRVTITADESTSTAYME LSSLRSEDTAVYYCARDWDYMDVWGKGTTVTVSSTSGQAGQHHHHHHGAYP YDVPDYAS [SEQ ID NO: 882]

Table 222

ET200-120
DNA Sequence
tcctatgagctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctccaa catcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtgcagctggtgga gtctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtat cagctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgc acagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagat ctgacgacacggccgtgtattactgtgcgagagacctatctcggggagctaacccgcattactactactactacggtatggac gtctggggccaagggaccacggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgca tacccgtacgacgttccggactacgcttct [SEQ ID NO: 883]
Amino Acid Sequence
SYELTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLIYSNNQR PSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAEVQLVESGAEVKKPGASVKVSCKASGYT FTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTAY MELRSLRSDDTAVYYCARDLSRGANPHYYYYYGMDVWGQGTTVTVSSTSGQ AGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 884]

Table 223

ET200-121
DNA Sequence
cagtctgtgttgacgcagccgccctcagtgtctggggccccagggcagagggtcaccgtctcctgcactgggagcagatcc aacatcggggcaggatatgatgtacactggtaccagcaacttccaggaacagcccccaaactcctcatctatggaaatagtaa tcggcctccaggggtccctgaccgattctctgggtctaagtctggcacctcagcctccctggtcatcactgggctccaggctga ggatgccgctgattattactgccagtcctatgacaacactgtgcgtgaatcaccttatgtcttcggaactgggaccaaggtcacc gtcctaggttctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccag ctggtacagtctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggtttccggatacaccctcactg aattatccatgcactgggtgcgacaggctcctggaaaagggcttgagtggatgggaggttttgatcctgaagatggtgaaaca atctacgcacagaagttccagggcagagtcaccatgaccgaggacacatctacagacacagcctacatggagctgagcagc ctgagatctgaggacacggccgtgtattactgtgcaacagagagtaatttagtgtcccggcactactactactacggtatggac gtctggggccaagggaccacggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgca tacccgtacgacgttccggactacgcttct [SEQ ID NO: 885]
Amino Acid Sequence
QSVLTQPPSVSGAPGQRVTVSCTGSRSNIGAGYDVHWYQQLPGTAPKLLIYGN SNRPPGVPDRFSGSKSGTSASLVITGLQAEDAADYYCQSYDNTVRESPYVFGTG TKVTVLGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCK VSGYTLTELSMHWVRQAPGKGLEWMGGFDPEDGETIYAQKFQGRVTMTEDTS TDTAYMELSSLRSEDTAVYYCATESNLVSRHYYYYGMDVWGQGTTVTVSSTS GQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 886]

Table 224

ET200-122
DNA Sequence
ctgcctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaaccagctccaa catcggaagtaattctgtagactggtaccagcagctcccaggaacggcccccaaactcctcatctatagtaataatcagcggc cctcaggggtccctgaccgaatctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgaggat gaggctgattattactgtgcagcatgggatgacagcctgaatggttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaagtgcagctggtgcag tctggggctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggatacaccttcaccggctactatat gcactgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcaaccctaacagtggtggcacaaactatgc acagaagtttcagggcagggtcaccatgaccagggacacgtccatcagcacagcctacatggagctgagcaggctgagatc tgacgacacggccgtgtattactgtgcgagagattacggatactatggttcggggagttattcgagcggcccccctttactactac tacggtatggacgtctggggccaagggaccacggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccat caccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 887]
Amino Acid Sequence
LPVLTQPPSASGTPGQRVTISCSGTSSNIGSNSVDWYQQLPGTAPKLLIYSNNQR PSGVPDRISGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGTGTKVTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGASVKVSCKASGYTF TGYYMHWVRQAPGQGLEWMGWINPNSGGTNYAQKFQGRVTMTRDTSISTAY MELSRLRSDDTAVYYCARDYGYYGSGSYSSGPLYYYYGMDVWGQGTTVTVS STSGQAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 888]

Table 225

ET200-123
DNA Sequence
caggctgtgctgactcagccaccctcagcgtctgggacccccgggcagagggtcaccatctcttgttctggaagcagctcca acatcggaagtaatactgtaaactggtaccagcagctcccaggaacggcccccaaactcctcatgtataataatgatcagcgg ccctcaggggtccctgaccgattctctggctccaagtctggcacctcagcctccctggccatcagtgggctccagtctgagga tgaggctgattattactgtgcagcatgggatgacagcctcaatggttatgtcttcggacctgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtggag tctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccagctatggtatc agctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgca cagaagctccagggcagagtcaccatgaccacagacacatccacgagcacagcctacatggagctgaggagcctgagatc tgacgacacggccgtgtattactgtgcgagagacctatctcggggagctaacccgcattactactactactacggtatggacgt ctggggccaagggaccacggtcaccgtctcctcaactagtggccaggccggccagcaccatcaccatcaccatggcgcata cccgtacgacgttccggactacgcttct [SEQ ID NO: 889]
Amino Acid Sequence
QAVLTQPPSASGTPGQRVTISCSGSSSNIGSNTVNWYQQLPGTAPKLLMYNNDQ RPSGVPDRFSGSKSGTSASLAISGLQSEDEADYYCAAWDDSLNGYVFGPGTKV TVLGSRGGGGSGGGGSGGGGSLEMAQVQLVESGAEVKKPGASVKVSCKASGY TFTSYGISWVRQAPGQGLEWMGWISAYNGNTNYAQKLQGRVTMTTDTSTSTA YMELRSLRSDDTAVYYCARDLSRGANPHYYYYYGMDVWGQGTTVTVSSTSG QAGQHHHHHHGAYPYDVPDYAS [SEQ ID NO: 890]

Table 226

ET200-125
DNA Sequence
aattttatgctgactcagccccacgctgtgtcggagtctccggggaagacggtaaccatctcctgcacccgcagcagtggcag tattgccagcaactatgtgcagtggtaccagcagcgcccgggcagttccccccgcactgtgatttatgaggataatcaaagac cctctggggtccctggtcggttctctggctccatcgacagctcctccaactctgcctccctcaccatctctggactgaagactga ggacgaggctgactactactgtcagtcttatgattccaccagtgtgcttttcggcggagggaccaagctgaccgtcctaggttct agaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggccgaggtccagctggtgcagtct ggggctgaggtgaagaagccagggtcctcggtgaaggtctcctgcaaggcctcgggaggcaccttcagcagcaattctctc agctgggtgcgacaggcccctggacaagggcttgagtggatgggaaggatcttccctatcctgggtataacaaactatgcac agaagttccagggcagagtcacgattaccgcggacaaatccacgagcacagcctacatggagctgagcagcctgagatctg aggacacggccgtctattactgtgcgagaggaaactaccaatggtatgatgcttttgatatctggggccaagggacaatggtc accgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacg cttct [SEQ ID NO: 891]
Amino Acid Sequence
NFMLTQPHAVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSSPRTVIYEDNQ RPSGVPGRFSGSIDSSSNSASLTISGLKTEDEADYYCQSYDSTSVLFGGGTKLTV LGSRGGGGSGGGGSGGGGSLEMAEVQLVQSGAEVKKPGSSVKVSCKASGGTF SSNSLSWVRQAPGQGLEWMGRIFPILGITNYAQKFQGRVTITADKSTSTAYMEL SSLRSEDTAVYYCARGNYQWYDAFDIWGQGTMVTVSSTSGQAGQHHHHHHG AYPYDVPDYAS [SEQ ID NO: 892]

Table 227

ET200-005
DNA Sequence
cagcctgtgctgactcagccaccctcagtgtcagtggtcccaggaaagacggccaggattacctgtgggggaaaaaacattg gaagtaaaagtgtgcactggtaccagcagaagccaggccaggcccctgtggtggtcatccattatgatagtgaccggccctc agggatccctgagcgattctctggctccaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatga ggccgactattactgtcaggtgtgggatagtagtagtgatcatccttatgtcttcggaactgggaccaaggtcaccgtcctaggt tctagaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtgcag tctggagctgaggtgaagaagcctggggcctcagtgaaggtctcctgcaaggcttctggttacacctttaccaactatggtatc agctgggtgcgacaggcccctggacaagggcttgagtggatgggatggatcagcgcttacaatggtaacacaaactatgca cataagctccagggcagagtcaccatgaccacagacacatccacgagcacagccaacatggagctgaggagcctgagacc tgacgacactgccgtgtattactgtgcgcgctcttacttcggttctcatgattactggggtcaaggtactctggtgaccgtctcctc aactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactacgcttct [SEQ ID NO: 893]
Amino Acid Sequence
QPVLTQPPSVSVVPGKTARITCGGKNIGSKSVHWYQQKPGQAPVVVIHYDSDR PSGIPERFSGSNSGNTATLTISRVEAGDEADYYCQVWDSSSDHPYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVQSGAEVKKPGASVKVSCKASGY TFTNYGISWVRQAPGQGLEWMGWISAYNGNTNYAHKLQGRVTMTTDTSTSTA NMELRSLRPDDTAVYYCARSYFGSHDYWGQGTLVTVSSTSGQAGQHHHHHH GAYPYDVPDYAS [SEQ ID NO: 894]

Table 228

ET200-124
DNA Sequence
tcctatgtgctgactcagccaccctcggtgtcagtggccccaggaaagacggccaggatttcctgtgggggaaacgacattg gaagtaaaagtgttttctggtatcagcagaggccaggccaggcccctgtgttggtcgtctatgatgatagcgaccggccctca gggctccctgagcgattctctggcttcaactctgggaacacggccaccctgaccatcagcagggtcgaagccggggatgag gccgactattactgtcaagtgtgggatagtagtagtgatcattatgtcttcggaactgggaccaaggtcaccgtcctaggttcta gaggtggtggtggtagcggcggcggcggctctggtggtggtggatccctcgagatggcccaggtgcagctggtggagtct gggggaggcttggtacagcctggcaggtccctgagactctcctgtgcagcctctggattcacctttgatgattatgccatgcact gggtccggcaagctccagggaagggcctggagtgggtctcaggtattagttggaatagtggtagcataggctatgcggactc tgtgaagggccgattcaccatctccagagacaacgccaagaactccctgtatctgcaaatgaacagtctgagagctgaggac acggccttgtattactgtgcaaaagatataacctatggttcggggagttatggtgcttttgatatctggggccaagggacaatggt caccgtctcttcaactagtggccaggccggccagcaccatcaccatcaccatggcgcatacccgtacgacgttccggactac gcttct [SEQ ID NO: 895]
Amino Acid Sequence
SYVLTQPPSVSVAPGKTARISCGGNDIGSKSVFWYQQRPGQAPVLVVYDDSDR PSGLPERFSGFNSGNTATLTISRVEAGDEADYYCQVWDSSSDHYVFGTGTKVT VLGSRGGGGSGGGGSGGGGSLEMAQVQLVESGGGLVQPGRSLRLSCAASGFT FDDYAMHWVRQAPGKGLEWVSGISWNSGSIGYADSVKGRFTISRDNAKNSLY LQMNSLRAEDTALYYCAKDITYGSGSYGAFDIWGQGTMVTVSSTSGQAGQHH HHHHGAYPYDVPDYAS [SEQ ID NO: 896]

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CDR sequences of Exemplary anti-FcRL5 antibodies

Table 229

Antibody	V_HCDR1	V_HCDR2	V_HCDR3	V_LCDR1	V_LCDR2	V_LCDR3
ET200-001	GGSFSGYY (SEQ ID NO: 309)	INHSGST (SEQ ID NO: 310)	AREGPYDGFDS (SEQ ID NO: 311)	SSNIGSNT (SEQ ID NO: 312)	SNN (SEQ ID NO: 313)	AAWDDSLNGYV (SEQ ID NO: 314)
ET200-002	GYPFNKYD (SEQ ID NO: 315)	IPIFRTT (SEQ ID NO: 316)	AREWFYWDI (SEQ ID NO: 317)	SGSIASNY (SEQ ID NO: 318)	EDN (SEQ ID NO: 319)	QSYDSSNSVV (SEQ ID NO: 320)
ET200-003	GFTFSSYG (SEQ ID NO: 321)	ISHDGSNK (SEQ ID NO: 322)	ARSNQWSGYFSFDY (SEQ ID NO: 323)	KLGTKY (SEQ ID NO: 324)	EDN (SEQ ID NO: 319)	QAWDSDTFVV (SEQ ID NO: 325)
ET200-005	GYTFTNYG (SEQ ID NO: 326)	ISAYNGNT (SEQ ID NO: 327)	ARSYFGSHDY (SEQ ID NO: 328)	NIGSKS (SEQ ID NO: 329)	YDS (SEQ ID NO: 330)	QVWDSSSDHPYV (SEQ ID NO: 331)
ET200-006	GYTFTTYG (SEQ ID NO: 332)	IMTYNGHT (SEQ ID NO: 333)	ARVIYGSGGY (SEQ ID NO: 334)	NIGSKS (SEQ ID NO: 329)	YDS (SEQ ID NO: 330)	QVWDSSSDHPYV (SEQ ID NO: 331)
ET200-007	GYSISSGYF (SEQ ID NO: 335)	IYHSRST (SEQ ID NO: 336)	ARGYGYFDY (SEQ ID NO: 337)	NIGSKT (SEQ ID NO: 338)	YDS (SEQ ID NO: 330)	QVWDSSSDHRV (SEQ ID NO: 339)
ET200-008	GFTFGDYG (SEQ ID NO: 340)	IMWNGGST (SEQ ID NO: 341)	ARSKYNFHVYYDY (SEQ ID NO: 342)	SSDVGGYNY (SEQ ID NO: 343)	DVS (SEQ ID NO: 344)	SSYTSSSTSKV (SEQ ID NO: 345)
ET200-009	GYTFTSYG (SEQ ID NO: 346)	ISAYNGNT (SEQ ID NO: 327)	ARSSGNMVSWKDM (SEQ ID NO: 347)	NSNIGSNY (SEQ ID NO: 348)	RNN (SEQ ID NO: 349)	AAWDDSLSAYV (SEQ ID NO: 350)
ET200-010	GYTFTSYG (SEQ ID NO: 346)	ISAYNGNT (SEQ ID NO: 327)	ARGAVAYHD (SEQ ID NO: 351)	SSDVGGYNS (SEQ ID NO: 352)	DVS (SEQ ID NO: 344)	SSYTSSSTPLV (SEQ ID NO: 353)
ET200-011	GGTLSSYA (SEQ ID NO: 354)	IPMFGTA (SEQ ID NO: 355)	ARGVHYASFDH (SEQ ID NO: 356)	SSNISIYD (SEQ ID NO: 357)	GNN (SEQ ID NO: 358)	GTWDDSLSGGV (SEQ ID NO: 359)
ET200-012	GFPFNIFG (SEQ ID NO: 360)	ISGYNGNT (SEQ ID NO: 361)	ARGAYGGMDT (SEQ ID NO: 362)	DSNIGNNY (SEQ ID NO: 363)	DVK (SEQ ID NO: 364)	GTWDSRLDAYV (SEQ ID NO: 365)
ET200-013	GYMFTSYG (SEQ ID NO: 366)	ISANNGKT (SEQ ID NO: 367)	ARHIGGSYFDR (SEQ ID NO: 368)	TSNIGAGYD (SEQ ID NO: 369)	TNN (SEQ ID NO: 370)	GTWDSSLSAVV (SEQ ID NO: 371)
ET200-014	GFTFSSYA (SEQ ID NO: 372)	ISGSDGST (SEQ ID NO: 373)	ARSHEANLVGDW (SEQ ID NO: 374)	NIGSKS (SEQ ID NO: 329)	YDS (SEQ ID NO: 330)	QVWDSSSDHYV (SEQ ID NO: 375)
ET200-015	GYTFTSYG (SEQ ID NO: 346)	ISAYNGNT (SEQ ID NO: 327)	ARWGGFGAVDH (SEQ ID NO: 376)	NIGSKS (SEQ ID NO: 329)	YDS (SEQ ID NO: 330)	QVWDSSSDVV (SEQ ID NO: 377)
ET200-016	GFTFSSYS (SEQ ID NO: 378)	ISSSSSYI (SEQ ID NO: 379)	ARGQGYDY (SEQ ID NO: 380)	SLTDYH (SEQ ID NO: 381)	ATN (SEQ ID NO: 382)	NSRDSGTDEVL (SEQ ID NO: 383)
ET200-017	GGSFSGYY (SEQ ID NO: 309)	INHSGST (SEQ ID NO: 310)	ARYYPGMDM (SEQ ID NO: 384)	NIGSKS (SEQ ID NO: 329)	DDS (SEQ ID NO: 385)	QVWDSSSDHTV (SEQ ID NO: 386)

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Antibody	V_HCDR1	V_HCDR2	V_HCDR3	V_LCDR1	V_LCDR2	V_LCDR3
ET200-018	GYTLNELS [SEQ ID NO: 387]	FDPEDGET [SEQ ID NO: 388]	ARGGYGDS [SEQ ID NO: 389]	SSNIGRNG [SEQ ID NO: 390]	NDN [SEQ ID NO: 391]	AAWDDSLHGVV [SEQ ID NO: 392]
ET200-019	GGTFSSDA [SEQ ID NO: 393]	IIPMFGTA [SEQ ID NO: 355]	AREGYYYPSAYLGSVLNDIS SVYDE [SEQ ID NO: 394]	SGSIASNY [SEQ ID NO: 318]	EDN [SEQ ID NO: 319]	QSYDSSNSWV [SEQ ID NO: 395]
ET200-020	GYTFTSYG [SEQ ID NO: 346]	ISAYNGNT [SEQ ID NO: 327]	ARSMTSFDY [SEQ ID NO: 396]	TSNIGNND [SEQ ID NO: 397]	DNN [SEQ ID NO: 398]	GTWDSSVSAS [SEQ ID NO: 399]
ET200-021	GYTFTSYG [SEQ ID NO: 346]	ISAYNGNT [SEQ ID NO: 327]	ARSVYDLDT [SEQ ID NO: 400]	NSNIGNNY [SEQ ID NO: 401]	DNN [SEQ ID NO: 398]	GTWNTTVTPGYV [SEQ ID NO: 402]
ET200-022	GFTFDDYA [SEQ ID NO: 403]	ISWNSGSI [SEQ ID NO: 404]	ARYRQVGSAYDS [SEQ ID NO: 405]	SSNIGNNY [SEQ ID NO: 406]	DNN [SEQ ID NO: 398]	GTWDSSLGAPYV [SEQ ID NO: 407]
ET200-023	GYTFTSYG [SEQ ID NO: 346]	ISAYNGNT [SEQ ID NO: 327]	ARYWGFGVSDR [SEQ ID NO: 408]	NIGSKS [SEQ ID NO: 329]	ADS [SEQ ID NO: 409]	QVWDSSSYHNYV [SEQ ID NO: 410]
ET200-024	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARYNYYYYDS [SEQ ID NO: 413]	SGSIASNY [SEQ ID NO: 318]	EDN [SEQ ID NO: 319]	QSYDSSNLWV [SEQ ID NO: 414]
ET200-025	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARYWGYDSYDE [SEQ ID NO: 415]	QSISSY [SEQ ID NO: 416]	AAS [SEQ ID NO: 417]	QQSYSTPFT [SEQ ID NO: 418]
ET200-026	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARNNHYYNDY [SEQ ID NO: 349]	SGSIASNY [SEQ ID NO: 318]	EDN [SEQ ID NO: 319]	QSYDSSNWV [SEQ ID NO: 419]
ET200-027	GYTFTDYY [SEQ ID NO: 420]	VDPEDGET [SEQ ID NO: 421]	ARYWSYSFDYLYMPEGNDW [SEQ ID NO: 422]	SSNIGAGYD [SEQ ID NO: 423]	GNN [SEQ ID NO: 358]	QSYDSSLSDVV [SEQ ID NO: 424]
ET200-028	GYNFLNYG [SEQ ID NO: 425]	ISTYTGNT [SEQ ID NO: 426]	ARDLYYYEGVDY [SEQ ID NO: 427]	VSNIGSGA [SEQ ID NO: 428]	GYN [SEQ ID NO: 429]	ATWDDSVNG [SEQ ID NO: 430]
ET200-029	GFTFSSYA [SEQ ID NO: 372]	ISYDGSNK [SEQ ID NO: 431]	ARSYFTSGFYDY [SEQ ID NO: 432]	NIGSES [SEQ ID NO: 433]	YDT [SEQ ID NO: 434]	QVWDSSRDHVV [SEQ ID NO: 435]
ET200-030	GYTLTELS [SEQ ID NO: 436]	FDPEDGET [SEQ ID NO: 388]	ARMSSMYYD [SEQ ID NO: 437]	SSNIGAGYD [SEQ ID NO: 423]	GNS [SEQ ID NO: 438]	QSYDSSLSGSYV [SEQ ID NO: 439]
ET200-031	GFTVSDYY [SEQ ID NO: 440]	ISGSGNSI [SEQ ID NO: 441]	ARSTKFDY [SEQ ID NO: 442]	NIGSKS [SEQ ID NO: 329]	YDS [SEQ ID NO: 330]	QVWDSSSDYV [SEQ ID NO: 443]
ET200-032	GYSFTNYW [SEQ ID NO: 444]	IYPGDSDT [SEQ ID NO: 445]	ARSTGSSHMSDE [SEQ ID NO: 446]	SSNVGSYT [SEQ ID NO: 447]	NNN [SEQ ID NO: 448]	AAWDDRLGGYV [SEQ ID NO: 449]
ET200-033	GGSFSGYY [SEQ ID NO: 309]	ITHSGRS [SEQ ID NO: 450]	ARSSIMSDY [SEQ ID NO: 451]	SGSIASNY [SEQ ID NO: 318]	EDN [SEQ ID NO: 319]	QSYDSSNHWV [SEQ ID NO: 452]

Antibody	V_HCDR1	V_HCDR2	V_HCDR3	V_LCDR1	V_LCDR2	V_LCDR3
ET200-034	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARGSALDHYDR [SEQ ID NO: 453]	TSNIGAGYD [SEQ ID NO: 369]	MNR [SEQ ID NO: 454]	GTWDGSLTGAV [SEQ ID NO: 455]
ET200-035	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARYNYYFNDY [SEQ ID NO: 456]	SGSIASNY [SEQ ID NO: 318]	EDN [SEQ ID NO: 319]	QSYDSTNWV [SEQ ID NO: 457]
ET200-037	GYTFTSYG [SEQ ID NO: 346]	ISAYNGNT [SEQ ID NO: 327]	ARSMFGAHDS [SEQ ID NO: 458]	NIGSKS [SEQ ID NO: 329]	YDS [SEQ ID NO: 330]	QVWDSSSDHPYV [SEQ ID NO: 331]
ET200-038	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARGASFDRHDN [SEQ ID NO: 459]	SSNIGAGFD [SEQ ID NO: 460]	ANS [SEQ ID NO: 461]	QSYDSSLSGVV [SEQ ID NO: 462]
ET200-039	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARSNYYYNDY [SEQ ID NO: 463]	SGSIASNY [SEQ ID NO: 318]	EDN [SEQ ID NO: 319]	QSYDSSNWV [SEQ ID NO: 419]
ET200-040	GYTLTELS [SEQ ID NO: 436]	FDPEDGET [SEQ ID NO: 338]	ARYSGVYYD [SEQ ID NO: 464]	SSNIGAGYD [SEQ ID NO: 423]	GNS [SEQ ID NO: 438]	QSYDSSLSGYV [SEQ ID NO: 465]
ET200-041	GGTFSSYA [SEQ ID NO: 411]	MNPNSGNT [SEQ ID NO: 466]	ARYYSYGYD [SEQ ID NO: 467]	SGSIADNF [SEQ ID NO: 468]	NDD [SEQ ID NO: 469]	QSYDNNNRGV [SEQ ID NO: 470]
ET200-042	GDSVSTNSVA [SEQ ID NO: 471]	TYYRSKWSN [SEQ ID NO: 472]	ARSSSWYQIFDY [SEQ ID NO: 473]	SSNIGTGYF [SEQ ID NO: 474]	GNN [SEQ ID NO: 358]	QSYDSSLSGYV [SEQ ID NO: 465]
ET200-043	GFTFSSYA [SEQ ID NO: 372]	ISGSGGST [SEQ ID NO: 475]	ARSGAYWDYSVYDE [SEQ ID NO: 476]	SDSIANNY [SEQ ID NO: 477]	EDV [SEQ ID NO: 478]	QSYHSDNRWV [SEQ ID NO: 479]
ET200-044	GGSISSSNW [SEQ ID NO: 480]	IYHSGSP [SEQ ID NO: 481]	ARMTTHTFGYDA [SEQ ID NO: 482]	KLGDKY [SEQ ID NO: 483]	QDN [SEQ ID NO: 484]	QAWDSSTYVA [SEQ ID NO: 485]
ET200-045	GYTFTSYG [SEQ ID NO: 346]	ISAYNGNT [SEQ ID NO: 327]	ARGVHLDW [SEQ ID NO: 486]	NIGSES [SEQ ID NO: 433]	DDA [SEQ ID NO: 487]	QVWDRNSAQFV [SEQ ID NO: 488]
ET200-069	GGSFSGYY [SEQ ID NO: 309]	INHSGST [SEQ ID NO: 310]	ARLYEGGYHGWGSWLSSDG [SEQ ID NO: 489]	SSNIGSNY [SEQ ID NO: 490]	SNN [SEQ ID NO: 313]	AAWDDSLSGYV [SEQ ID NO: 491]
ET200-078	GGSFSGYY [SEQ ID NO: 309]	INHSGST [SEQ ID NO: 310]	AREGAFDAFDI [SEQ ID NO: 492]	SSNIGSNT [SEQ ID NO: 312]	SNN [SEQ ID NO: 313]	AAWDDSLNGY [SEQ ID NO: 493]
ET200-079	GFTFDDYA [SEQ ID NO: 403]	ISWNSGSI [SEQ ID NO: 404]	ANGDSNYYYGMDV [SEQ ID NO: 494]	SSNIGSNY [SEQ ID NO: 490]	RNN [SEQ ID NO: 349]	AAWDDSLSGYL [SEQ ID NO: 495]
ET200-081	GFTFDDYA [SEQ ID NO: 403]	ISGDGGST [SEQ ID NO: 496]	AKDRAAAGYYYYGMDV [SEQ ID NO: 497]	SSDIGGYNY [SEQ ID NO: 498]	DVS [SEQ ID NO: 344]	ISYTRTWNPYV [SEQ ID NO: 499]
ET200-097	GFTFNDYA [SEQ ID NO: 500]	ISWSGNNI [SEQ ID NO: 501]	AKDSIRYGITWGGFDY [SEQ ID NO: 502]	KLGEKY [SEQ ID NO: 503]	QDT [SEQ ID NO: 504]	QAWDRGVV [SEQ ID NO: 505]

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Antibody	V_HCDR1	V_HCDR2	V_HCDR3	V_LCDR1	V_LCDR2	V_LCDR3
ET200-098	GFTFDDYA [SEQ ID NO: 403]	INWDGGST [SEQ ID NO: 506]	AKGMGLRAFDY [SEQ ID NO: 507]	SNNVGNLG [SEQ ID NO: 508]	RNN [SEQ ID NO: 349]	SAWDSSLSA [SEQ ID NO: 509]
ET200-099	GYTFSWYA [SEQ ID NO: 510]	INAGNGNT [SEQ ID NO: 511]	ARFDNYGSGGDVFDI [SEQ ID NO: 512]	SSNIGSNT [SEQ ID NO: 312]	SND [SEQ ID NO: 513]	ASWDDSLNGRYV [SEQ ID NO: 514]
ET200-100	GFTFSSYE [SEQ ID NO: 515]	ISSSGSTI [SEQ ID NO: 516]	ARWDYGMDV [SEQ ID NO: 517]	SGSIASNF [SEQ ID NO: 518]	EDN [SEQ ID NO: 319]	QSYDTSNVV [SEQ ID NO: 519]
ET200-101	GYTFTWYA [SEQ ID NO: 520]	INAGSGNT [SEQ ID NO: 521]	ARFNNYGSGGDVFDI [SEQ ID NO: 522]	NSNIGSNY [SEQ ID NO: 348]	SSS [SEQ ID NO: 523]	ATWDDSLNA [SEQ ID NO: 524]
ET200-102	GYTFTNYA [SEQ ID NO: 525]	INGGNGNT [SEQ ID NO: 526]	AKPEETAGTIHFDY [SEQ ID NO: 527]	SSNIGNNY [SEQ ID NO: 406]	DNN [SEQ ID NO: 398]	GTWDSSLSAYV [SEQ ID NO: 528]
ET200-103	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	AGEGYYDSSGYSNGDAFDI [SEQ ID NO: 529]	SGSIASNY [SEQ ID NO: 318]	EDN [SEQ ID NO: 319]	QSYDSTITV [SEQ ID NO: 530]
ET200-104	GFTFSSYE [SEQ ID NO: 515]	ISSSGSTI [SEQ ID NO: 516]	ARWDYGMDV [SEQ ID NO: 517]	SGSIASNY [SEQ ID NO: 318]	EDN [SEQ ID NO: 319]	QSYDSSNVV [SEQ ID NO: 531]
ET200-105	GFTFDDYA [SEQ ID NO: 403]	ISWNSGSI [SEQ ID NO: 404]	AKDRGGGVIVKDAFDI [SEQ ID NO: 532]	RLTNKY [SEQ ID NO: 533]	EDA [SEQ ID NO: 534]	QAWDSSVVV [SEQ ID NO: 535]
ET200-106	GYNFLNYG [SEQ ID NO: 425]	ISTYTGNT [SEQ ID NO: 426]	ARQQGGGWYDV [SEQ ID NO: 536]	VSNIGSGA [SEQ ID NO: 428]	SYN [SEQ ID NO: 429]	ATWDDSVNG [SEQ ID NO: 430]
ET200-107	GYTFTSYT [SEQ ID NO: 537]	ISTYNGLT [SEQ ID NO: 538]	VREGSPDYGDFASFDY [SEQ ID NO: 539]	NFNVGNND [SEQ ID NO: 540]	DNN [SEQ ID NO: 398]	GTWDSSLNTGGV [SEQ ID NO: 541]
ET200-108	GYTFTSYT [SEQ ID NO: 537]	ISTYNGLT [SEQ ID NO: 538]	VREGSPDYGDFASFDY [SEQ ID NO: 539]	SSNIGNNY [SEQ ID NO: 406]	DNN [SEQ ID NO: 398]	GTWDTSLSGFYV [SEQ ID NO: 542]
ET200-109	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARDPAYGDYEYDAFDI [SEQ ID NO: 543]	TSNIGSNT [SEQ ID NO: 544]	NNN [SEQ ID NO: 448]	ATWDDSLSGVV [SEQ ID NO: 545]
ET200-110	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARGAGFDAFDI [SEQ ID NO: 546]	SSNIGTNG [SEQ ID NO: 547]	TND [SEQ ID NO: 548]	AVWDHSLNGPV [SEQ ID NO: 549]
ET200-111	GGSFSGYY [SEQ ID NO: 309]	INHSGST [SEQ ID NO: 310]	AREGLDAFDI [SEQ ID NO: 550]	SSNIGSNT [SEQ ID NO: 312]	SNN [SEQ ID NO: 313]	AAWDDSLNGYV [SEQ ID NO: 314]
ET200-112	GGSFSGYY [SEQ ID NO: 309]	INHSGST [SEQ ID NO: 310]	AREGLDAFDI [SEQ ID NO: 550]	SSNIGSNT [SEQ ID NO: 312]	SND [SEQ ID NO: 513]	AAWDDSLNGYV [SEQ ID NO: 314]
ET200-113	GYSFTSYT [SEQ ID NO: 551]	VSTYNGLR [SEQ ID NO: 552]	VREGSPDYGDFAAFDY [SEQ ID NO: 553]	SSNIGNNY [SEQ ID NO: 406]	DNN [SEQ ID NO: 398]	GTWDSSLSAAYV [SEQ ID NO: 554]

Antibody	V_HCDR1	V_HCDR2	V_HCDR3	V_LCDR1	V_LCDR2	V_LCDR3
ET200-114	GGSFSGYY [SEQ ID NO: 309]	INHSGST [SEQ ID NO: 310]	ARDGGGYFDY [SEQ ID NO: 555]	RSNIGTNI [SEQ ID NO: 556]	GS [SEQ ID NO: 557]	AAWDDSLNGPA [SEQ ID NO: 558]
ET200-115	GYNFISYY [SEQ ID NO: 559]	INPGSGET [SEQ ID NO: 560]	ATGLIRGASDAFNI [SEQ ID NO: 561]	SSNIGARYD [SEQ ID NO: 562]	ANY [SEQ ID NO: 563]	QSYDSSVSAWV [SEQ ID NO: 564]
ET200-116	GDSVSSNSAA [SEQ ID NO: 565]	TYYRSKWYN [SEQ ID NO: 566]	ARERSGWKGFDY [SEQ ID NO: 567]	KLGDKF [SEQ ID NO: 568]	QDT [SEQ ID NO: 504]	QTWASGIVV [SEQ ID NO: 569]
ET200-117	GFTFSSYA [SEQ ID NO: 372]	ISGSGGST [SEQ ID NO: 475]	AKWGPFQDAFDI [SEQ ID NO: 570]	QSLLERNAYNY	LGS [SEQ ID NO: 572]	MQALQAPFT [SEQ ID NO: 573]
ET200-118	GFTFDDYA [SEQ ID NO: 403]	ISWNSGSI [SEQ ID NO: 404]	AKARWTAVASDHHFDY [SEQ ID NO: 574]	SSDVGGYNY [SEQ ID NO: 343]	EVS [SEQ ID NO: 575]	SSYTSSSTPYV [SEQ ID NO: 576]
ET200-119	GGTFSSYA [SEQ ID NO: 411]	IIPIFGTA [SEQ ID NO: 412]	ARDWDYMDV [SEQ ID NO: 577]	SSNIGSNT [SEQ ID NO: 312]	SNN [SEQ ID NO: 313]	AAWDDSLNGYV [SEQ ID NO: 314]
ET200-120	GYTFTSYG [SEQ ID NO: 346]	ISAYNGNT [SEQ ID NO: 327]	ARDLSRGANPHYYYYYGMDV [SEQ ID NO: 578]	SSNIGSNT [SEQ ID NO: 312]	SNN [SEQ ID NO: 313]	AAWDDSLNGYV [SEQ ID NO: 314]
ET200-121	GYTLTELS [SEQ ID NO: 436]	FDPEDGET [SEQ ID NO: 380]	ATESMLVSRHYYYYGMDV [SEQ ID NO: 579]	RSNIGAGYD [SEQ ID NO: 580]	GNS [SEQ ID NO: 430]	QSYDNTVRESPYV [SEQ ID NO: 581]
ET200-122	GYTFTGYY [SEQ ID NO: 582]	INPNSGGT [SEQ ID NO: 583]	ARDYGYYGSGSYSSGPLYYYYGMDV [SEQ ID NO: 584]	SSNIGSNS [SEQ ID NO: 585]	SNN [SEQ ID NO: 313]	AAWDDSLNGYV [SEQ ID NO: 314]
ET200-123	GYTFTSYG [SEQ ID NO: 346]	ISAYNGNT [SEQ ID NO: 327]	ARDLSRGANPHYYYYYGMDV [SEQ ID NO: 578]	SSNIGSNT [SEQ ID NO: 312]	NND [SEQ ID NO: 586]	AAWDDSLNGYV [SEQ ID NO: 314]
ET200-124	GFTFDDYA [SEQ ID NO: 403]	ISWNSGSI [SEQ ID NO: 404]	AKDITYGSGSYGAFDI [SEQ ID NO: 587]	DIGSKS [SEQ ID NO: 588]	DDS [SEQ ID NO: 385]	QVWDSSSDHYV [SEQ ID NO: 375]
ET200-125	GGTFSSNS [SEQ ID NO: 589]	IFPILGIT [SEQ ID NO: 590]	ARGNYQWYDAFDI [SEQ ID NO: 591]	SGSIASNY [SEQ ID NO: 318]	EDN [SEQ ID NO: 319]	QSYDSTSVL [SEQ ID NO: 592]

Examples

The following examples are put forth so as to provide those of ordinary skill in the art with a complete disclosure and description of how to make and use the antibodies, bispecific antibodies, compositions comprising thereof, screening and therapeutic methods of the presently disclosed subject matter, and are not intended to limit the scope of what the inventors regard as their presently disclosed subject matter. It is understood that various other embodiments may be practiced, given the general description provided above.

Example 1 – FcRL5 Expression in various tissues

The Expression of human FcRL5 was assessed and evaluated in various tissues. As shown in Figure 1, human FcRL5 was highly expressed in lymphoma and multiple myeloma, but not in other tissues. Top panel of Figure 1 shows differential expression of human FcRL5 in tumor cell lines from the Cancer Cell Line Encyclopedia (CCLE). The bottom panel of Figure 1 shows differential expression of human FcRL5 in normal tissue from BioGPS. As shown in Figure 1, human FcRL5 expression is limited to MM and lymphoma compared to other malignant cells. Normal expression appeared limited to B-cells and plasma cells.

Example 2 – Selection of scFvs specific for FcRL5 using a fully human phage display library.

Phage' display against FcRL5 was performed to enrich for scFv phage clones that bind to FcRL5 specifically. Screening was carried out on FcRL5 overexpressing 3T3 cells or 3T3 cells expressing FcRL1, 2, 3, 4 or 6 as a negative control (Figure 2). 1080 phage clones were isolated from the enriched panning pools and screened for specific binding to FcRL5 using phage ELISA. Of the 1080 phage clones, 125 clones containing unique scFv sequences were specific to FcRL5 as determined by ELISA. Of the 125 unique clones, 76 clones showed specific binding to FcRL5-overexpressing 3T3 and Raji cells, no cross binding to FcRL1, FcRL2, FcRL3, FcRL4 and FcRL6-overexpressing 3T3 cells and no cross binding to SLAMF9 protein (another FcRL5 subfamily member, no cell line available) (*see* Tables 1-229 and Figure 2).

Example 3 – Selection of scFvs specific for domain 9 of FcRL5.

FcRL5 contains 9 extracellular immunoglobulin (Ig)-like domains (domains 1-9) and can be present within a cell in a soluble isoform, a glycosyl-phosphotidyl inositol (GPI)-anchor type isoform and a transmembrane-type isoform (Figure 3A). As shown in Figure 3A, the transmembrane-type isoform of FcRL5 includes domain 9; whereas, the soluble isoform and the GPI-anchor type isoform do not.

To test if the scFvs were specific to domain 9 of FcRL5, the 76 clones were further screened on 3T3 cells overexpressing a vector encoding FcRL5 with a domain 9 deletion (FcRL5Δdom9) and further screened on Raji cells overexpressing full-length FcRL5 (Figure 3B-D). Some clones showed either reduced or diminished binding towards FcRL5-domain 9 deletion-overexpressing 3T3 cells compared to binding towards FcRL5-overexpressing 3T3 cells. Figure 4, 5, 6, 7 and 8 shows the specificity of ET200-39, ET200-104, ET200-105, ET200-109 and ET200-117 for domain 9 of FcRL5, respectively.

Example 4 – Bispecific antibodies specific for FcRL5 and CD3.

Anti-FcLR5/CD3 bispecific antibodies were generated using the ET200-31, ET200-39, ET200-69, ET200-104, ET200-105, ET200-109 and ET200-117 scFvs disclosed herein. Figures 9A and 9B show the FACS analysis of the anti-FcRL5/CD3 bispecific antibodies. Each antibody was incubated with 3T3 or 3T3-FcRL5 cells at 10 μg/ml, followed by the incubation with a FITC-conjugated anti-His tag antibody. The binding to FcRL5 was measured by FACS and expressed as mean fluorescence intensity (MFI). Cells incubated with the secondary antibody alone, the ET901 bispecific antibody control or the cells alone were used as negative controls. As shown in Figures 9A and 9B, the anti-FcRL5/CD3 bispecific antibodies generated using the disclosed scFvs specifically bound to 3T3 cells expressing FcRL5.

Example 5 – Bispecific antibodies specific for FcRL5 and CD3.

Two anti-FcRL5 bispecific antibodies, ET200-104 and ET200-117, were analyzed by Pepscan to determine epitope specificity. *See* Table 231. The target protein is human FcRL5 comprising amino acids 1-851 of SEQ ID NO: 899.

Table 231

Name	Origin	Concentration	Location
ET200-104 bispecific scFV	human	2.0 mg/ml	+4°C/22
ET200-117 bispecific scFV	human	1.6 mg/ml	+4°C/22

Methods

The principles of clips technology. CLIPS technology structurally fixes peptides into defined three-dimensional structures. This results in functional mimics of even the most complex binding sites. CLIPS technology is now routinely used to shape peptide libraries into single, double or triple looped structures as well as sheet- and helix-like folds (Figure 10).

Combinatorial clips library screening in detail. CLIPS library screening starts with the conversion of the target protein into a library of up to 10,000 overlapping peptide constructs, using a combinatorial matrix design. On a solid carrier, a matrix of linear peptides is synthesized, which are subsequently shaped into spatially defined CLIPS constructs (Figure 11). Constructs representing both parts of the discontinuous epitope in the correct conformation bind the antibody with high affinity, which is detected and quantified. Constructs presenting the incomplete epitope bind the antibody with lower affinity, whereas constructs not containing the epitope do not bind at all. Affinity information is used in iterative screens to define the sequence and conformation of epitopes in detail.

Heat map analysis. A heat map is a graphical representation of data where the values taken by a variable in a two-dimensional map are represented as colors. For double-looped CLIPS peptides, such a two-dimensional map can be derived from the independent sequences of the first and second loops. For example, the sequences of the 16 CLIPS peptides depicted in Figure 13 are effectively permutations of 4 unique sub-sequences in loop 1 (colored in blue in Figure 12) and 4 unique sub-sequences in loop 2 (colored in green in Figure 12). Thus, the observed ELISA data (colored in red in Figure 13A) can be plotted in a 4x4 matrix, where each X coordinate corresponds to the sequence of the first loop, and each Y coordinate corresponds to the sequence of the second loop. For instance, the ELISA value observed for CLIPS peptide

CLSSERERVEDLFEYECELLTSEPIFHCRQEDC (indicated with an arrow in Figure 12A) can be found at the third row, third column of Figure 13B (indicated with an arrow and a red square). To further facilitate the visualization, ELISA values can be replaced with colors from a continuous gradient. In this case, extremely low values are colored in green, extremely high values are colored in red, and average values are colored in black (see Figure 13C). For the aforementioned example, the average value is 0.71. When this color map is applied to the data matrix depicted in Figure 13B, a color heat map is obtained (see Figure 13D, the original data is still indicated for extra clarity).

Synthesis of peptides. To reconstruct epitopes of the target molecule a library of peptides was synthesized. An amino functionalized polypropylene support was obtained by grafting with a proprietary hydrophilic polymer formulation, followed by reaction with t-butyloxycarbonyl-hexamethylenediamine (BocHMDA) using dicyclohexylcarbodiimide (DCC) with Nhydroxybenzotriazole (HOBt) and subsequent cleavage of the Boc-groups using trifluoroacetic acid (TFA). Standard Fmoc-peptide synthesis was used to synthesize peptides on the amino-functionalized solid support by custom modified JANUS liquid handling stations (Perkin Elmer). Synthesis of structural mimics was done using Pepscan's proprietary Chemically Linked Peptides on Scaffolds (CLIPS) technology. CLIPS technology allows to structure peptides into single loops, doubleloops, triple loops, sheet-like folds, helix-like folds and combinations thereof. CLIPS templates are coupled to cysteine residues. The side-chains of multiple cysteines in the peptides were coupled to one or two CLIPS templates. For example, a 0.5 mM solution of the P2 CLIPS (2,6-bis(bromomethyl)pyridine) was dissolved in ammonium bicarbonate (20 mM, pH 7.8)/acetonitrile (1:3(v/v)). This solution was added onto the peptide arrays. The CLIPS template bound to side-chains of two cysteines as present in the solid-phase bound peptides of the peptide-arrays (455 wells plate with 3 µl wells). The peptide arrays were gently shaken in the solution for 30 to 60 minutes while completely covered in solution. Finally, the peptide arrays were washed extensively with excess of H_2O and sonicated in disrupt-buffer containing 1 % SDS/0.1 % beta-mercaptoethanol in PBS (pH 7.2) at 70°C for 30 minutes, followed by sonication in H_2O for another 45 minutes. The T3 CLIPS carrying peptides were made in a similar way but now with three cysteines.

DEMANDE OU BREVET VOLUMINEUX

LA PRÉSENTE PARTIE DE CETTE DEMANDE OU CE BREVET COMPREND PLUS D'UN TOME.

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NOTE : Pour les tomes additionels, veuillez contacter le Bureau canadien des brevets

JUMBO APPLICATIONS/PATENTS

THIS SECTION OF THE APPLICATION/PATENT CONTAINS MORE THAN ONE VOLUME

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NOM DU FICHIER / FILE NAME :

NOTE POUR LE TOME / VOLUME NOTE:

WHAT IS CLAIMED IS:

1. An isolated anti-FcRL5 antibody or an antigen-binding fragment thereof comprising:

i. a light chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299 and SEQ ID NO:303; and

ii. a heavy chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204,

SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300 and SEQ ID NO:304, wherein the antibody or antigen-binding portion thereof binds to an FcRL5 polypeptide.

2. An isolated anti-FcRL5 antibody or an antigen-binding fragment thereof comprising:

i. a light chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299, SEQ ID NO:303, and conservative modifications thereof; and

ii. a heavy chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92,

SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300, SEQ ID NO:304, and conservative modifications thereof, wherein the antibody or antigen-binding portion thereof binds to an FcRL5 polypeptide.

3. An isolated anti-FcRL5 antibody or an antigen-binding fragment thereof comprising:
   i. a light chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279,

SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299 and SEQ ID NO:303; and

ii. a heavy chain variable region comprising an amino acid sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98% or 99% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300 and SEQ ID NO:304, wherein the antibody or antigen-binding portion thereof binds to an FcRL5 polypeptide.

4. An isolated anti-FcRL5 antibody or an antigen-binding fragment thereof comprising a heavy chain variable region and a light chain variable region, wherein the heavy chain variable region and the light chain variable region are selected from the group consisting of:

i. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:3, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:4;

ii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:7, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:8;

iii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:11, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:12;

iv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:15, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:16;

v. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:19, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:20;

vi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:23, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:24;

vii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:27, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:28;

viii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:31, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:32;

ix. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:35, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:36;

x. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:39, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:40;

xi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:43, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:44;

xii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:47, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:48;

xiii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:51, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:52;

xiv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:55, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:56;

xv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:59, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:60;

xvi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:63, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:64;

xvii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:67, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:68;

xviii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:71, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:72;

xix. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:75, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:76;

xx. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:79, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:80;

xxi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:83, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:84;

xxii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:87, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:88;

xxiii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:91, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:92;

xxiv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:95, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:96;

xxv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:99, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:100;

xxvi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:103, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:104;

xxvii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:107, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:108;

xxviii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:111, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:112;

xxix. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:115, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:116;

xxx. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:119, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:120;

xxxi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:123, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:124;

xxxii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:127, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:128;

xxxiii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:131, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:132;

xxxiv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:135, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:136;

xxxv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:139, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:140;

xxxvi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:143, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:144;

xxxvii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:147, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:148;

xxxviii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:151, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:152;

xxxix. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:155, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:156;

xl. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:159, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:160;

xli. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:163, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:164;

xlii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:167, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:168;

xliii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:171, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:172;

xliv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:175, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:176;

xlv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:179, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:180;

xlvi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:183, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:184;

xlvii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:187, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:188;

xlviii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:191, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:192;

xlix. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:195, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:196;

l. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:199, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:200.

li. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:203, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:204;

lii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:207, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:208;

liii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:211, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:212;

liv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:215, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:216;

lv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:219, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:220;

lvi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:223, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:224;

lvii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:227, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:228;

lviii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:231, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:232;

lix. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:235, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:236;

lx. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:239, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:240;

lxi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:243, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:244;

lxii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:247, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:248;

lxiii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:251, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:252;

lxiv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:255, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:256;

lxv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:259, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:260;

lxvi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:263, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:264;

lxvii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:267, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:268;

lxviii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:271, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:272;

lxix. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:275, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:276;

lxx. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:279, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:280;

lxxi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:283, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:284;

lxxii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:287, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:288;

lxxiii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:291, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:292;

lxxiv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:279, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:280;

lxxv. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:283, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:284;

lxxvi. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:287, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:288;

lxxvii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:291, and (b) a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:292;

lxxviii. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:295, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:296;

lxxix. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:299, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:300; and

lxxx. a light chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:303, and a heavy chain variable region comprising amino acids having a sequence set forth in SEQ ID NO:304.

5. An antibody or antigen-binding fragment thereof comprising:

i. a heavy chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591; and

ii. a light chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592;

wherein the antibody or antigen-binding fragment thereof specifically binds FcRL5

6. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising:

i. a heavy chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589;

ii. a heavy chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516, 521, 526, 538, 552, 560, 566, 583 and 590;

iii. a heavy chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408,

412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591;

iv. a light chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588;

v. a light chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 313, 319, 330, 344, 349, 358, 364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586; and

vi. a light chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592;

wherein the antibody or an antigen-binding fragment thereof specifically binds FcRL5.

7. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (i) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:411; (ii) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:412; (iii) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:463; (iv) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:318; (v) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:319; and (vi) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:419.

8. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (i) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:515; (ii) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:516; (iii) a heavy chain variable region CDR3

comprising the amino acid sequence of SEQ ID NO:517; (iv) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:318; (v) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:319; and (vi) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:531.

9. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (i) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:403; (ii) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:404; (iii) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:532; (iv) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:533; (v) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:534; and (vi) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:535.

10. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (i) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:411; (ii) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:412; (iii) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:543; (iv) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:544; (v) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:448; and (vi) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:545.

11. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (i) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:372; (ii) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:475; (iii) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:570; (iv) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:571; (v) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:572; and (vi) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:573.

12. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (i) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:440; (ii) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:441; (iii) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:442; (iv) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:329; (v) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:330; and (vi) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:443.

13. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof comprising: (i) a heavy chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:309; (ii) a heavy chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:310; (iii) a heavy chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:489; (iv) a light chain variable region CDR1 comprising the amino acid sequence of SEQ ID NO:490; (v) a light chain variable region CDR2 comprising the amino acid sequence of SEQ ID NO:313; and (vi) a light chain variable region CDR3 comprising the amino acid sequence of SEQ ID NO:491.

14. The isolated anti-FcRL5 antibody or antigen-binding fragment thereof of any one of claims 5-13, wherein one or more of the CDR sequences have up to about 5 amino acid substitutions.

15. The isolated anti-FcRL5 antibody or antigen-binding fragment thereof of any one of claims 5-13, wherein one or more of the CDR sequences have up to about 3 amino acid substitutions.

16. An isolated anti-FcRL5 scFv antibody comprising a light chain variable region, a heavy chain variable region and a peptide linker, wherein the antibody comprises an amino acid sequence selected from the group consisting of SEQ ID NOS: 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742 and 744.

17. An isolated anti-FcRL5 scFv antibody comprising a light chain variable region, a heavy chain variable region and a peptide linker, wherein the antibody comprises an amino acid sequence selected from the group consisting of SEQ ID NOS: 650, 664, 678, 700, 702, 710 and 726.

18. An isolated anti-FcRL5 scFv antibody comprising a light chain variable region, a heavy chain variable region, a peptide linker and a His-tag and HA-tag, wherein the antibody comprises an amino acid sequence selected from the group consisting of SEQ ID NOS: 802, 816, 830, 852, 854, 862 and 878.

19. The antibody or antigen-binding fragment thereof of any one of claims 1-18, wherein the antibody comprises a human variable region framework region.

20. The antibody or antigen-binding fragment thereof of any one of claims 1-18, which is a fully human or an antigen-binding fragment thereof.

21. The antibody or antigen-binding fragment thereof of any one of claims 1-18, which is a chimeric antibody or an antigen-binding fragment thereof.

22. The antibody or antigen-binding fragment thereof of any one of claims 1-18, which is a humanized antibody or an antigen-binding fragment thereof.

23. The antibody or antigen-binding fragment thereof of any one of claims 1-22, wherein the antigen-binding fragment of the antibody is an Fab, Fab', $F(ab')_2$, Fv or single chain Fv (scFv).

24. The antibody or antigen-binding fragment thereof of any one of claims 1-23, wherein the FcRL5 comprises the amino acid sequence set forth in SEQ ID NO:899.

25. The antibody or antigen-binding fragment thereof of any one of claims 1-24, wherein the antibody or antigen-binding fragment thereof binds to an epitope comprising SEQ ID NO:915.

26. The antibody or antigen-binding fragment thereof of any one of claims 1-24, wherein the antibody or antigen-binding fragment thereof binds to an epitope comprising SEQ ID NO:916.

27. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof that cross-competes for binding to FcRL5 with an isolated anti-FcRL5 antibody or antigen-binding fragment thereof of any one of claims 1-26.

28. An isolated anti-FcRL5 antibody or antigen-binding fragment thereof that cross-competes for binding to domain 9 of FcRL5 with an isolated anti-FcRL5 antibody or antigen-binding fragment thereof of any one of claims 1-24.

29. An isolated antibody or antigen-binding portion thereof which cross-competes for binding to human FcRL5 with a reference antibody or reference antigen-binding portion thereof, wherein the reference antibody or reference antigen-binding portion thereof comprises:

i. a light chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299, SEQ ID NO:303, and conservative modifications thereof; and

ii. a heavy chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ

ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300, SEQ ID NO:304, and conservative modifications thereof.

30. An isolated antibody or antigen-binding portion thereof which cross-competes for binding to human FcRL5 with a reference antibody or reference antigen-binding portion thereof, wherein the reference antibody or reference antigen-binding portion thereof comprises:

i. a heavy chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589;

ii. a heavy chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516, 521, 526, 538, 552, 560, 566, 583 and 590;

iii. a heavy chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591;

iv. a light chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588;

v. a light chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 313, 319, 330, 344, 349, 358,

364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586; and

vi. a light chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592.

31. An isolated antibody or antigen-binding portion thereof which cross-competes for binding to domain 9 of human FcRL5 with a reference antibody or reference antigen-binding portion thereof, wherein the reference antibody or reference antigen-binding portion thereof comprises:

i. a light chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91, SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299, SEQ ID NO:303, and conservative modifications thereof; and

ii. a heavy chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32,

SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300, SEQ ID NO:304, and conservative modifications thereof.

32. An isolated antibody or an antigen-binding portion thereof which cross-competes for binding to domain 8 or domain 9 of FcRL5 with a reference antibody or reference antigen-binding portion thereof, wherein the reference antibody or reference antigen-binding portion thereof comprises:

i. a heavy chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589;

ii. a heavy chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516, 521, 526, 538, 552, 560, 566, 583 and 590;

iii. a heavy chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539,

543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591;

iv. a light chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588;

v. a light chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 313, 319, 330, 344, 349, 358, 364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586; and

vi. a light chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592.

33. The isolated antibody or an antigen-binding portion thereof of claim 29, 30, 31 or 32, wherein the isolated antibody or an antigen-binding portion thereof binds to the same epitope as the reference antibody or reference antigen-binding portion thereof.

34. The isolated antibody or an antigen-binding portion thereof of claim 29, 30, 31 or 32, wherein the isolated antibody or an antigen-binding portion thereof binds to the same epitope within domain 9 of human FcRL5 as the reference antibody or reference antigen-binding portion thereof.

35. A composition comprising the antibody or antigen-binding fragment thereof of any one of claims 1-34, and a pharmaceutically acceptable carrier.

36. An immunoconjugate comprising the antibody or antigen-binding fragment thereof of any one of claims 1-34, linked to a therapeutic agent.

37. The immunoconjugate of claim 36, wherein the therapeutic agent is a drug, cytotoxin, or a radioactive isotope.

38. A composition comprising the immunoconjugate of claim 36 or 37 and a pharmaceutically acceptable carrier.

39. A bispecific molecule comprising the antibody or antigen-binding fragment thereof of any one of claims 1-34, linked to a second functional moiety.

40. The bispecific molecule of claim 39, wherein the second functional moiety has a different binding specificity than said antibody or antigen binding fragment thereof.

41. The bispecific molecule of claim 39, wherein the second functional moiety has a binding specificity for an immune cell.

42. The bispecific molecule of claim 39, wherein the second functional moiety has a binding specificity for CD3.

43. A composition comprising the bispecific molecule of any one of claims 39-42 and a pharmaceutically acceptable carrier.

44. An isolated nucleic acid that encodes an antibody or antigen-binding fragment thereof of any one of claims 1-34.

45. An expression vector comprising the nucleic acid molecule of claim 44.

46. A host cell comprising the expression vector of claim 46.

47. A method for detecting FcRL5 in a whole cell or tissue, comprising:

i. contacting a cell or tissue with the antibody or antigen-binding fragment thereof of any one of claims 1-34, wherein said antibody or antigen-binding fragment thereof comprises a detectable label; and

ii. determining the amount of the labeled antibody or antigen-binding fragment thereof bound to said cell or tissue by measuring the amount of detectable label associated with said cell or tissue, wherein the amount of bound antibody or antigen-binding fragment thereof indicates the amount of FcRL5 in said cell or tissue.

48. A method of treating cancer in a subject, comprising administering an effective amount of the antibody or antigen-binding fragment thereof of any one of claims 1-34 to the subject, thereby inducing death of a cancerous cell in the subject.

49. The method of claim 48, wherein the method reduces the number of the cancerous cells.

50. The method of claim 48, wherein the method reduces the size of a tumor.

51. The method of claim 48, wherein the method eradicates the cancer in the subject.

52. The method of any one of claims 48-51, wherein the cancer is multiple myeloma or Waldenstrom's Macroglobulinemia.

53. The method of any one of claims 48-52, wherein the cancer is multiple myeloma.

54. The method of any one of claims 48-53, wherein the subject is a human.

55. Use of the antibody or antigen-binding fragment thereof of any one of claims 1-34 for the treatment of cancer.

56. The use of claim 55, wherein the cancer is multiple myeloma or Waldenstrom's Macroglobulinemia.

57. The use of claim 55 or 56, wherein the cancer is multiple myeloma.

58. The antibody or antigen-binding fragment thereof of any one of claims 1-34 for use in treating cancer in a subject.

59. The antibody or antigen-binding fragment thereof of claim 58, wherein the cancer is multiple myeloma or Waldenstrom's Macroglobulinemia.

60. The antibody or antigen-binding fragment thereof of claim 58 or 59, wherein the cancer is multiple myeloma.

61. A kit for treating cancer, comprising the antibody or antigen-binding fragment thereof of any one of claims 1-34.

62. The kit of claim 61, wherein the kit further comprises written instructions for using the antibody or antigen-binding fragment thereof for treating a subject having cancer.

63. The kit of claim 61 or 62, wherein the cancer is multiple myeloma or Waldenstrom's Macroglobulinemia.

64. The kit of claim 63, wherein the cancer is multiple myeloma.

65. An immunoconjugate comprising an antibody or antigen-binding fragment thereof linked to a therapeutic agent, wherein the antibody or antigen-binding fragment thereof comprises:

i. a heavy chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 309, 315, 321, 326, 332, 335, 340, 346, 354, 360, 366, 372, 378, 387, 393, 403, 411, 420, 425, 436, 440, 444, 471, 480, 500, 510, 515, 520, 525, 537, 551, 559, 565, 582 and 589;

ii. a heavy chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 310, 316, 322, 327, 333, 336, 341, 355, 361, 367, 373, 379, 388, 404, 412, 421, 426, 431, 441, 445, 450, 466, 472, 475, 481, 496, 501, 506, 511, 516, 521, 526, 538, 552, 560, 566, 583 and 590;

iii. a heavy chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 311, 317, 323, 328, 334, 337, 342, 347, 351, 356, 362, 368, 374, 376, 380, 384, 389, 394, 396, 400, 405, 408, 412, 415, 422, 427, 432, 437, 442, 446, 451, 453, 456, 458, 459, 463, 464, 467, 473, 476, 482, 486, 489, 492, 494, 497, 502, 507, 512, 517, 522, 527, 529, 532, 536, 539, 543, 546, 550, 553, 555, 561, 567, 570, 574, 577, 578, 579, 584, 578, 587 and 591;

iv. a light chain variable region CDR1 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 312, 318, 324, 329, 338, 343, 348, 352, 357, 363, 369, 381, 390, 397, 401, 406, 416, 423, 428, 433, 447, 460, 468, 474, 477, 483, 490, 498, 503, 508, 518, 533, 540, 544, 547, 556, 562, 568, 571, 580, 585 and 588;

v. a light chain variable region CDR2 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 313, 319, 330, 344, 349, 358, 364, 370, 382, 385, 391, 398, 409, 417, 429, 434, 438, 448, 454, 461, 469, 478, 484, 487, 504, 513, 523, 534, 429, 448, 548, 557, 563, 572, 575 and 586; and

vi. a light chain variable region CDR3 comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 314, 320, 325, 331, 339, 345, 350, 353, 359, 365, 371, 377, 383, 386, 392, 395, 399, 402, 407, 410, 414, 418, 419, 424, 430, 435, 439, 443, 449, 452, 455, 457, 462, 465, 470, 479, 485, 488, 491, 493, 495, 499, 505, 509, 514, 519, 524, 528, 530, 531, 535, 541, 542, 545, 549, 554, 558, 564, 569, 573, 576, 581 and 592;

wherein the antibody or an antigen-binding fragment thereof specifically binds FcRL5.

66. An immunoconjugate comprising an antibody or antigen-binding fragment thereof linked to a therapeutic agent, wherein the antibody or antigen-binding fragment thereof comprises:

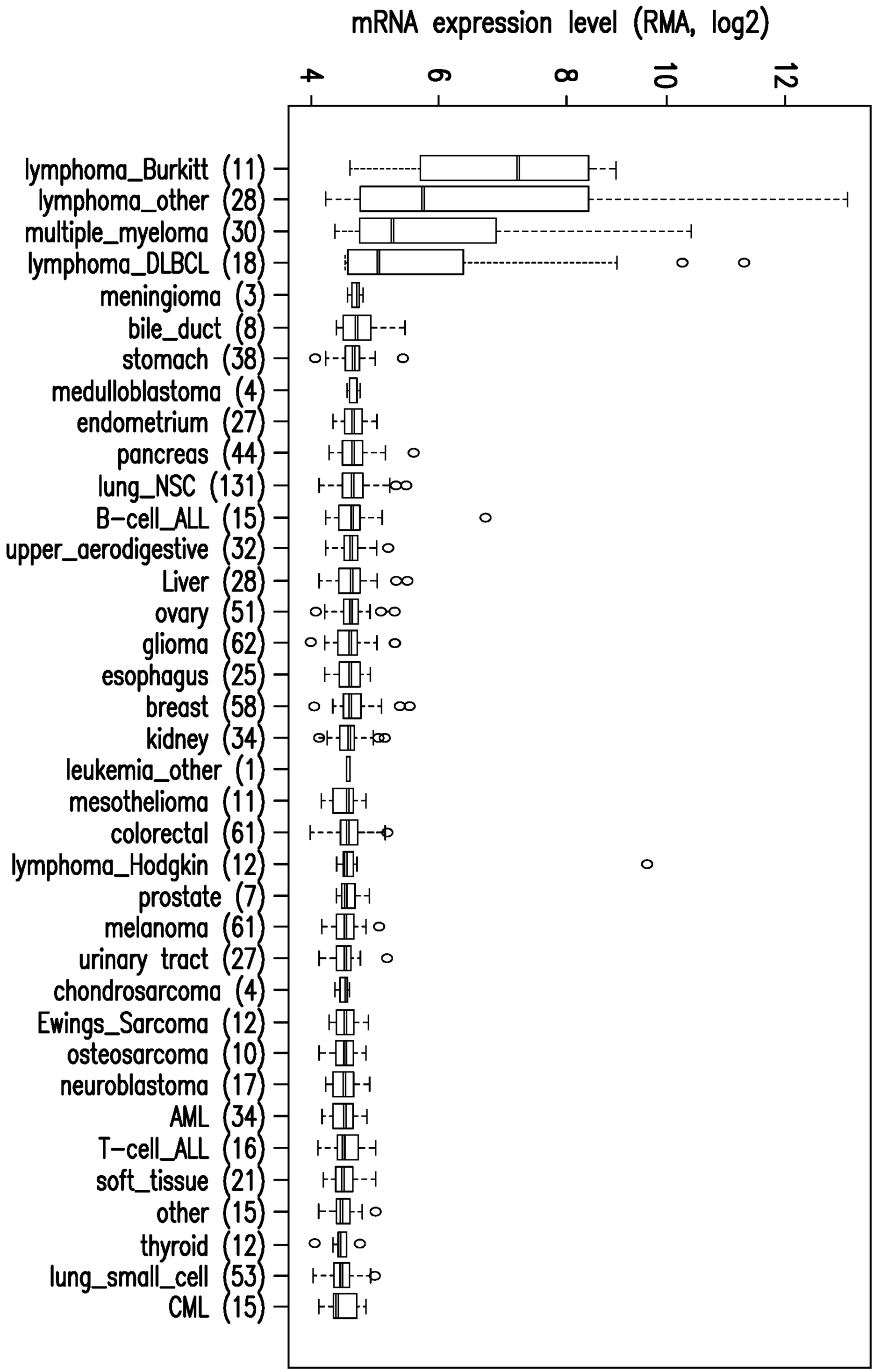
i. a light chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:19, SEQ ID NO:23, SEQ ID NO:27, SEQ ID NO:31, SEQ ID NO:35, SEQ ID NO:39, SEQ ID NO:43, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:55, SEQ ID NO:59, SEQ ID NO:63, SEQ ID NO:67, SEQ ID NO:71, SEQ ID NO:75, SEQ ID NO:79, SEQ ID NO:83, SEQ ID NO:87, SEQ ID NO:91,

SEQ ID NO:95, SEQ ID NO:99, SEQ ID NO:103, SEQ ID NO:107, SEQ ID NO:111, SEQ ID NO:115, SEQ ID NO:119, SEQ ID NO:123, SEQ ID NO:127, SEQ ID NO:131, SEQ ID NO:135, SEQ ID NO:139, SEQ ID NO:143, SEQ ID NO:147, SEQ ID NO:151, SEQ ID NO:155, SEQ ID NO:159, SEQ ID NO:163, SEQ ID NO:167, SEQ ID NO:171, SEQ ID NO:175, SEQ ID NO:179, SEQ ID NO:183, SEQ ID NO:187, SEQ ID NO:191, SEQ ID NO:195, SEQ ID NO:199, SEQ ID NO:203, SEQ ID NO:207, SEQ ID NO:211, SEQ ID NO:215, SEQ ID NO:219, SEQ ID NO:223, SEQ ID NO:227, SEQ ID NO:231, SEQ ID NO:235, SEQ ID NO:239, SEQ ID NO:243, SEQ ID NO:247, SEQ ID NO:251, SEQ ID NO:255, SEQ ID NO:259, SEQ ID NO:263, SEQ ID NO:267, SEQ ID NO:271, SEQ ID NO:275, SEQ ID NO:279, SEQ ID NO:283, SEQ ID NO:287, SEQ ID NO:291, SEQ ID NO:295, SEQ ID NO:299, SEQ ID NO:303, and conservative modifications thereof; and

ii. a heavy chain variable region comprising an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:16, SEQ ID NO:20, SEQ ID NO:24, SEQ ID NO:28, SEQ ID NO:32, SEQ ID NO:36, SEQ ID NO:40, SEQ ID NO:44, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:56, SEQ ID NO:60, SEQ ID NO:64, SEQ ID NO:68, SEQ ID NO:72, SEQ ID NO:76, SEQ ID NO:80, SEQ ID NO:84, SEQ ID NO:88, SEQ ID NO:92, SEQ ID NO:96, SEQ ID NO:100, SEQ ID NO:104, SEQ ID NO:108, SEQ ID NO:112, SEQ ID NO:116, SEQ ID NO:120, SEQ ID NO:124, SEQ ID NO:128, SEQ ID NO:132, SEQ ID NO:136, SEQ ID NO:140, SEQ ID NO:144, SEQ ID NO:148, SEQ ID NO:152, SEQ ID NO:156, SEQ ID NO:160, SEQ ID NO:164, SEQ ID NO:168, SEQ ID NO:172, SEQ ID NO:176, SEQ ID NO:180, SEQ ID NO:184, SEQ ID NO:188, SEQ ID NO:192, SEQ ID NO:196, SEQ ID NO:200, SEQ ID NO:204, SEQ ID NO:208, SEQ ID NO:212, SEQ ID NO:216, SEQ ID NO:220, SEQ ID NO:224, SEQ ID NO:228, SEQ ID NO:232, SEQ ID NO:236, SEQ ID NO:240, SEQ ID NO:244, SEQ ID NO:248, SEQ ID NO:252, SEQ ID NO:256, SEQ ID NO:260, SEQ ID NO:264, SEQ ID NO:268, SEQ ID NO:272, SEQ ID NO:276, SEQ ID NO:280, SEQ ID NO:284, SEQ ID NO:288, SEQ ID NO:292, SEQ ID NO:296, SEQ ID NO:300, SEQ ID NO:304, and conservative modifications thereof,

wherein the antibody or antigen-binding portion thereof binds to an FcRL5 polypeptide.

67. The immunoconjugate of claim 65 or 66, wherein said therapeutic agent is a drug, cytotoxin, or a radioactive isotope.



FCRL5 – Entrez ID: 83416

FIG. 1

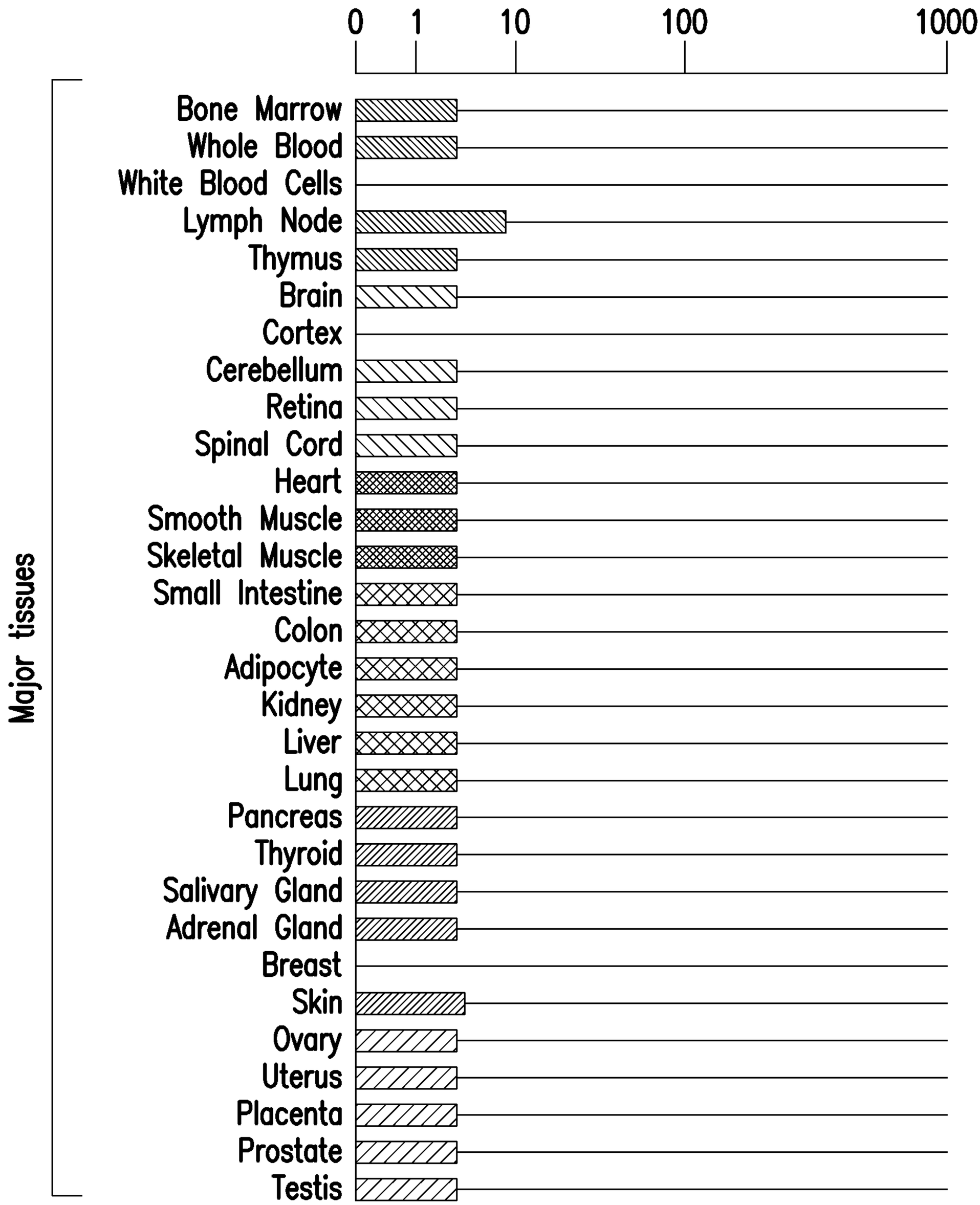


FIG. 1 (continued)

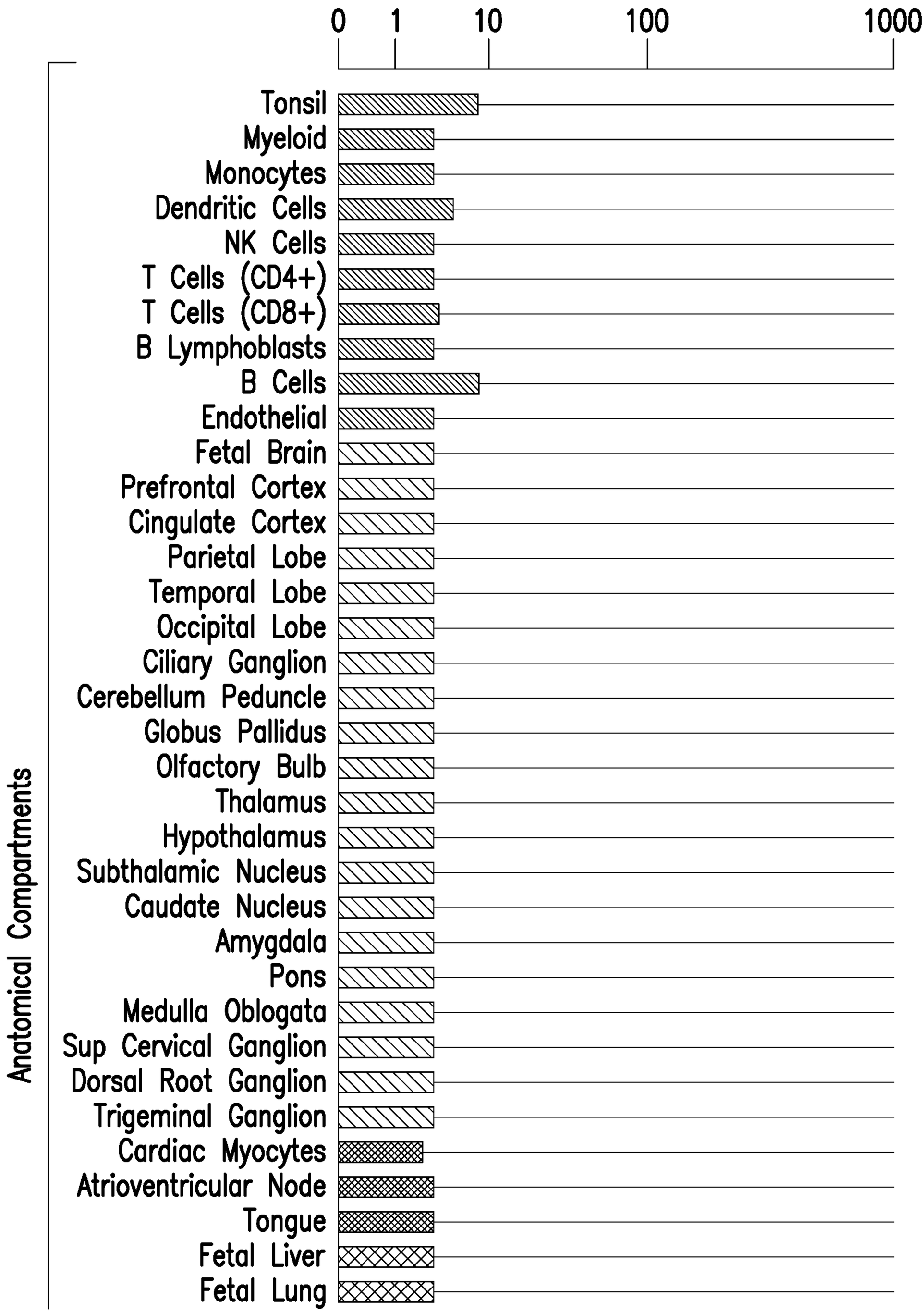


FIG. 1 (continued)

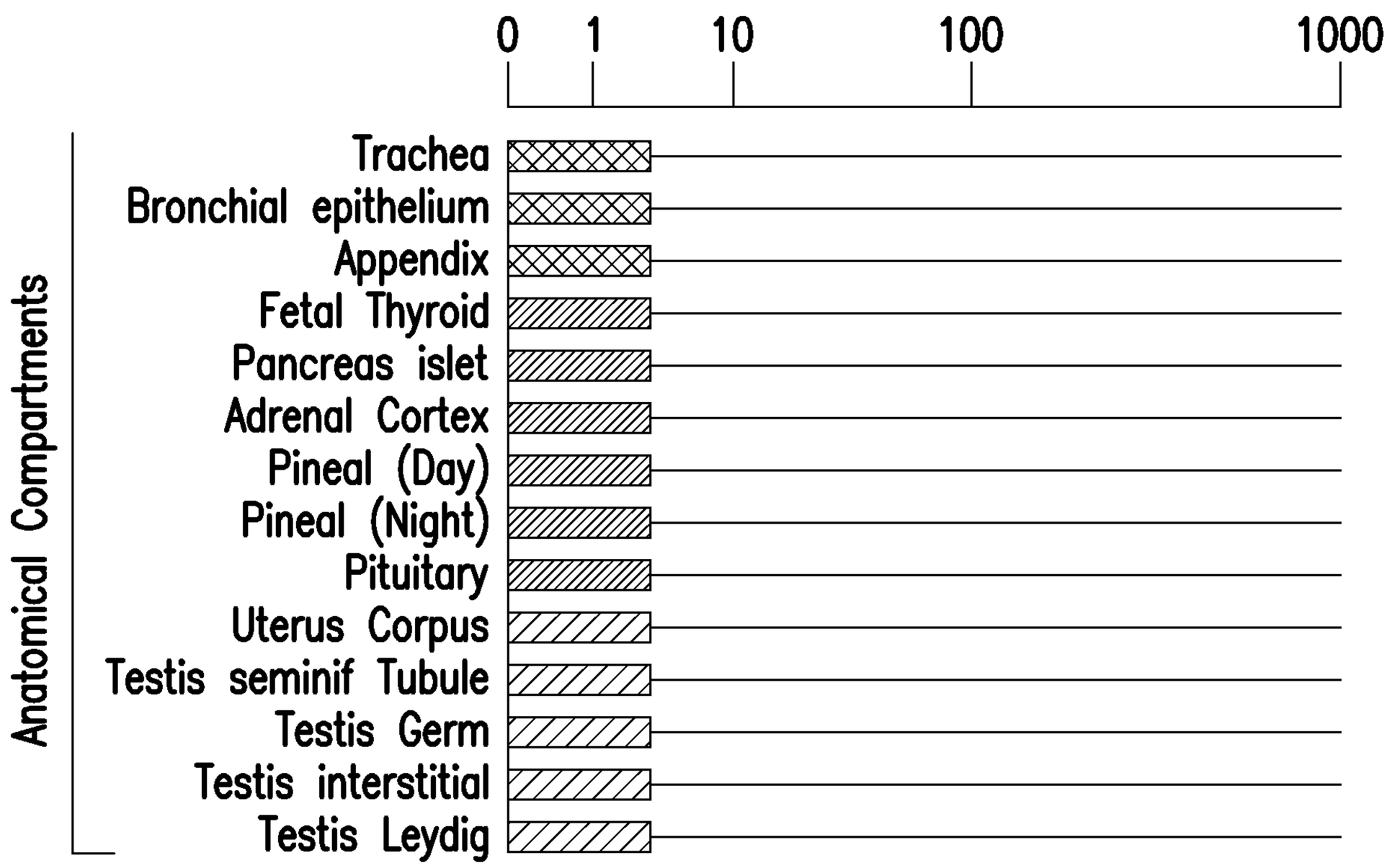
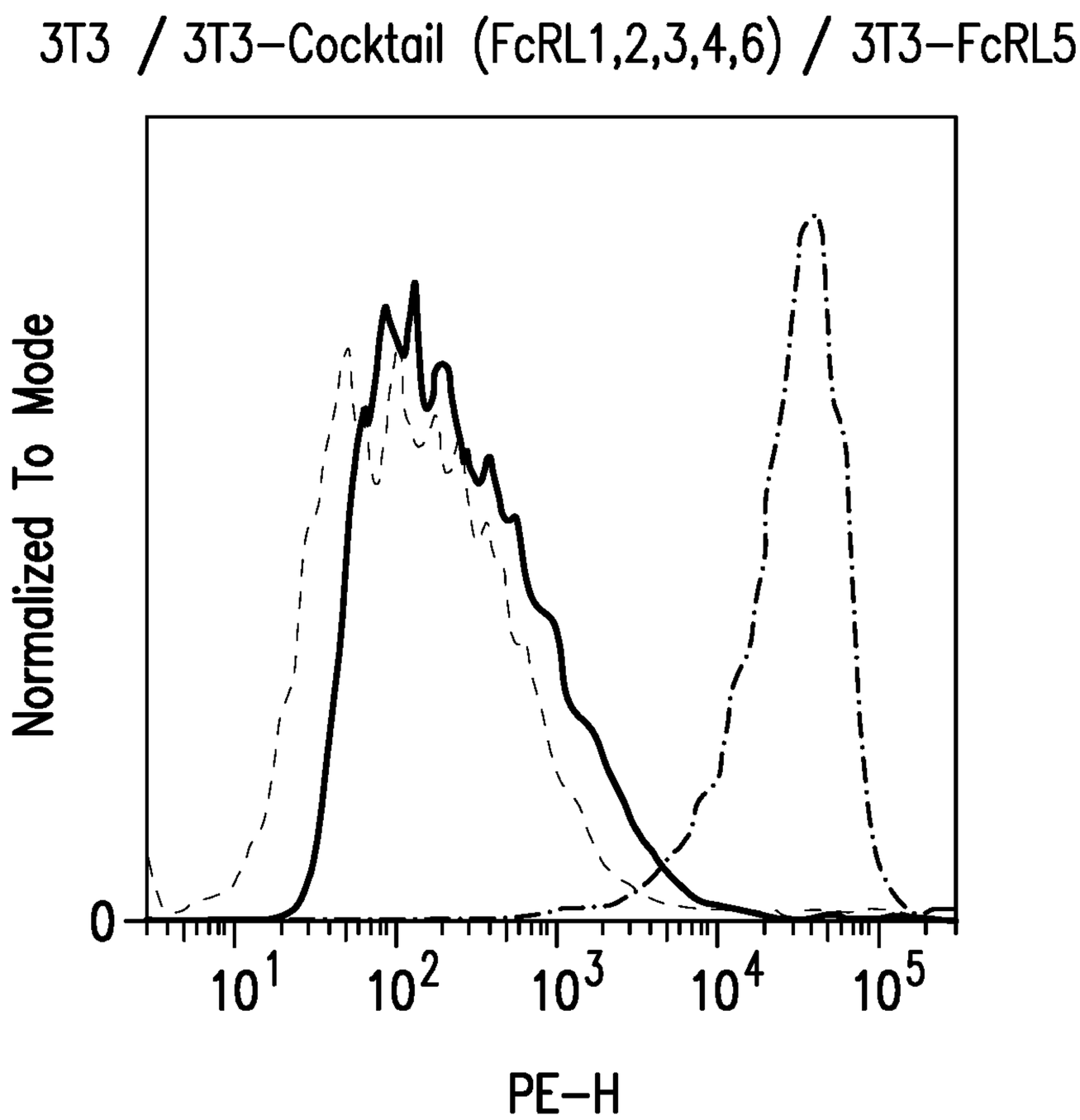


FIG. 1 (continued)



	Sample Name	Median, PE-H
- - - -	Plate1 E12.fcs	124
-·-·-	Plate1 E11.fcs	3.15E4
——	Plate1 E10.fcs	216

FIG. 2

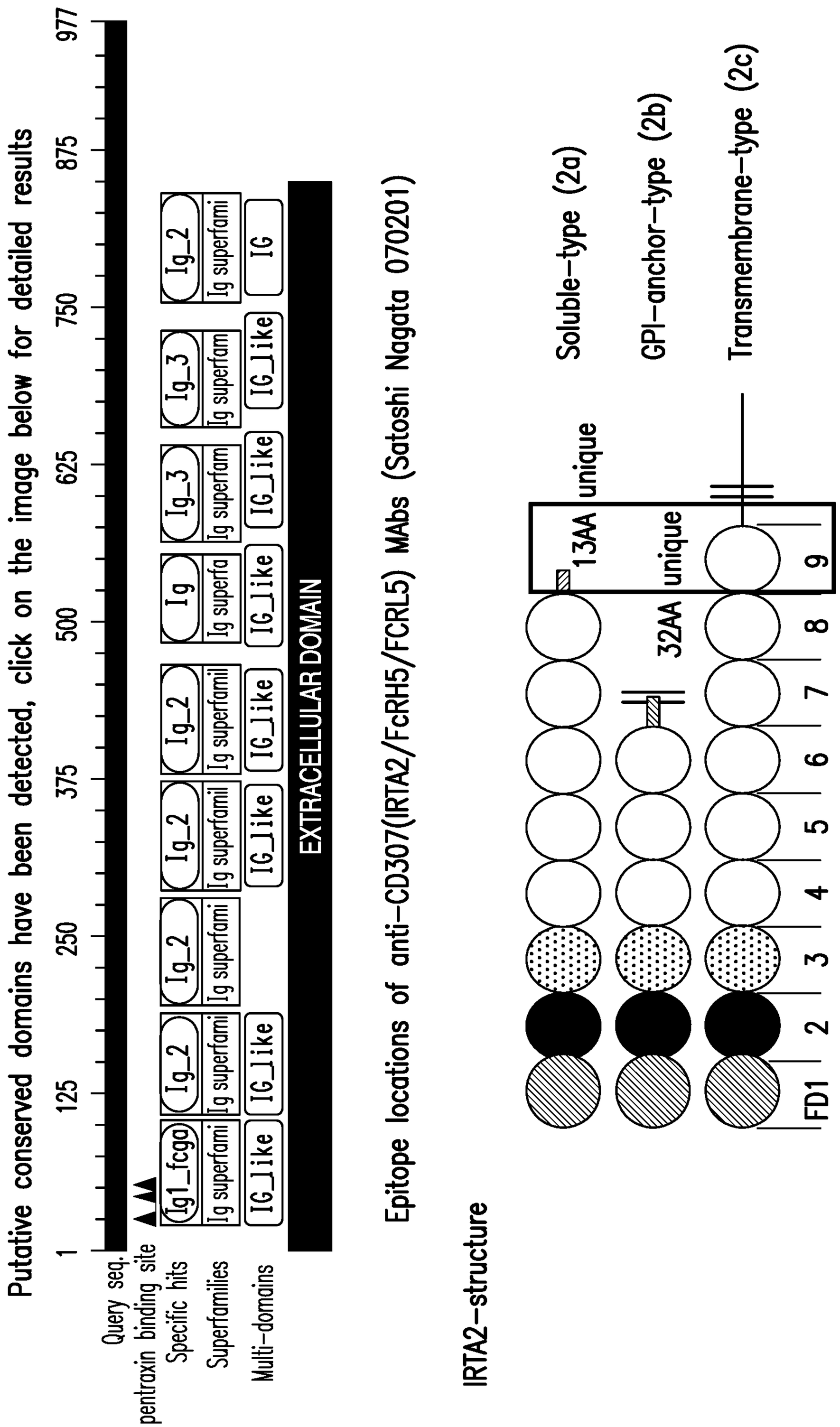

Putative conserved domains have been detected, click on the image below for detailed results
1
125
250
375
500
625
750
875
977
Query seq.
pentraxin binding site
Specific hits
Superfamilies
Multi-domains
Ig1_fcgo
Ig_2
Ig
Ig_3
Ig superfami
IG_like
EXTRACELLULAR DOMAIN
Epitope locations of anti-CD307(IRTA2/FcRH5/FCRL5) MAbs (Satoshi Nagata 070201)
IRTA2-structure
FD1
2
3
4
5
6
7
8
9
32AA unique
13AA unique
Soluble-type (2a)
GPI-anchor-type (2b)
Transmembrane-type (2c)

FIG. 3A

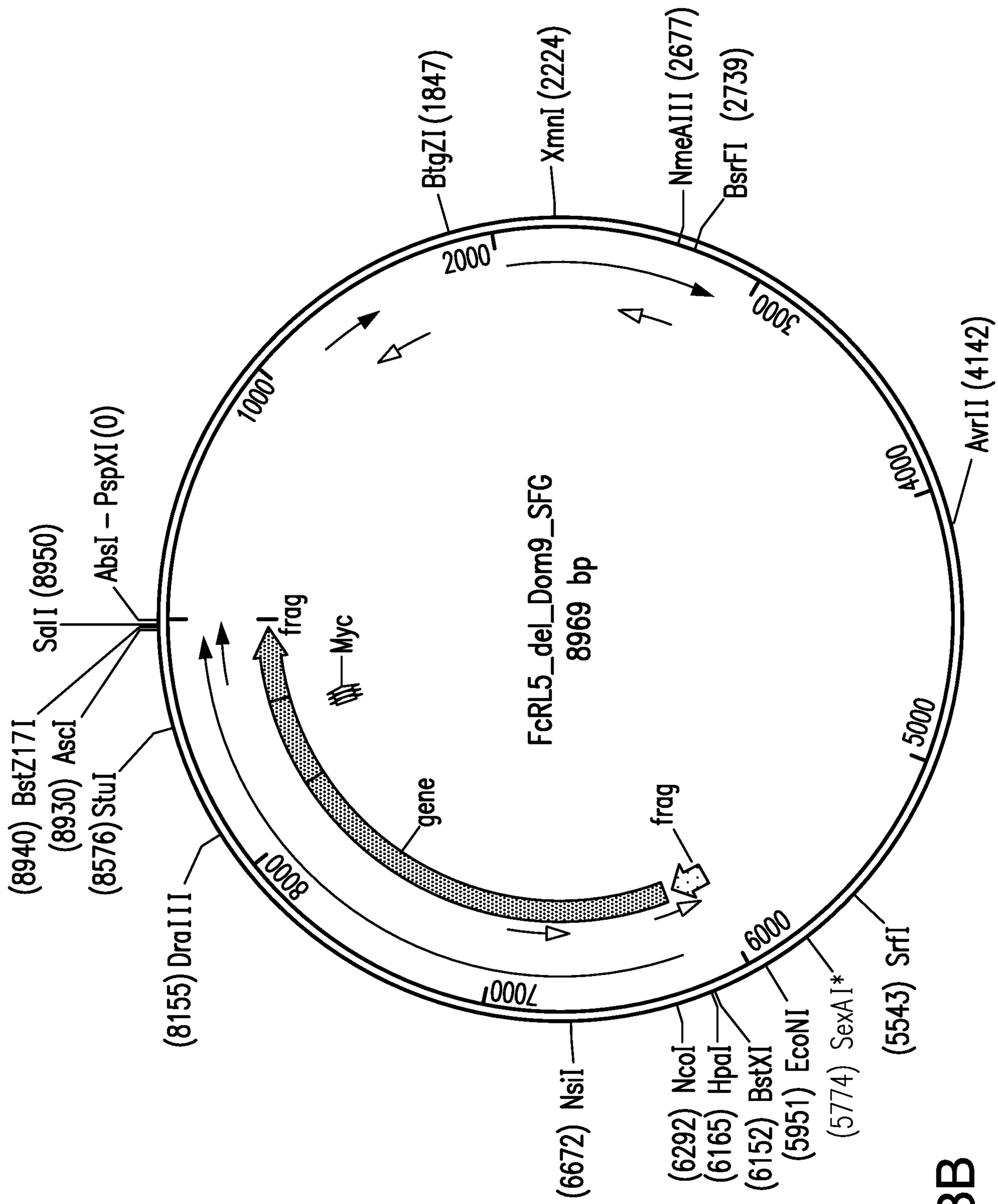

BtgZI (1847)
XmnI (2224)
NmeAIII (2677)
BsrFI (2739)
AvrII (4142)
SrfI (5543)
SexAI* (5774)
EcoNI (5951)
BstXI (6152)
HpaI (6165)
NcoI (6292)
NsiI (6672)
DraIII (8155)
StuI (8576)
AscI (8930)
BstZ17I (8940)
SalI (8950)
AbsI – PspXI (0)
1000
2000
3000
4000
5000
6000
7000
8000
frag
Myc
gene
frag
FcRL5_del_Dom9_SFG
8969 bp

FIG. 3B

Domain 1–8

Domain 9

TM

Myc3

>MSK_delDOM9_myc_mCD8

MLLWVILLVLAPVSGQFARTPRPIIFLQPPWTTVFQGERVTLTCKGFRFYSPQKTKWYHRYLGKEILRET
PDNILEVQESGEYRCQAQGSPLSSPVHLDFSSASLILQAPLSVFEGDSVVLRCRAKAEVTLNNTIYKNDN
VLAFLNKRTDFHIPHACLKDNGAYRCTGYKESCCPVSSNTVKIQVQEPFTRPVLRASSFQPISGNPVTLT
CETQLSLERSDVPLRFRFFRDDQTLGLGWSLSPNFQITAMWSKDSGFYWCKAATMPHSIISDSPRSWIQV
QIPASHPVLTLSPEKALNFEGTKVTLHCETQEDSLRTLYRFYHEGVPLRHKSVRCERGASISFSLTTENS
GNYYCTADNGLGAKPSKAVSLSVTVPVSHPVLNLSSPEDLIFEGAKVTLHCEAQRGSLPILYQFHHEDAA
LERRSANSAGGVAISFSLTAEHSGNYYCTADNGFGPQRSKAVSLSITVPVSHPVLTLSSAEALTFEGATV
TLHCEVQRGSPQILYQFYHEDMPLWSSSTPSVGRVSFSFSLTEGHSGNYYCTADNGFGPQRSEVVSLFVT
VPVSRPILTLRVPRAQAVVGDLLELHCEAPRGSPPILYWFYHEDVTLGSSSAPSGGEASFNLSLTAEHSG
NYSCEANNGLVAQHSDTISLSVIVPVSRPILTFRAPRAQAVVGDLLELHCEALRGSSPILYWFYHEDVTL
GKISAPSGGGASFNLSLTTEHSGIYSCEADNGLEAQRSEMVTLKVAAAAEQKLISEEDLEQKLISEEDLE
QKLISEEDLTGVAGGLLSIAGLAAGALLLYCWLSRKAGRKPASDPARSPSDSDSQEPTYHNVPAWEELQP
VYTNANPRGENVVYSEVRIIQEKKKHAVASDPRHLRNKGSPIIYSEVKVASTPVSGSLFL
ASSAPHR*

>gi|14278719|gb|AAK50059.2|AF369794_1 B cell crosslinked IgM-activating sequence protein [Homo sapiens]

MLLWVILLVLAPVSGQFARTPRPIIFLQPPWTTVFQGERVTLTCKGFRFYSPQKTKWYHRYLGKEILRET
PDNILEVQESGEYRCQAQGSPLSSPVHLDFSSASLILQAPLSVFEGDSVVLRCRAKAEVTLNNTIYKNDN
VLAFLNKRTDFHIPHACLKDNGAYRCTGYKESCCPVSSNTVKIQVQEPFTRPVLRASSFQPISGNPVTLT
CETQLSLERSDVPLRFRFFRDDQTLGLGWSLSPNFQITAMWSKDSGFYWCKAATMPHSIISDSPRSWIQV
QIPASHPVLTLSPEKALNFEGTKVTLHCETQEDSLRTLYRFYHEGVPLRHKSVRCERGASISFSLTTENS
GNYYCTADNGLGAKPSKAVSLSVTVPVSHPVLNLSSPEDLIFEGAKVTLHCEAQRGSLPILYQFHHEDAA
LERRSANSAGGVAISFSLTAEHSGNYYCTADNGFGPQRSKAVSLSITVPVSHPVLTLSSAEALTFEGATV
TLHCEVQRGSPQILYQFYHEDMPLWSSSTPSVGRVSFSFSLTEGHSGNYYCTADNGFGPQRSEVVSLFVT
VPVSRPILTLRVPRAQAVVGDLLELHCEAPRGSPPILYWFYHEDVTLGSSSAPSGGEASFNLSLTAEHSG
NYSCEANNGLVAQHSDTISLSVIVPVSRPILTFRAPRAQAVVGDLLELHCEALRGSSPILYWFYHEDVTL
GKISAPSGGGASFNLSLTTEHSGIYSCEADNGPEAQRSEMVTLKVAVPVSRPVLTLRAPGTHAAVGDLLE
LHCEALRGSPLILYRFFHEDVTLGNRSSPSGGASLNLSLTAEHSGNYSCEADNGLGAQRSETVTLYITGL
TANRSGPFATGVAGGLLSIAGLAAGALLLYCWLSRKAGRKPASDPARSPPDSDSQEPTYHNVPAWEELQP
VYTNANPRGENVVYSEVRIIQEKKKHAVASDPRHLRNKGSPIIYSEVKVASTPVSGSLFLASSAPHR

FIG. 3C

MSK_delDOM9_myc3_mCD8	MLLWVILLVLAPVSGQFARTPRPIIFLQPPWTTVFQGERVTLTCKGFRFYSPQKTKWYHR
gi|14278719|gb|AAK50059.2|AF3697	MLLWVILLVLAPVSGQFARTPRPIIFLQPPWTTVFQGERVTLTCKGFRFYSPQKTKWYHR

MSK_delDOM9_myc3_mCD8	YLGKEILRETPDNILEVQESGEYRCQAQGSPLSSPVHLDFSSASLILQAPLSVFEGDSVV
gi|14278719|gb|AAK50059.2|AF3697	YLGKEILRETPDNILEVQESGEYRCQAQGSPLSSPVHLDFSSASLILQAPLSVFEGDSVV

MSK_delDOM9_myc3_mCD8	LRCRAKAEVTLNNTIYKNDNVLAFLNKRTDFHIPHACLKDNGAYRCTGYKESCCPVSSNT
gi|14278719|gb|AAK50059.2|AF3697	LRCRAKAEVTLNNTIYKNDNVLAFLNKRTDFHIPHACLKDNGAYRCTGYKESCCPVSSNT

MSK_delDOM9_myc3_mCD8	VKIQVQEPFTRPVLRASSFQPISGNPVTLTCETQLSLERSDVPLRFRFFRDDQTLGLGWS
gi|14278719|gb|AAK50059.2|AF3697	VKIQVQEPFTRPVLRASSFQPISGNPVTLTCETQLSLERSDVPLRFRFFRDDQTLGLGWS

MSK_delDOM9_myc3_mCD8	LSPNFQITAMWSKDSGFYWCKAATMPHSIISDSPRSWIQVQIPASHPVLTLSPEKALNFE
gi|14278719|gb|AAK50059.2|AF3697	LSPNFQITAMWSKDSGFYWCKAATMPHSVISDSPRSWIQVQIPASHPVLTLSPEKALNFE

MSK_delDOM9_myc3_mCD8	GTKVTLHCETQEDSLRTLYRFYHEGVPLRHKSVRCERGASISFSLTTENSGNYYCTADNG
gi|14278719|gb|AAK50059.2|AF3697	GTKVTLHCETQEDSLRTLYRFYHEGVPLRHKSVRCERGASISFSLTTENSGNYYCTADNG

MSK_delDOM9_myc3_mCD8	LGAKPSKAVSLSVTVPVSHPVLNLSSPEDLIFEGAKVTLHCEAQRGSLPILYQFHHEDAA
gi|14278719|gb|AAK50059.2|AF3697	LGAKPSKAVSLSVTVPVSHPVLNLSSPEDLIFEGAKVTLHCEAQRGSLPILYQFHHEDAA

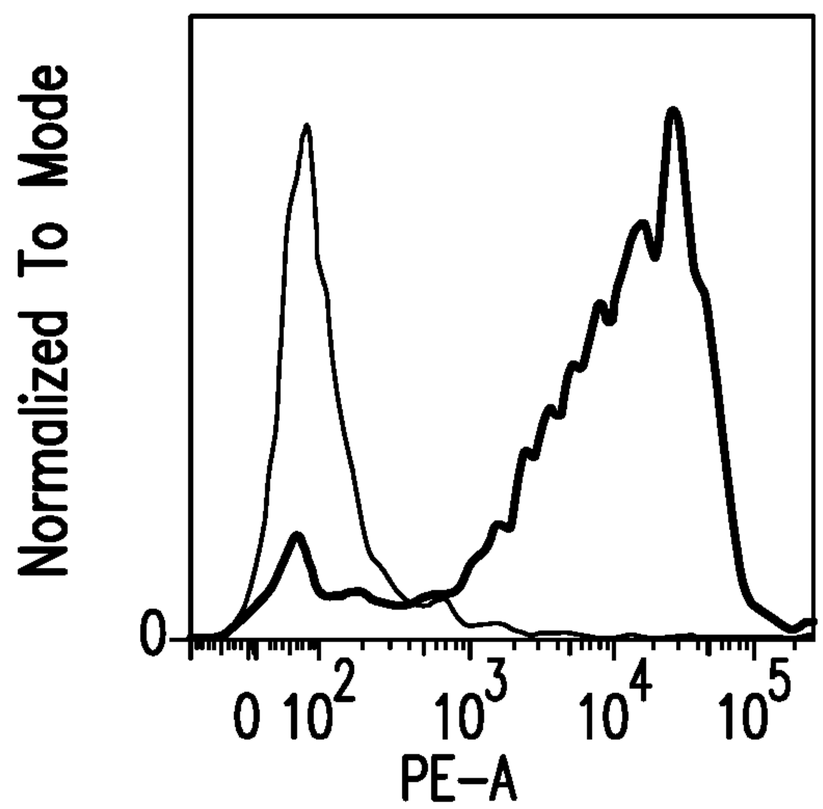
MSK_delDOM9_myc3_mCD8	LERRSANSAGGVAISFSLTAEHSGNYYCTADNGFGPQRSKAVSLSITVPVSHPVLTLSSA
gi|14278719|gb|AAK50059.2|AF3697	LERRSANSAGGVAISFSLTAEHSGNYYCTADNGFGPQRSKAVSLSITVPVSHPVLTLSSA

FIG. 3D

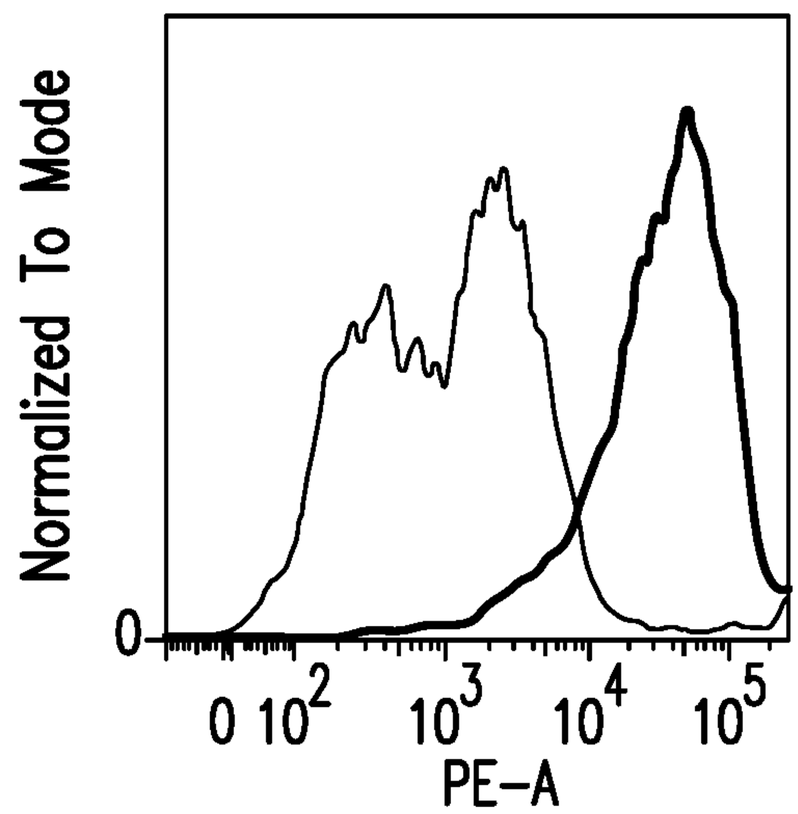
```
MSK_delDOM9_myc3_mCD8          EALTFEGATVTLHCEVQRGSPQILYQFYHEDMPLWSSSTPSVGRVSFSFSLTEGHSGNYY
gi|14278719|gb|AAK50059.2|AF3697  EALTFEGATVTLHCEVQRGSPQILYQFYHEDMPLWSSSTPSVGRVSFSFSLTEGHSGNYY

MSK_delDOM9_myc3_mCD8          CTADNGFGPQRSEVVSLFVTVPVSRPILTLRVPRAQAVVGDLLELHCEAPRGSPPILYWF
gi|14278719|gb|AAK50059.2|AF3697  CTADNGFGPQRSEVVSLFVTVPVSRPILTLRVPRAQAVVGDLLELHCEAPRGSPPILYWF

MSK_delDOM9_myc3_mCD8          YHEDVTLGSSSAPSGGEASFNLSLTAEHSGNYSCEANNGLVAQHSDTISLSVIVPVSRPI
gi|14278719|gb|AAK50059.2|AF3697  YHEDVTLGSSSAPSGGEASFNLSLTAEHSGNYSCEANNGLVAQHSDTISLSVIVPVSRPI

MSK_delDOM9_myc3_mCD8          LTFRAPRAQAVVGDLLELHCEALRGSSPILYWFYHEDVTLGKISAPSGGGASFNLSLTTE
gi|14278719|gb|AAK50059.2|AF3697  LTFRAPRAQAVVGDLLELHCEALRGSSPILYWFYHEDVTLGKISAPSGGGASFNLSLTTE

MSK_delDOM9_myc3_mCD8          HSGIYSCEADNGlEAQRSEMVTLKVAaaaaQkLIS------------------------
gi|14278719|gb|AAK50059.2|AF3697  HSGIYSCEADNGpEAQRSEMVTLKVAvpvsRpVLTlrapgthaavgdllelhcealrgsp

MSK_delDOM9_myc3_mCD8          ---------------------eedLeqkLiSEedleqkliSEedL---------------
gi|14278719|gb|AAK50059.2|AF3697  lilyrffhedvtlgnrsspsggasLnlsLtAEhsgnyscesADngLgaqrsetvtlyitgl

MSK_delDOM9_myc3_mCD8          ---------TGVAGGLLSIAGLAAGALLLYCWLSRKAGRKPASDPARSPsDSDSQEPTYH
gi|14278719|gb|AAK50059.2|AF3697  tanrsgpfaTGVAGGLLSIAGLAAGALLLYCWLSRKAGRKPASDPARSPpDSDSQEPTYH

MSK_delDOM9_myc3_mCD8          NVPAWEELQPVYTNANPRGENVVYSEVRIIQEKKKHAVASDPRHLRNKGSPIIYSEVKVA
gi|14278719|gb|AAK50059.2|AF3697  NVPAWEELQPVYTNANPRGENVVYSEVRIIQEKKKHAVASDPRHLRNKGSPIIYSEVKVA

MSK_delDOM9_myc3_mCD8          STPVSGSLFLASSAPHR
gi|14278719|gb|AAK50059.2|AF3697  STPVSGSLFLASSAPHR
```

FIG. 3D (continued)

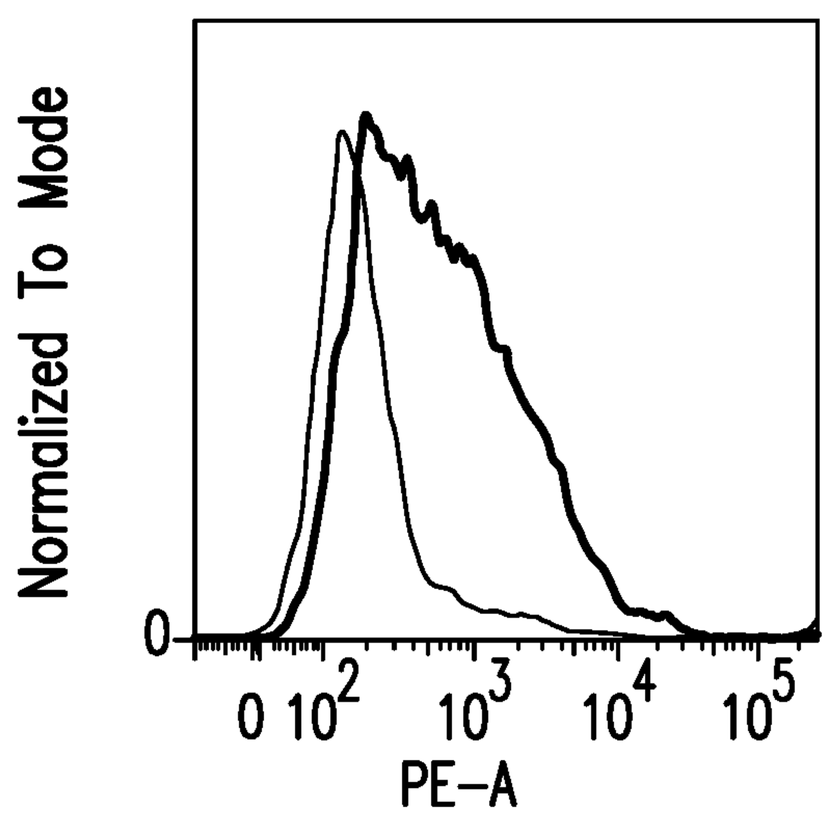
ET200-39



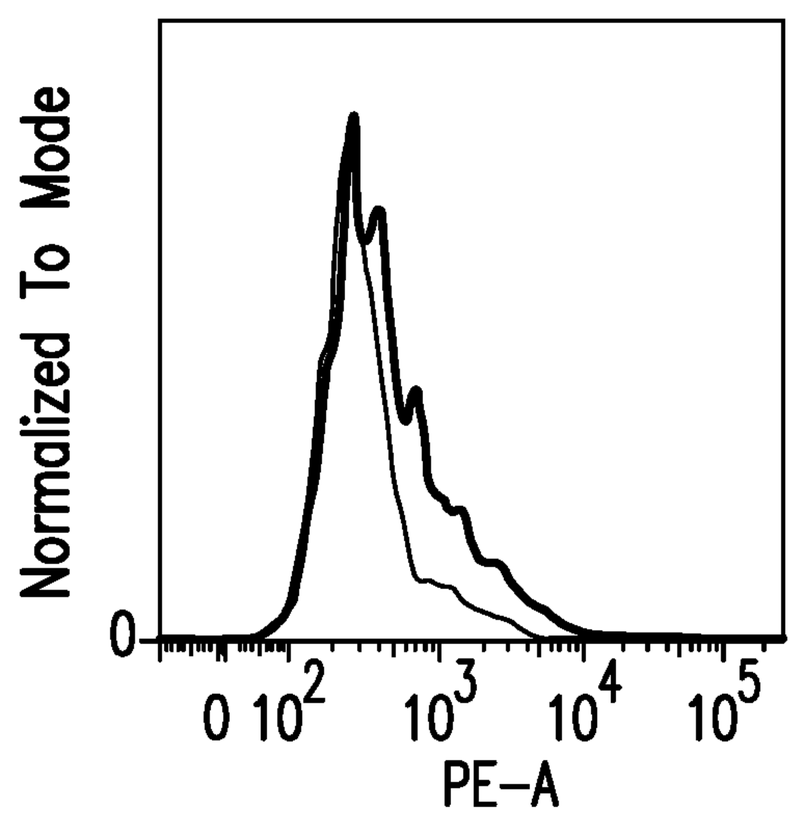
	Sample Name	Median, PE-A
——	D05+Raji-FcRL5.fcs	1.11E4
——	A04+Raji-FcRL5.fcs	82.1



	Sample Name	Median, PE-A
——	D05+3T3-FcRL5.fcs	3.76E4
——	A04+3T3-FcRL5.fcs	1137



	Sample Name	Median, PE-A
——	D05+3T3-FcRL5-Delta.fcs	496
——	A04+3T3-FcRL5-Delta.fcs	162

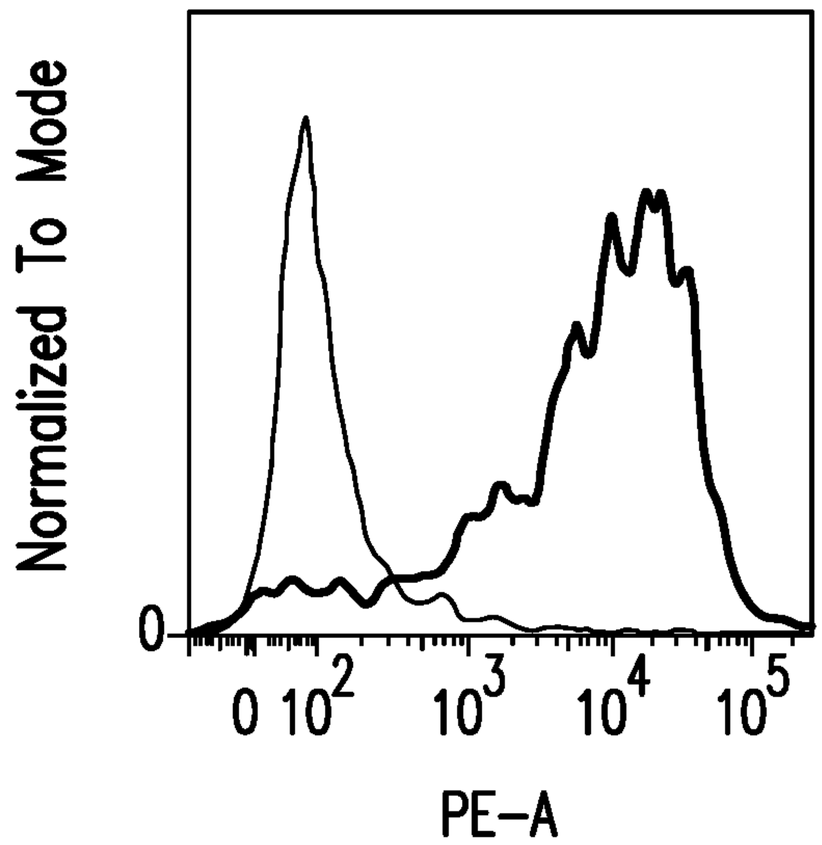


	Sample Name	Median, PE-A
——	D05+NIH 3T3.fcs	379
——	A04+NIH 3t3.fcs	271

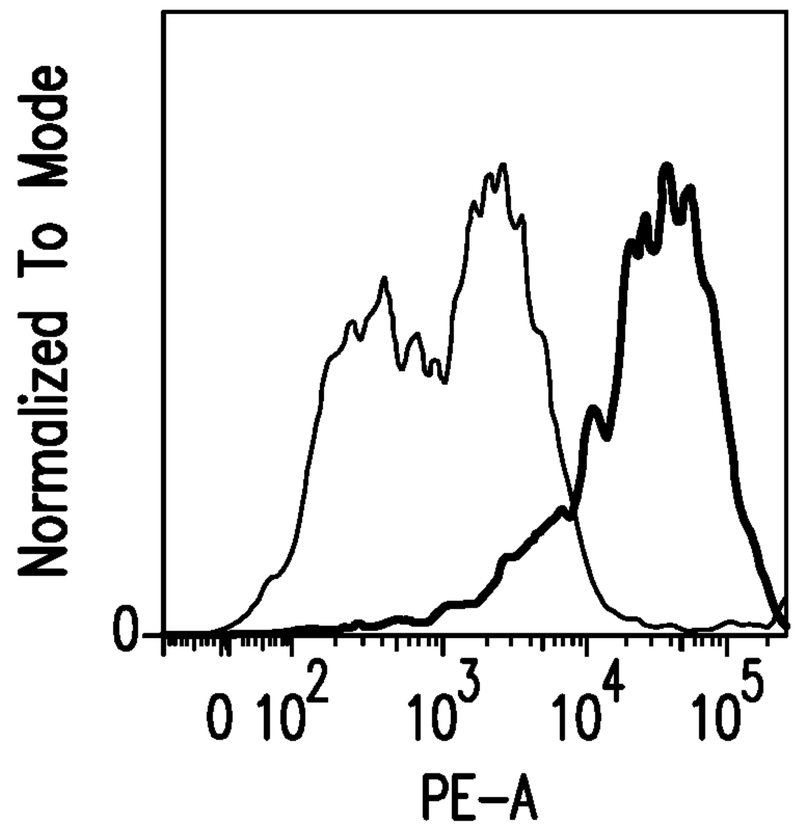
—— Negative control phage
—— ET200 phage

FIG.4

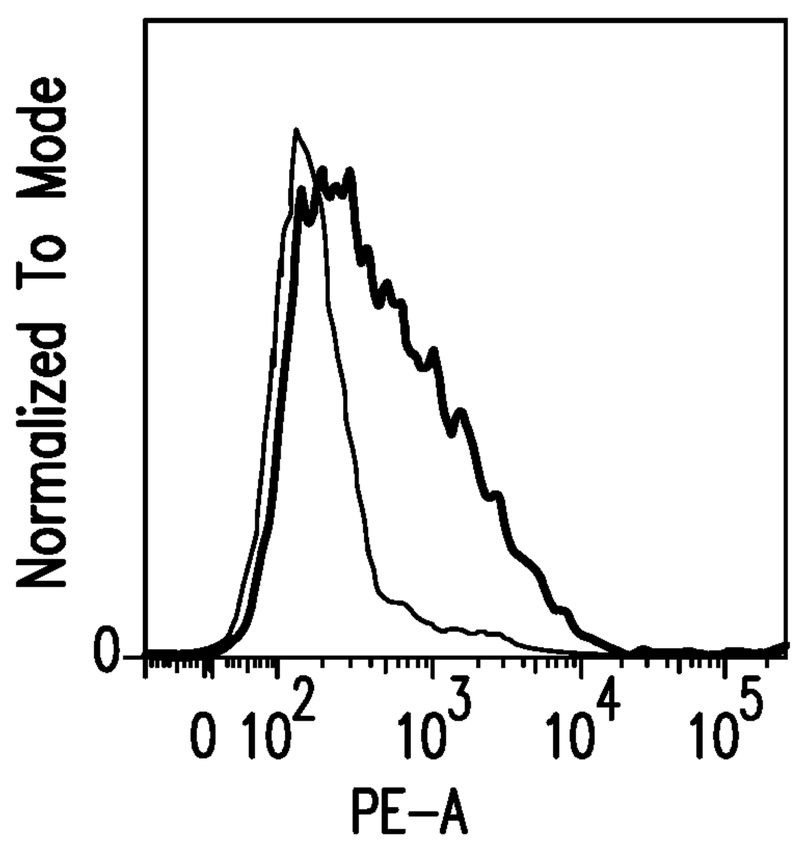
ET200-104



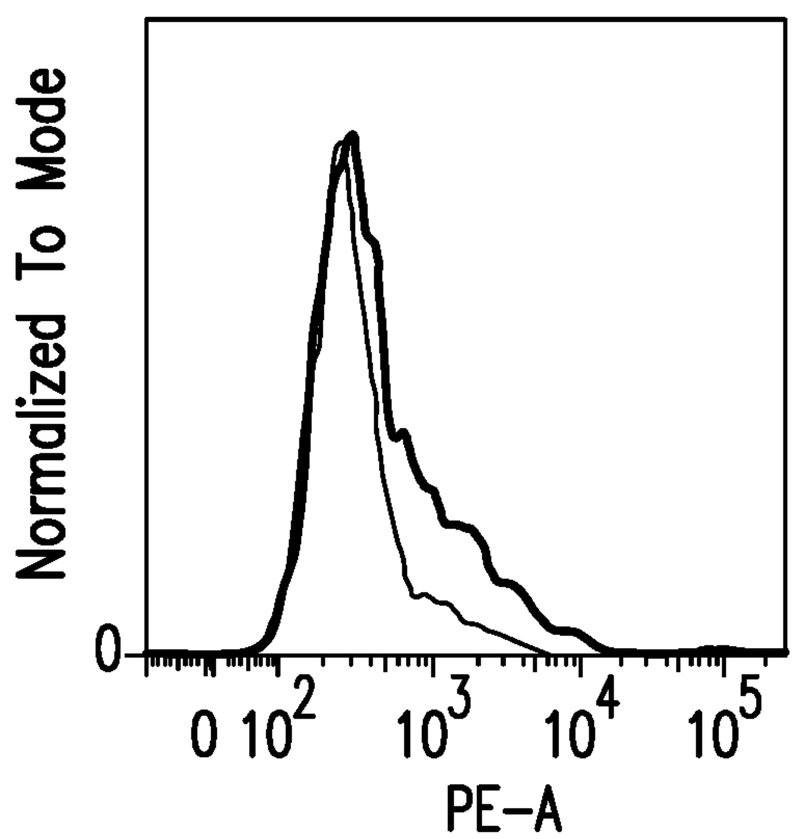
	Sample Name	Median, PE-A
——	E11+Raji-FcRL5.fcs	9165
——	A04+Raji-FcRL5.fcs	82.1



	Sample Name	Median, PE-A
——	E11+3T3-FcRL5.fcs	2.91E4
——	A04+Raji-FcRL5.fcs	1137



	Sample Name	Median, PE-A
——	E11+3T3-FcRL5-Delta.fcs	387
——	A04+3T3-FcRL5-Delta.fcs	162

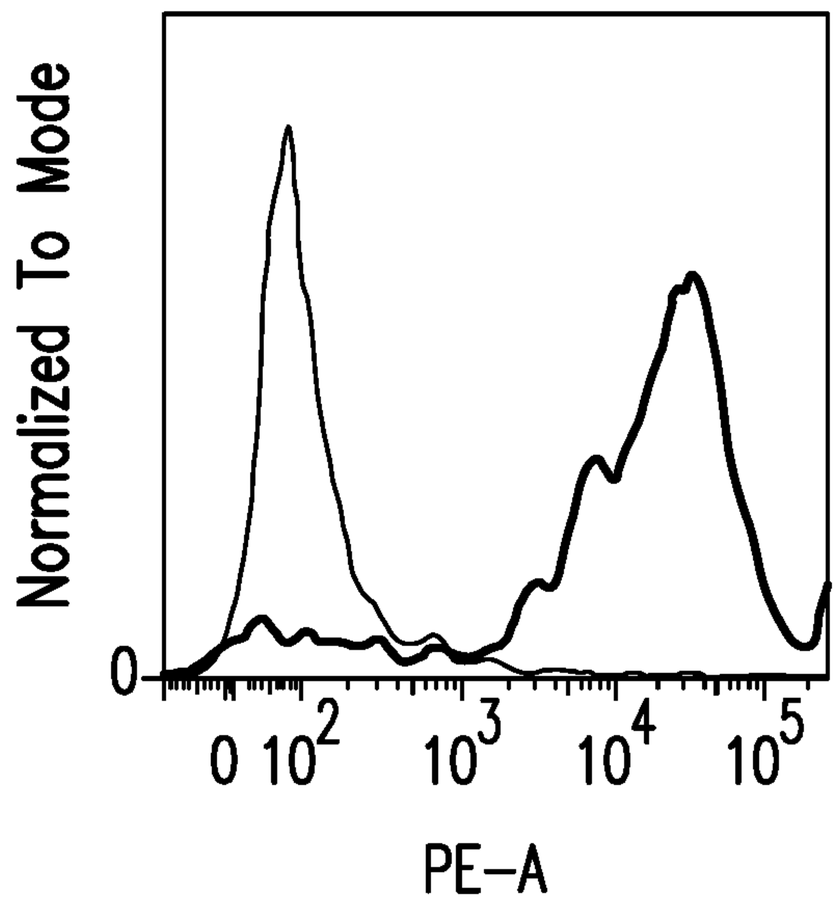


	Sample Name	Median, PE-A
——	E11+NIH 3T3.fcs	360
——	A04+NIH 3T3.fcs	271

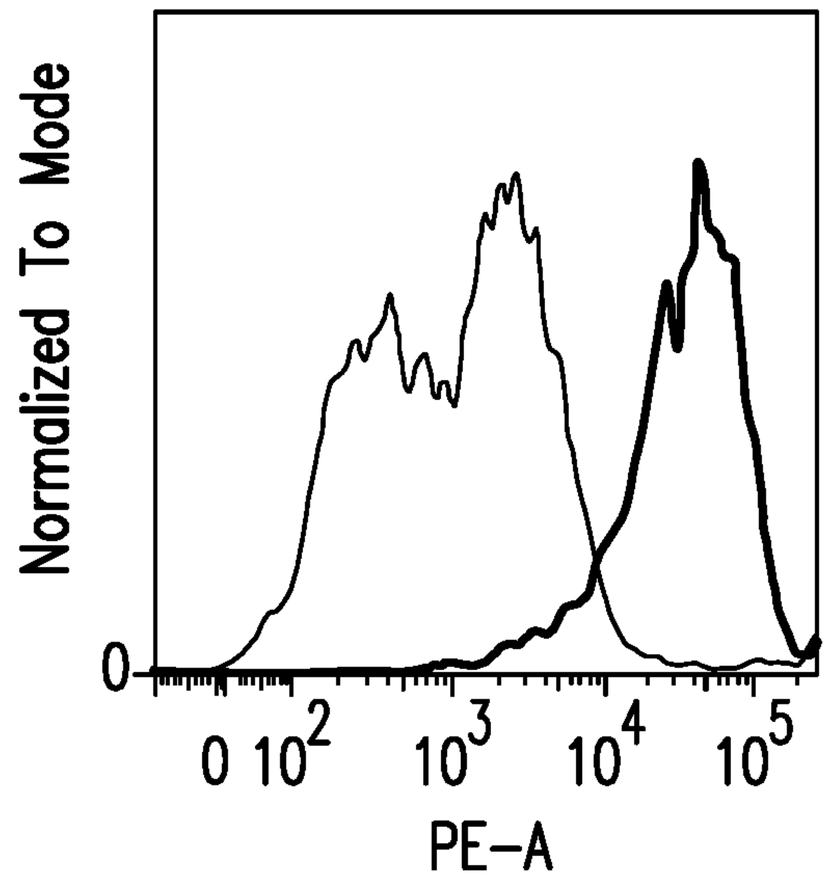
—— Negative control phage
—— ET200 phage

FIG. 5

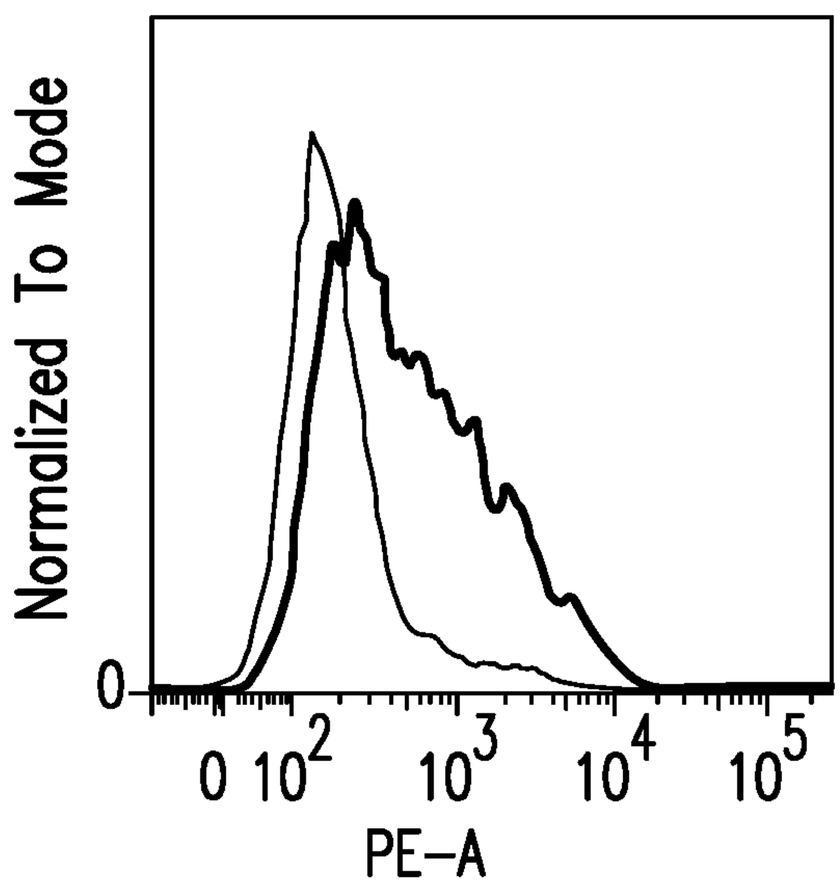
ET200-105



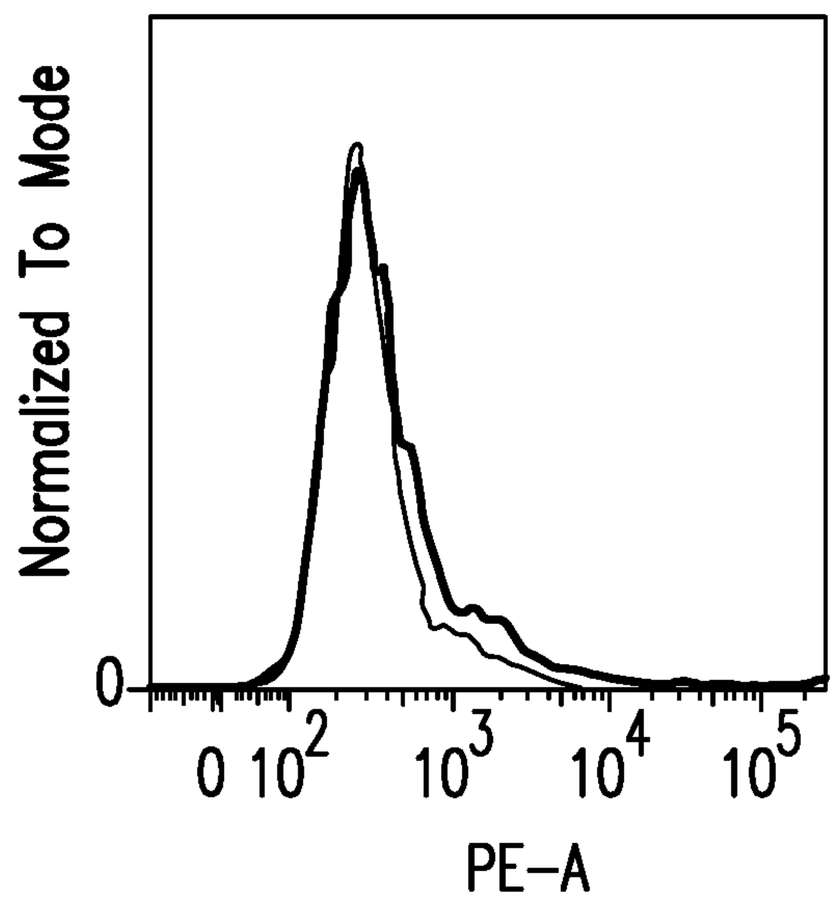
	Sample Name	Median, PE-A
——	E12+Raji-FcRL5.fcs	1.80E4
——	A04+Raji-FcRL5.fcs	82.1



	Sample Name	Median, PE-A
——	E12+3T3-FcRL5.fcs	3.52E4
——	A04+3T3-FcRL5.fcs	1137



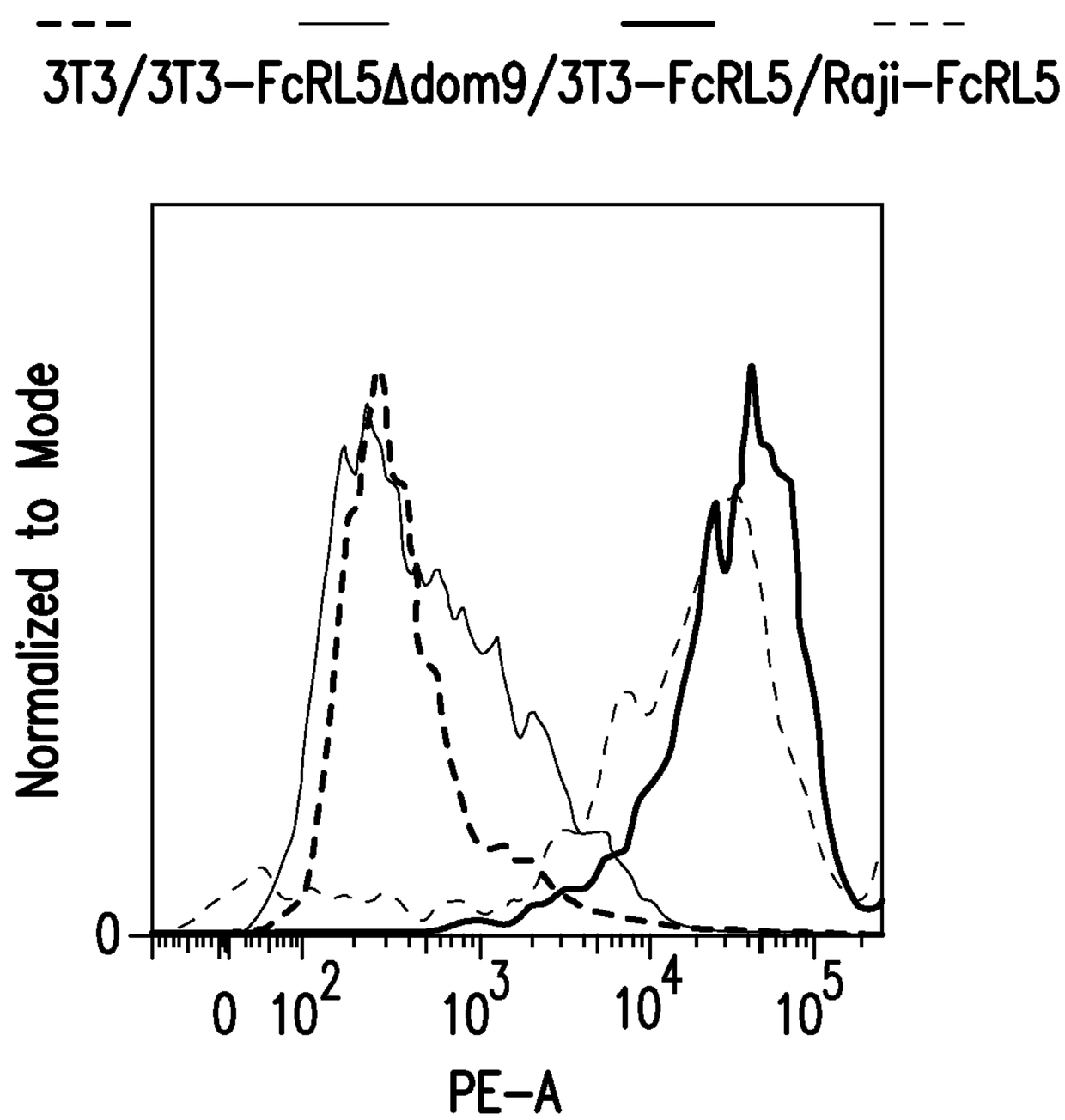
	Sample Name	Median, PE-A
——	E12+3T3-FcRL5-Delta.fcs	415
——	A04+3T3-FcRL5-Delta.fcs	162



	Sample Name	Median, PE-A
——	E12+NIH 3T3.fcs	309
——	A04+NIH 3T3.fcs	271

—— Negative control phage —— ET200 phage

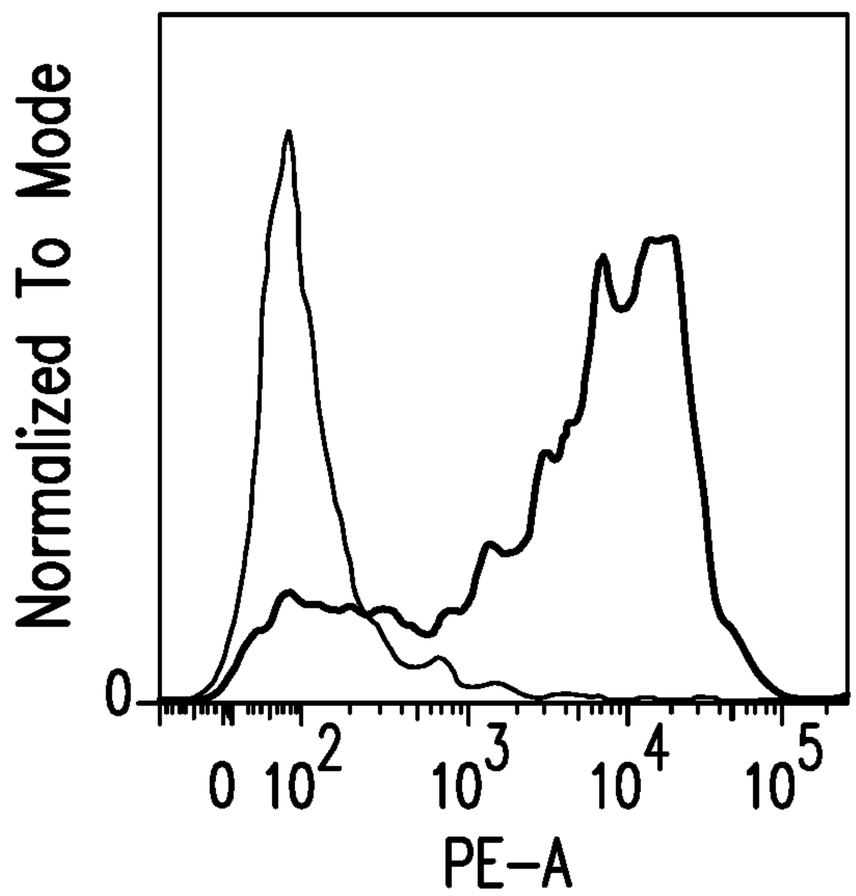
FIG. 6



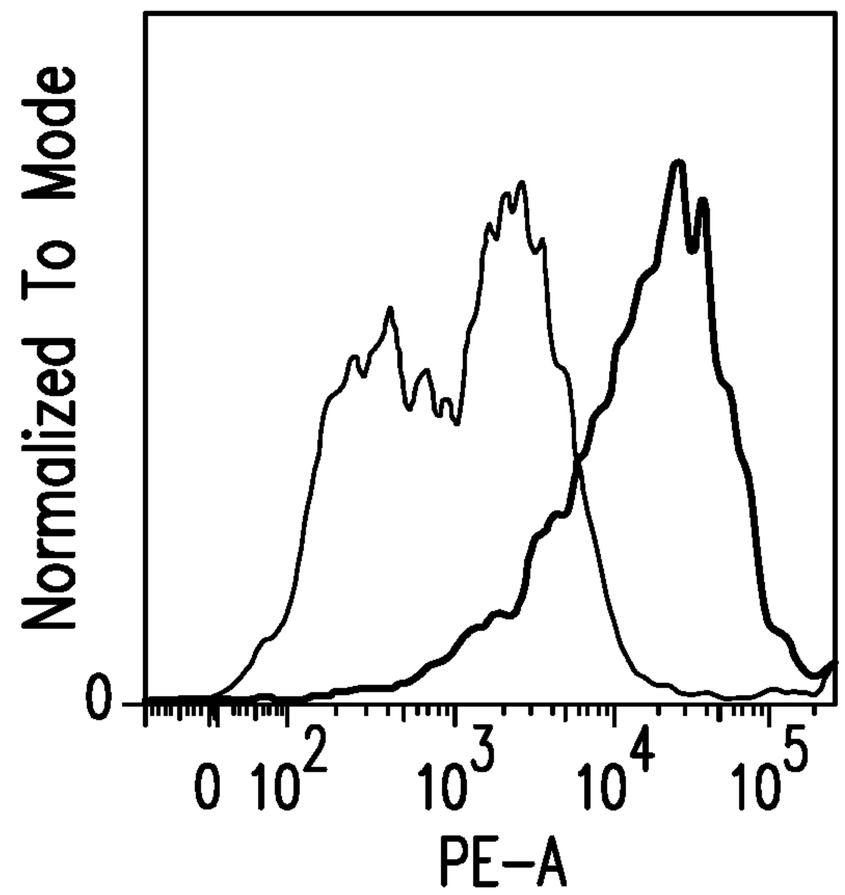
	Sample Name	Median, PE-A
- - -	E12+Raji-FcRL5.fcs	1.80E4
- - -	E12+NIH 3T3.fcs	309
——	E12+3T3-FcRL5-Delta.fcs	415
——	E12+3T3-FcRL5.fcs	3.52E4

FIG. 6 (continued)

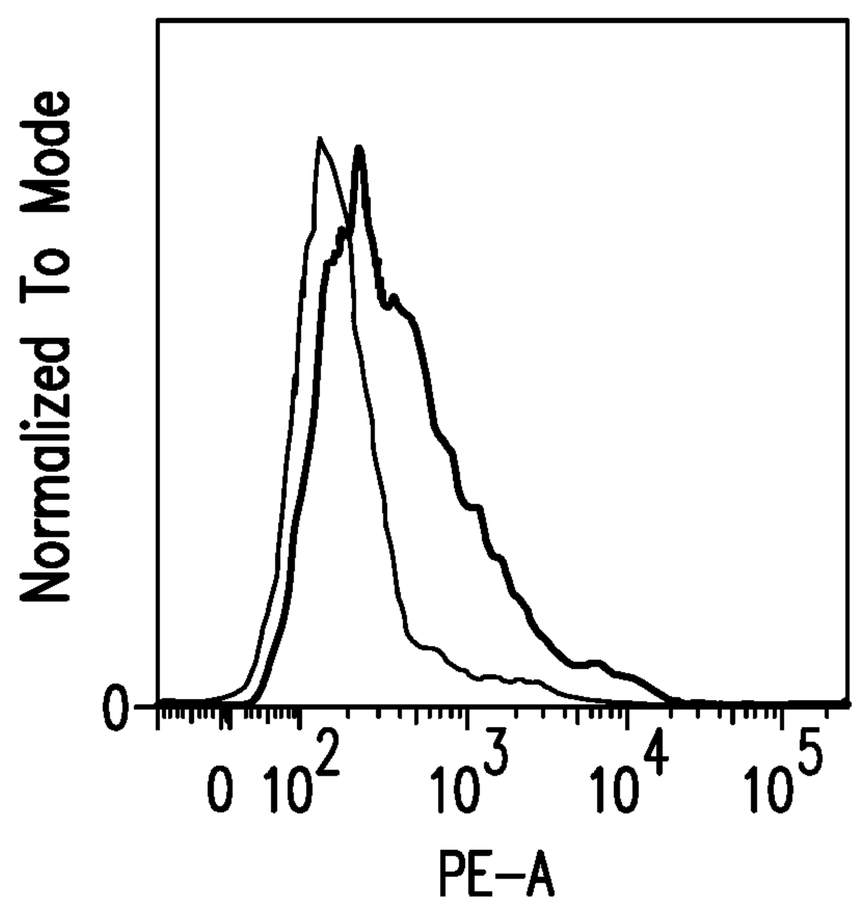
ET200-109



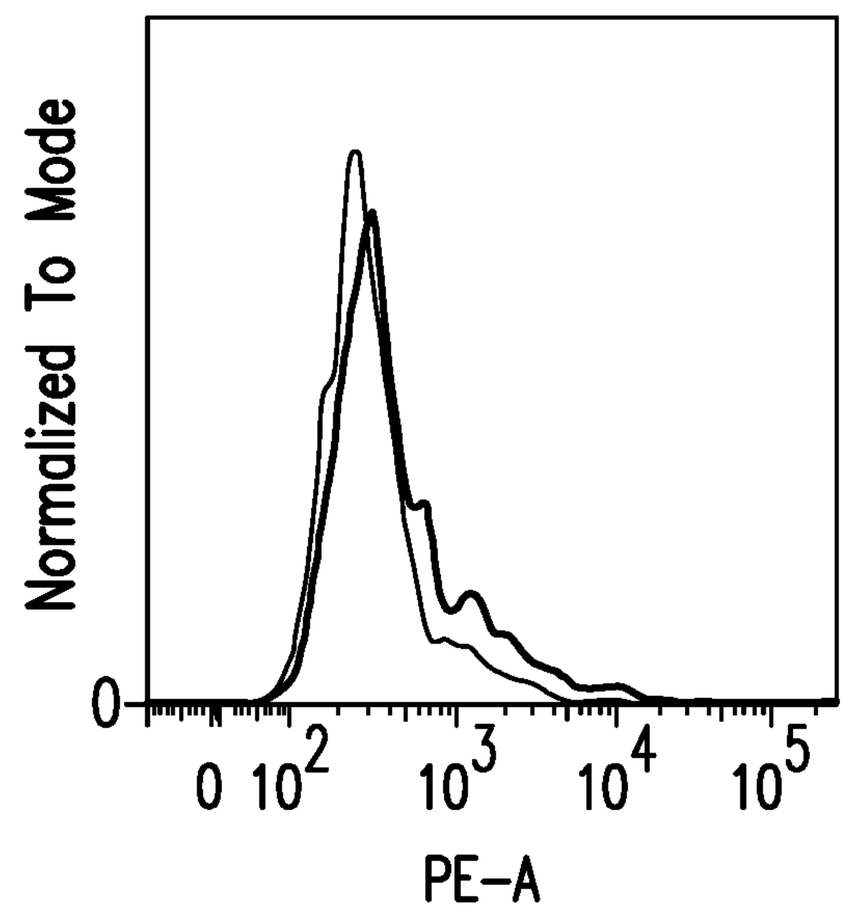
	Sample Name	Median, PE-A
——	F04+Raji-FcRL5.fcs	6161
——	A04+Raji-FcRL5.fcs	82.1



	Sample Name	Median, PE-A
——	F04+3T3-FcRL5.fcs	1.75E4
——	A04+3T3-FcRL5.fcs	1137



	Sample Name	Median, PE-A
——	F04+3T3-FcRL5-Delta.fcs	328
——	A04+3T3-FcRL5-Delta.fcs	162

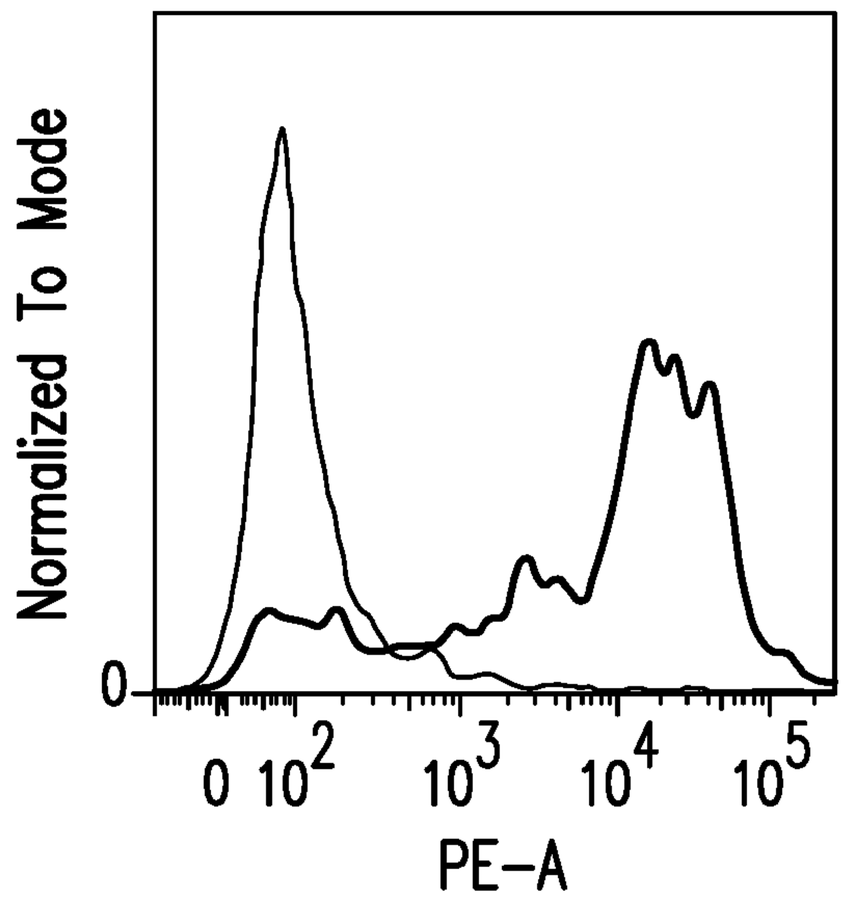


	Sample Name	Median, PE-A
——	F04+NIH 3T3.fcs	343
——	A04+NIH 3T3.fcs	271

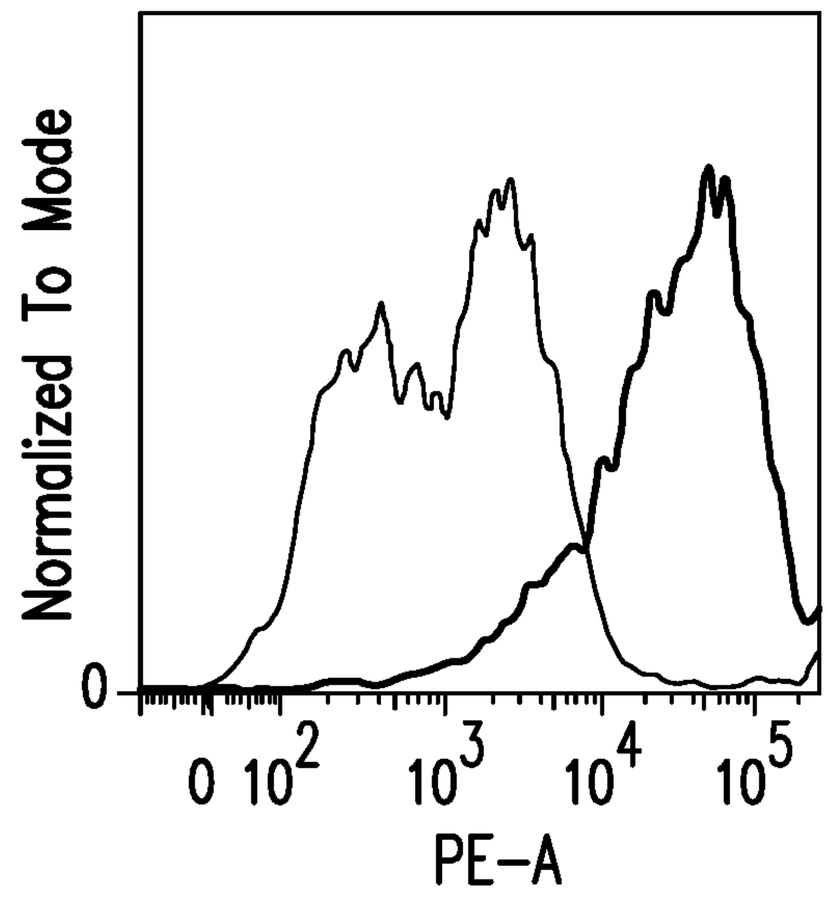
—— Negative control phage —— ET200 phage

FIG. 7

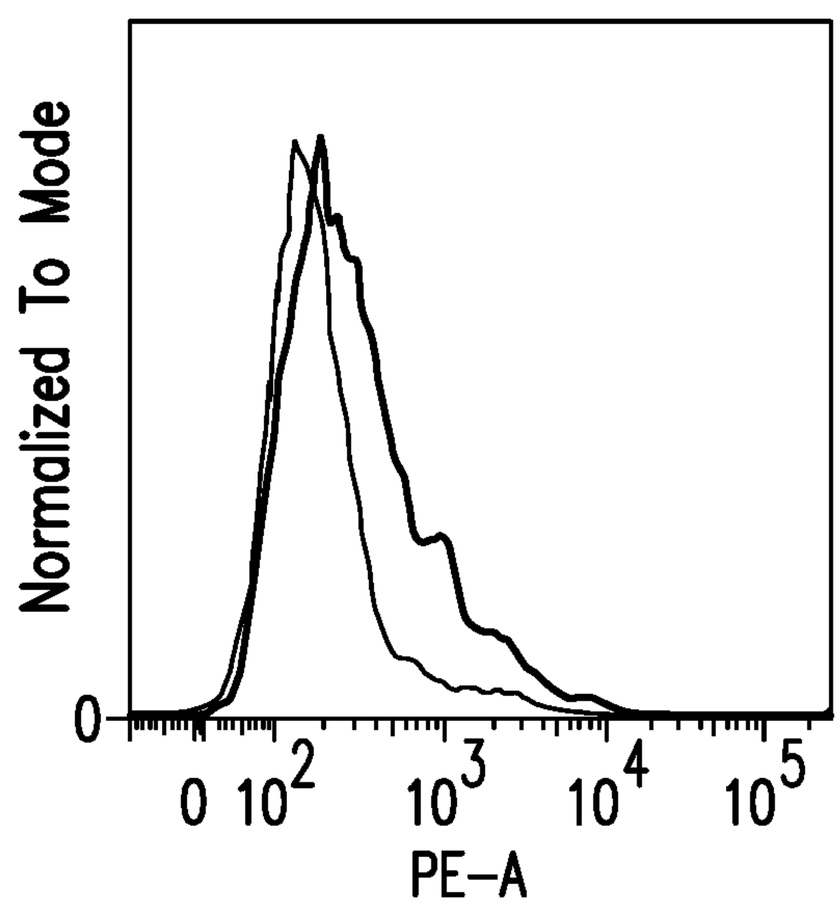
ET200-117



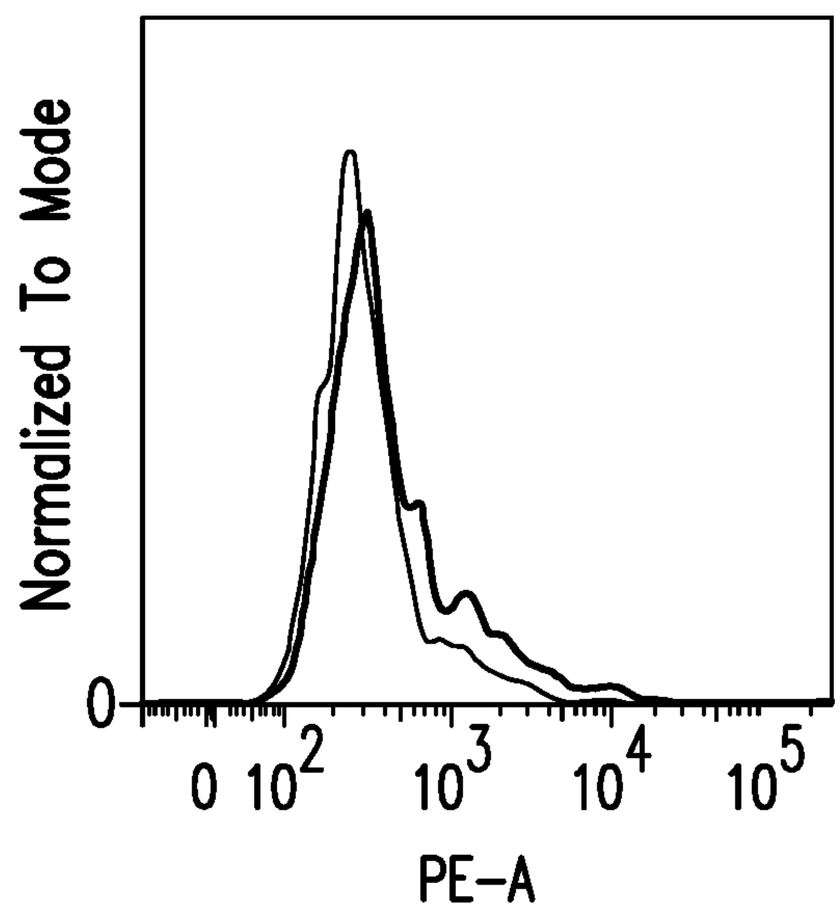
	Sample Name	Median, PE-A
——	F12+Raji-FcRL5.fcs	1.27E4
——	A04+Raji-FcRL5.fcs	82.1



	Sample Name	Median, PE-A
——	F12+3T3-FcRL5.fcs	3.23E4
——	A04+3T3-FcRL5.fcs	1137



	Sample Name	Median, PE-A
——	F12+3T3-FcRL5-Delta.fcs	260
——	A04+3T3-FcRL5-Delta.fcs	162



	Sample Name	Median, PE-A
——	F12+NIH 3T3.fcs	317
——	A04+NIH 3T3.fcs	271

—— Negative control phage —— ET200 phage

FIG. 8

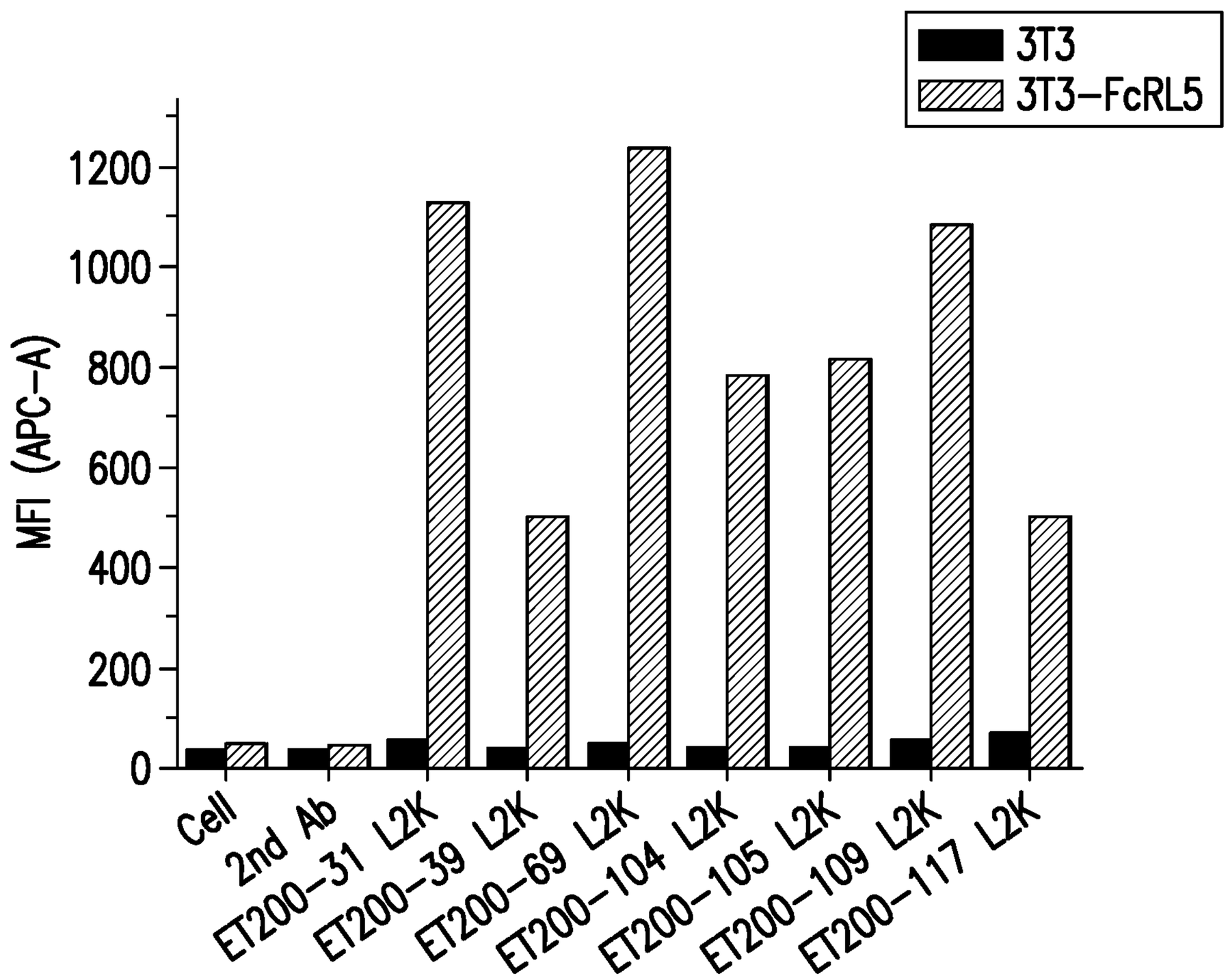
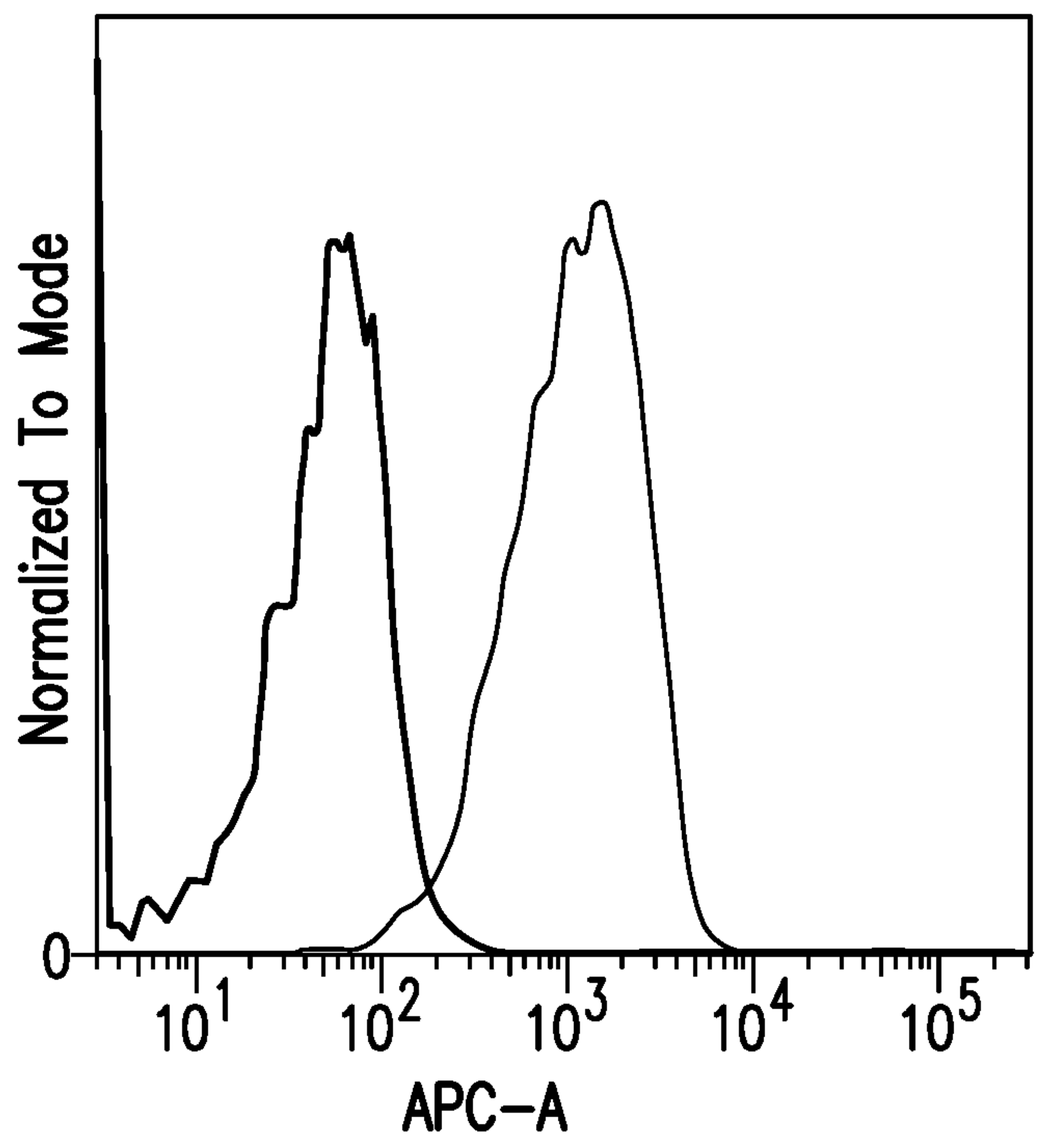
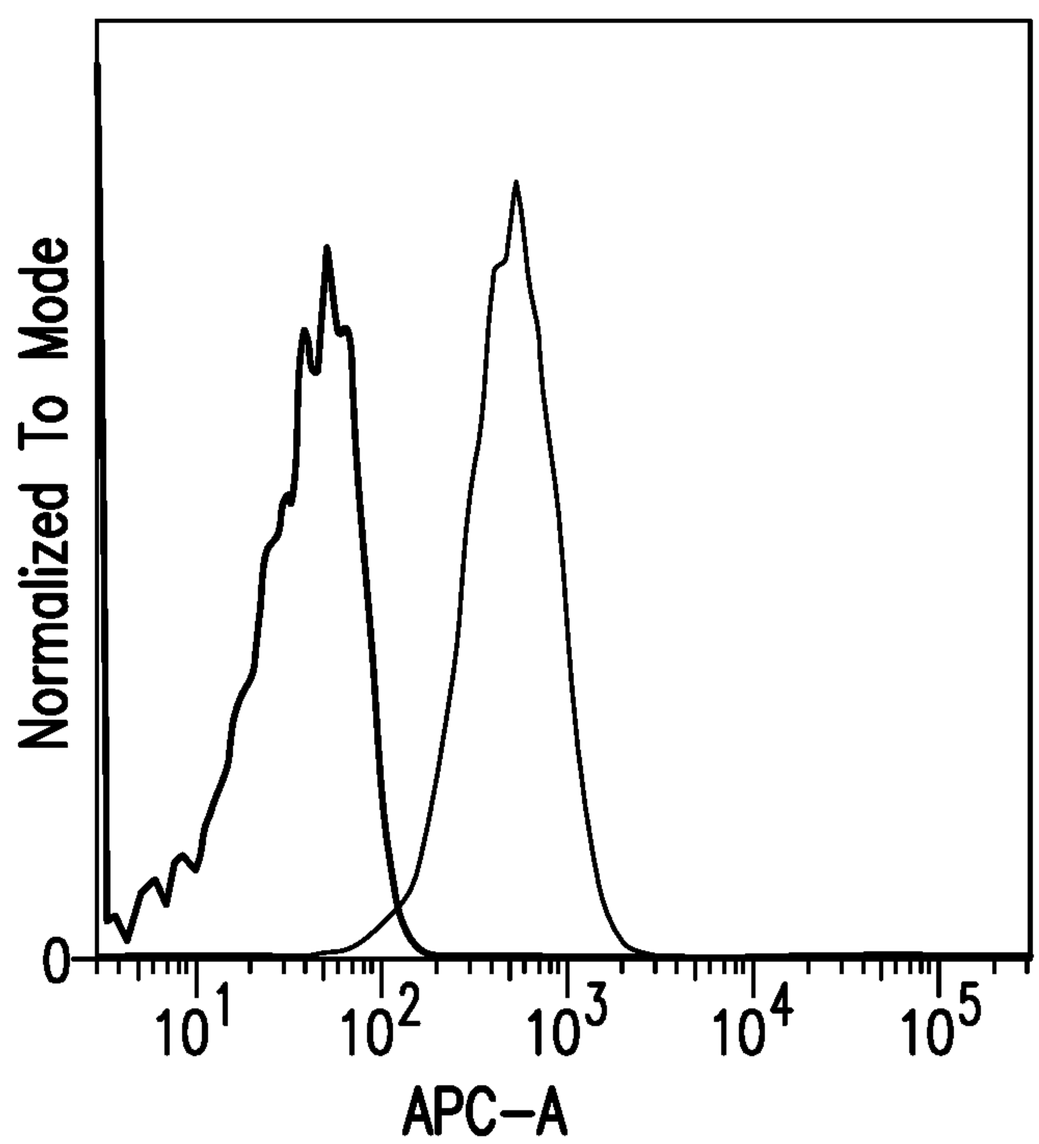

3T3
3T3-FcRL5
MFI (APC-A)
0
200
400
600
800
1000
1200
Cell
2nd Ab
ET200-31 L2K
ET200-39 L2K
ET200-69 L2K
ET200-104 L2K
ET200-105 L2K
ET200-109 L2K
ET200-117 L2K

FIG. 9A

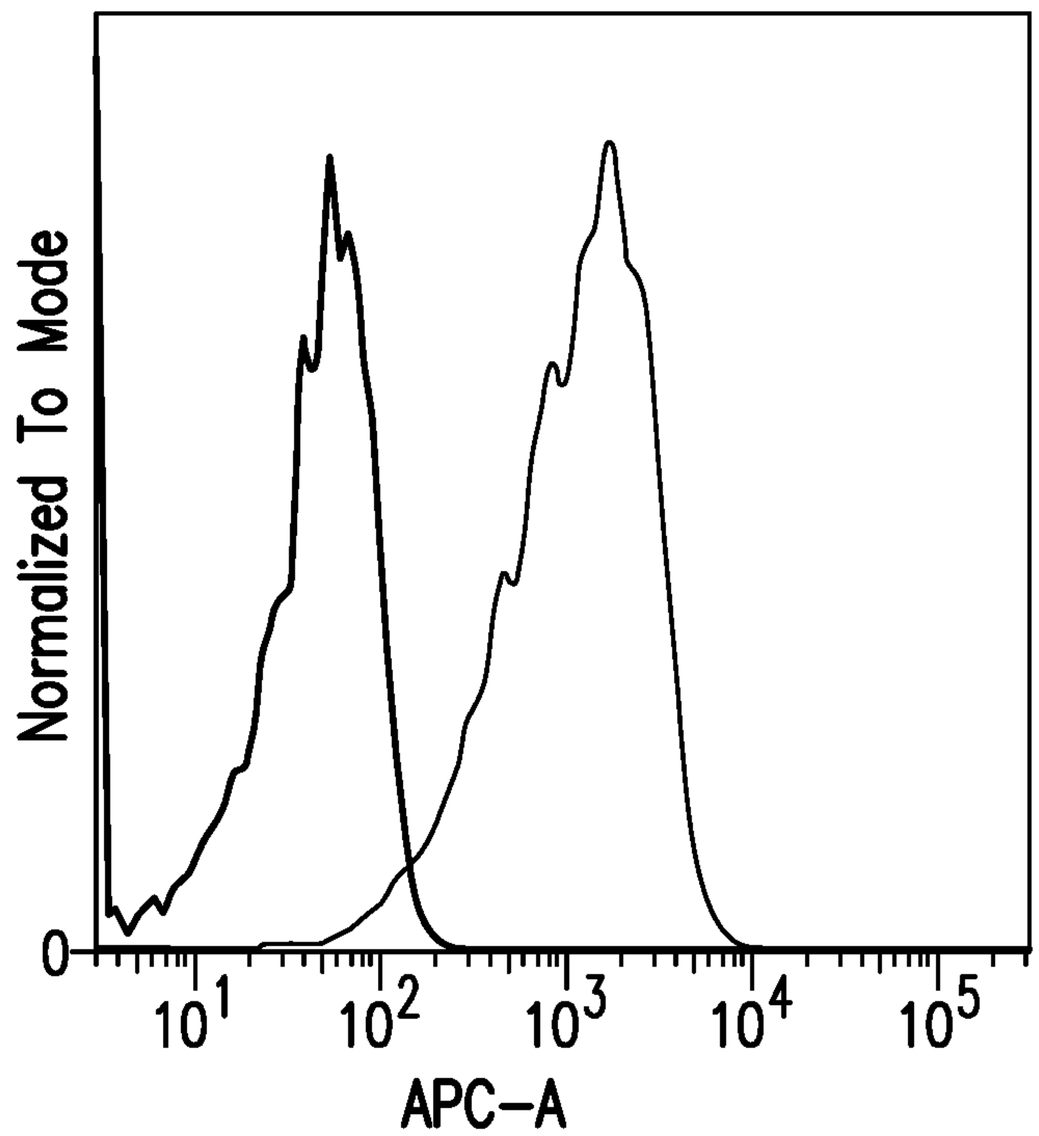


	Sample Name	Median, APC-A
—	A03 3T3+ ET200-31 L2K.fcs	50.4
—	B03 3T3-FcRL5+ ET200-31 L2K.fcs	1126

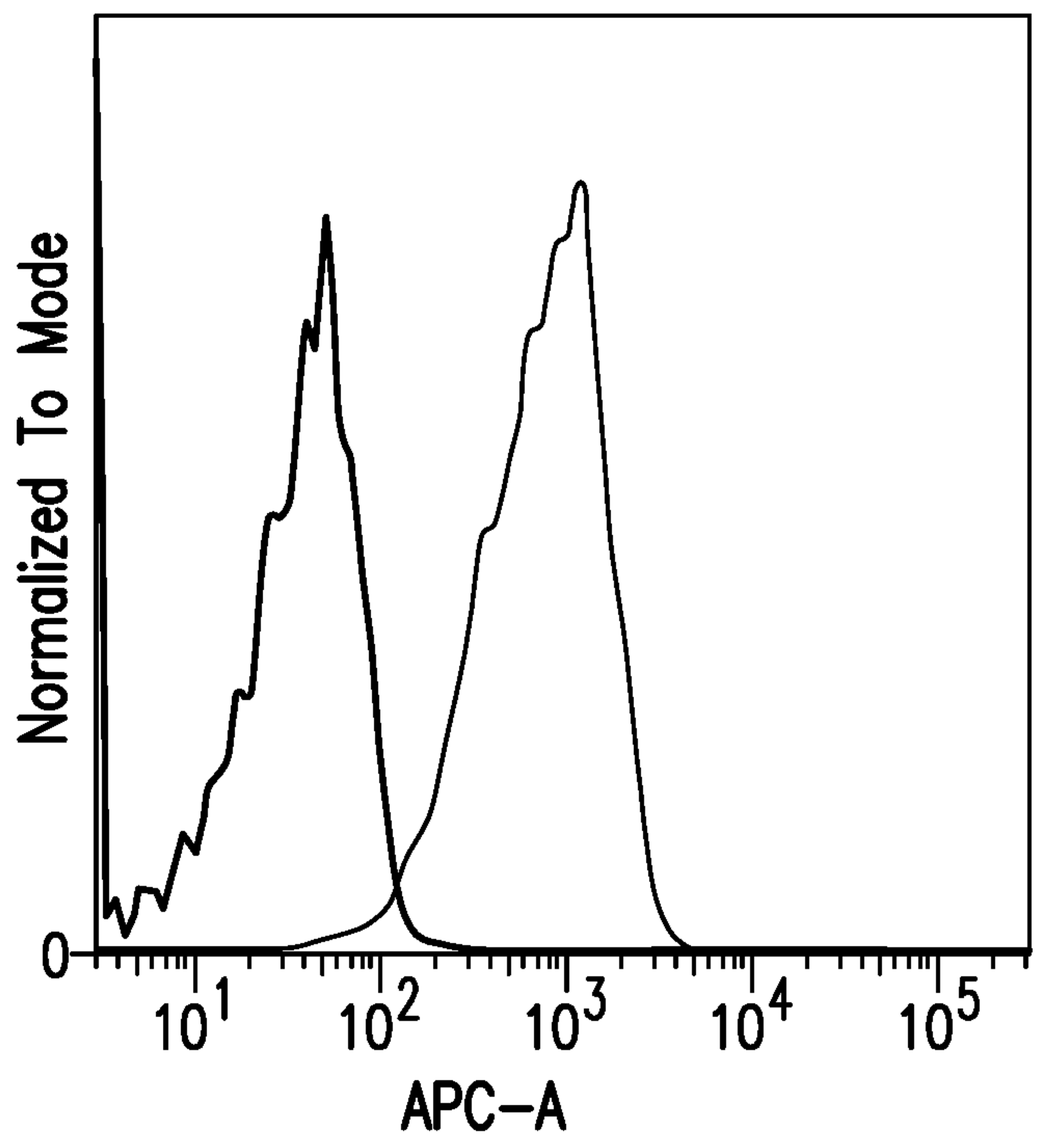


	Sample Name	Median, APC-A
—	A04 3T3+ ET200-39 L2K.fcs	35.0
—	B04 3T3-FcRL5+ ET200-39 L2K.fcs	493

FIG. 9B

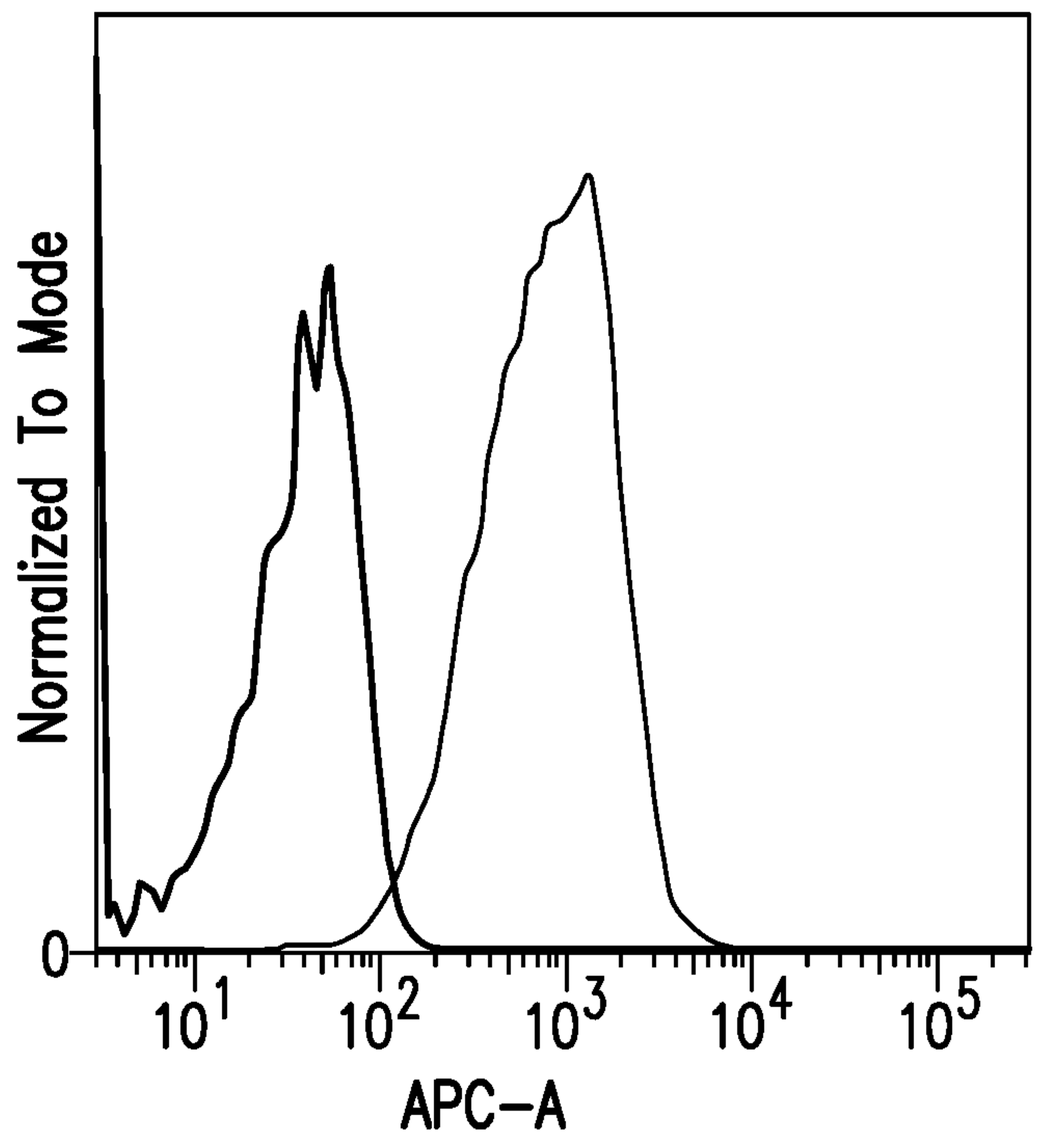


	Sample Name	Median, APC–A
—	A05 3T3+ ET200–69 L2K.fcs	46.1
—	B05 3T3–FcRL5+ ET200–69 L2K.fcs	1231

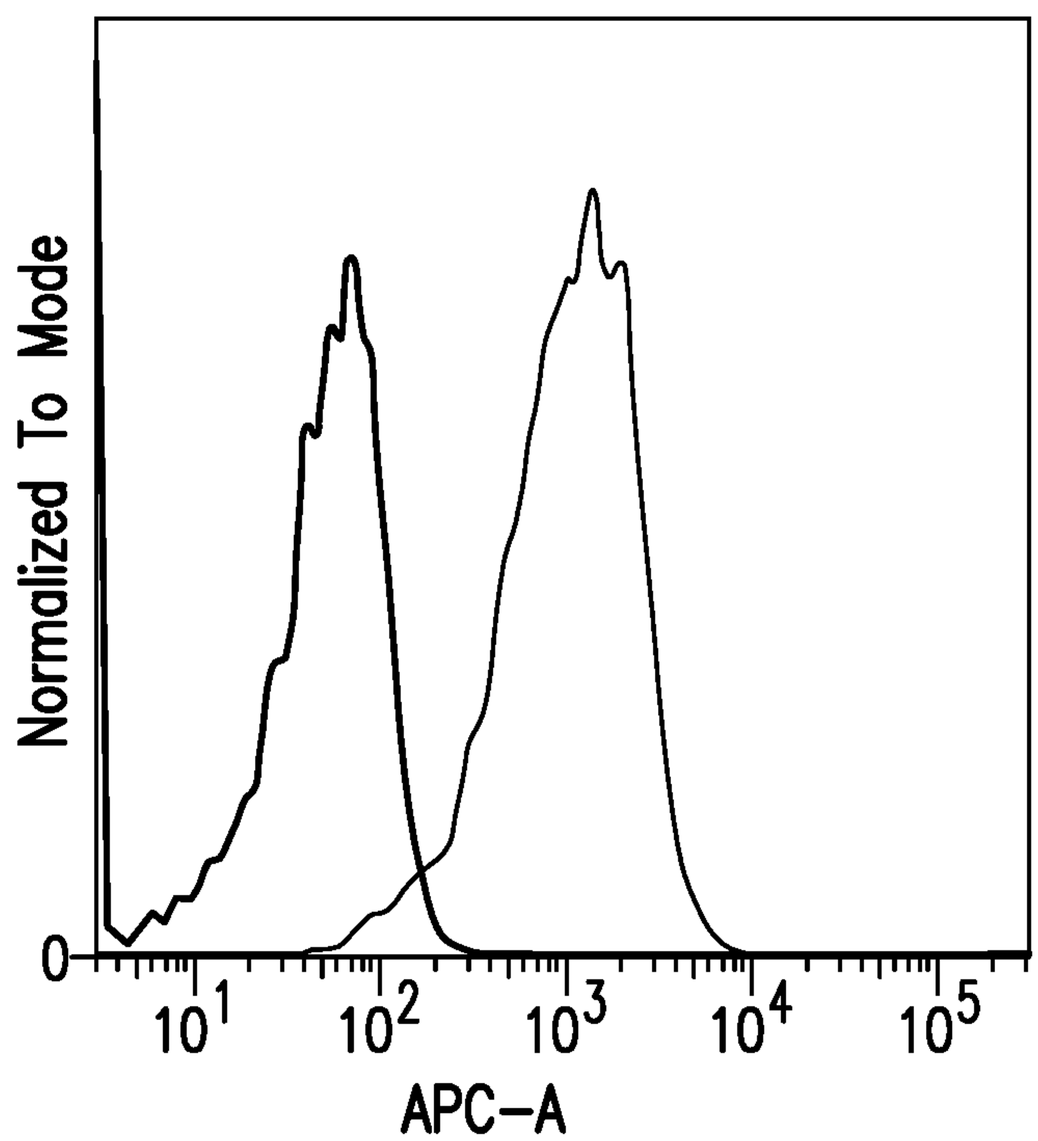


	Sample Name	Median, APC–A
—	A06 3T3+ ET200–104 L2K.fcs	35.1
—	B06 3T3–FcRL5+ ET200–104 L2K.fcs	779

FIG. 9B (continued)

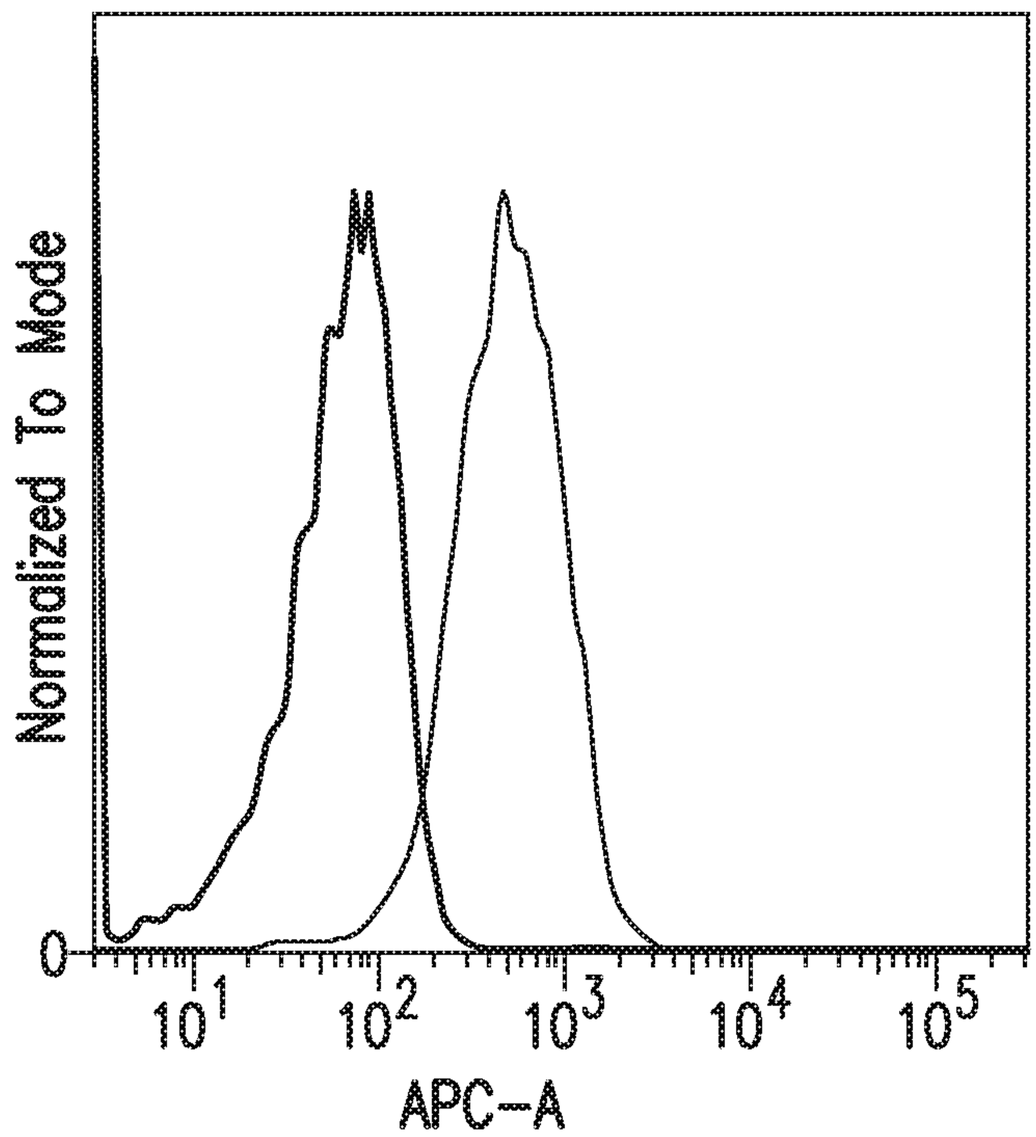


	Sample Name	Median, APC–A
—	A07 3T3+ ET200–105 L2K.fcs	35.6
—	B07 3T3–FcRL5+ ET200–105 L2K.fcs	812

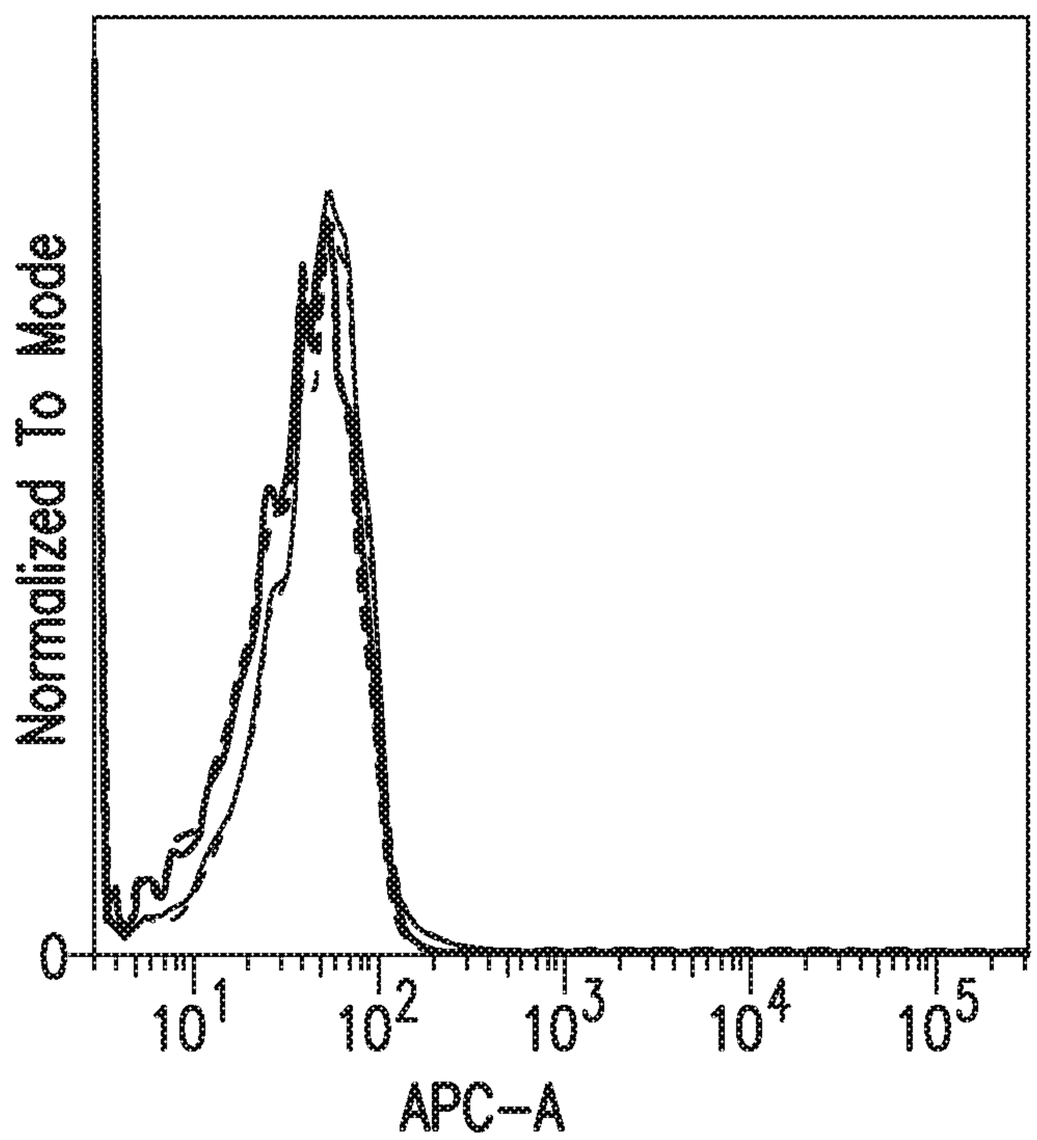


	Sample Name	Median, APC–A
—	A08 3T3+ ET200–109 L2K.fcs	51.6
—	B08 3T3–FcRL5+ ET200–109 L2K.fcs	1080

FIG. 9B (continued)



	Sample Name	Median, APC-A
——	A09 3T3+ ET200-117 L2K.fcs	63.6
——	B09 3T3-FcRL5+ ET200-117 L2K.fcs	495



	Sample Name	Median, APC-A
— —	A01 3T3.fcs	33.0
— —	B01 3T3-FcRL5.fcs	45.1
——	A02 3T3+ 2nd Ab.fcs	33.8
——	B02 3T3-FcRL5+ 2nd Ab.fcs	44.9

FIG. 9B (continued)

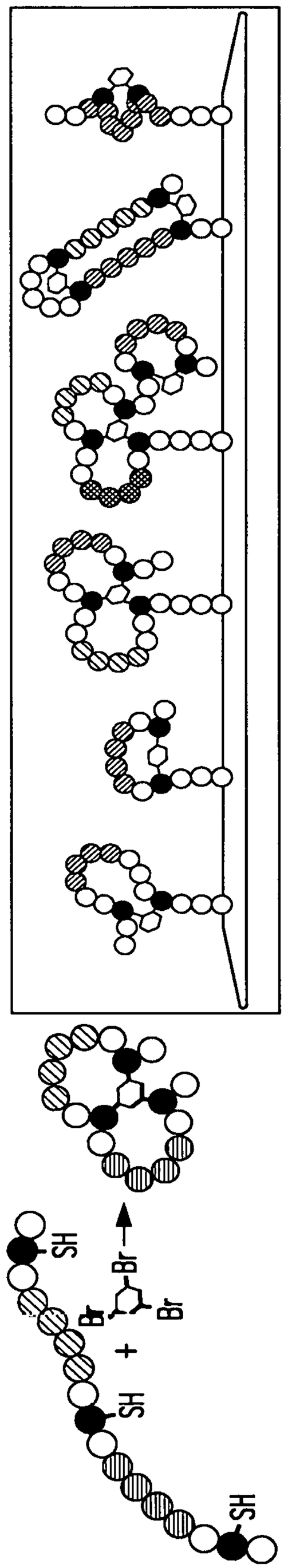


FIG. 10

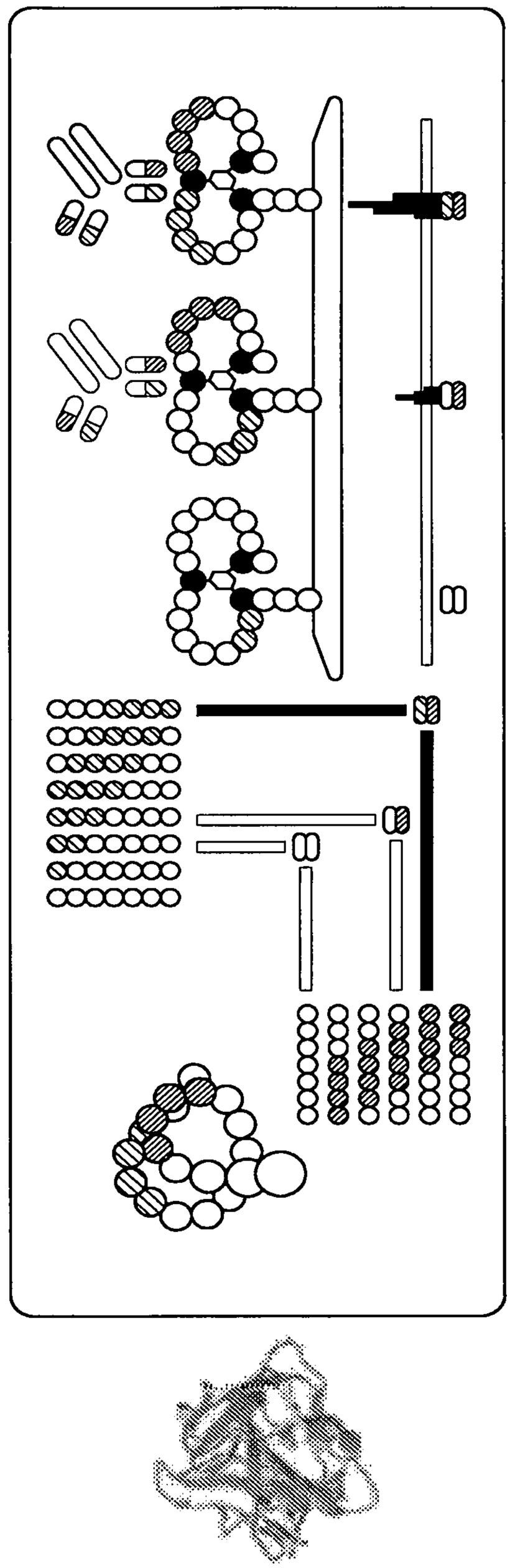


FIG. 11

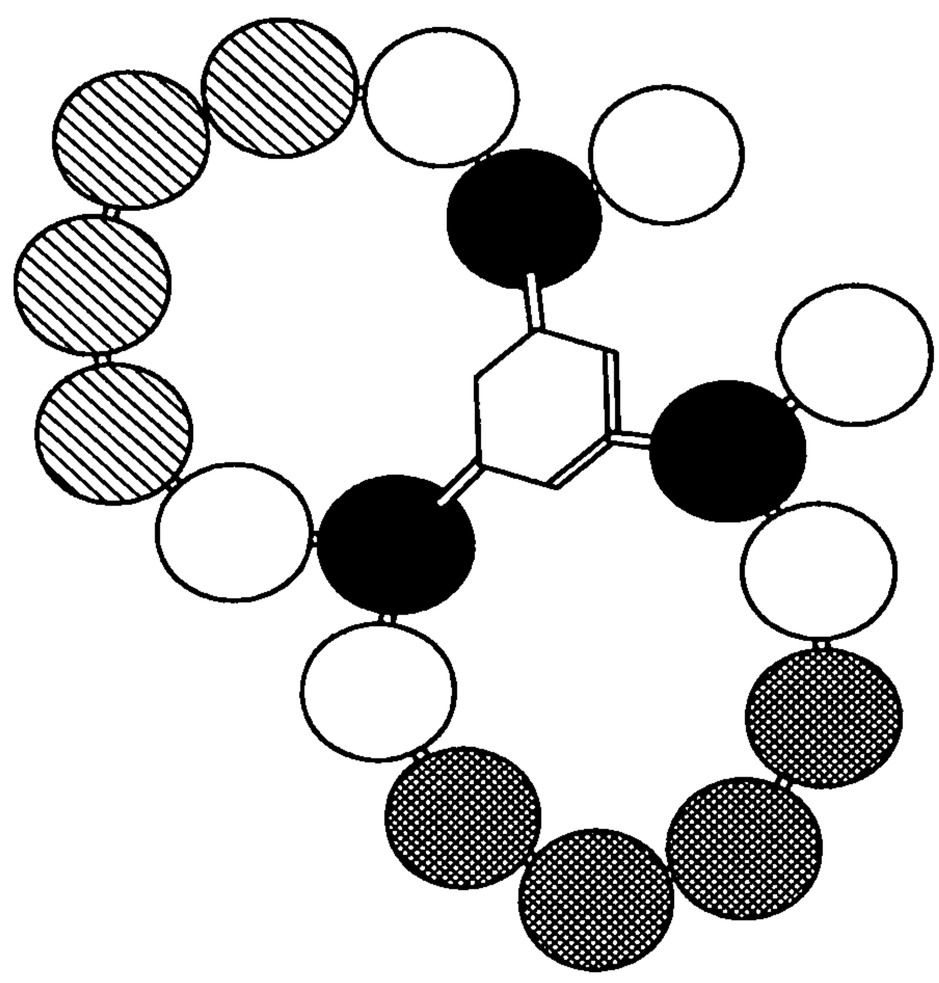


FIG. 12

Loop 1	Loop 2	ELISA
CMDYDFKVKLSSERERC	WAIGCIFAELLTSEPC	−0.01
CMDYDFKVKLSSERERC	CIFAELLTSEPIFHCC	0.79
CMDYDFKVKLSSERERC	ELLTSEPIFHCRQEDC	1.21
CMDYDFKVKLSSERERC	SEPIFHCRQEDIKTSC	0.36
CFKVKLSSERERVEDLC	WAIGCIFAELLTSEPC	0.17
CFKVKLSSERERVEDLC	CIFAELLTSEPIFHCC	1.19
CFKVKLSSERERVEDLC	ELLTSEPIFHCRQEDC	1.24
CFKVKLSSERERVEDLC	SEPIFHCRQEDIKTSC	0.56
CLSSERERVEDLFEYEC	WAIGCIFAELLTSEPC	0.61
CLSSERERVEDLFEYEC	CIFAELLTSEPIFHCC	1.21
CLSSERERVEDLFEYEC	ELLTSEPIFHCRQEDC	1.41
CLSSERERVEDLFEYEC	SEPIFHCRQEDIKTSC	0.58
CRERVEDLFEYEGCKVC	WAIGCIFAELLTSEPC	0.10
CRERVEDLFEYEGCKVC	CIFAELLTSEPIFHCC	0.83
CRERVEDLFEYEGCKVC	ELLTSEPIFHCRQEDC	1.21
CRERVEDLFEYEGCKVC	SEPIFHCRQEDIKTSC	−0.02

FIG. 13A

Loop 1	WAIGCIFAELLTSEP	CIFAELLTSEPIFHC	ELLTSEPIFHCRQED	SEPIFHCRQEDIKTS
MDYDFKVKLSSERER	−0.01	0.79	1.21	0.36
FKVKLSSERERVEDL	0.17	1.19	1.24	0.56
LSSERERVEDLFEYE	0.61	1.21	1.41	0.58
RERVEDLFEYEGCKV	0.10	0.83	1.21	−0.02

Loop 2

FIG. 13B

FIG. 13C

	WAIGCIFAELLTSEP	CIFAELLTSEPIFHC	ELLTSEPIFHCRQED	SEPIFHCRQEDIKTS
MDYDFKVKLSSERER	−0.01	0.79	1.21	0.36
FKVKLSSERERVEDL	0.17	1.19	1.24	0.56
LSSERERVEDLFEYE	0.61	1.21	1.41	0.58
RERVEDLFEYEGCKV	0.10	0.83	1.21	−0.02

FIG. 13D

FIG. 14

FIG. 15

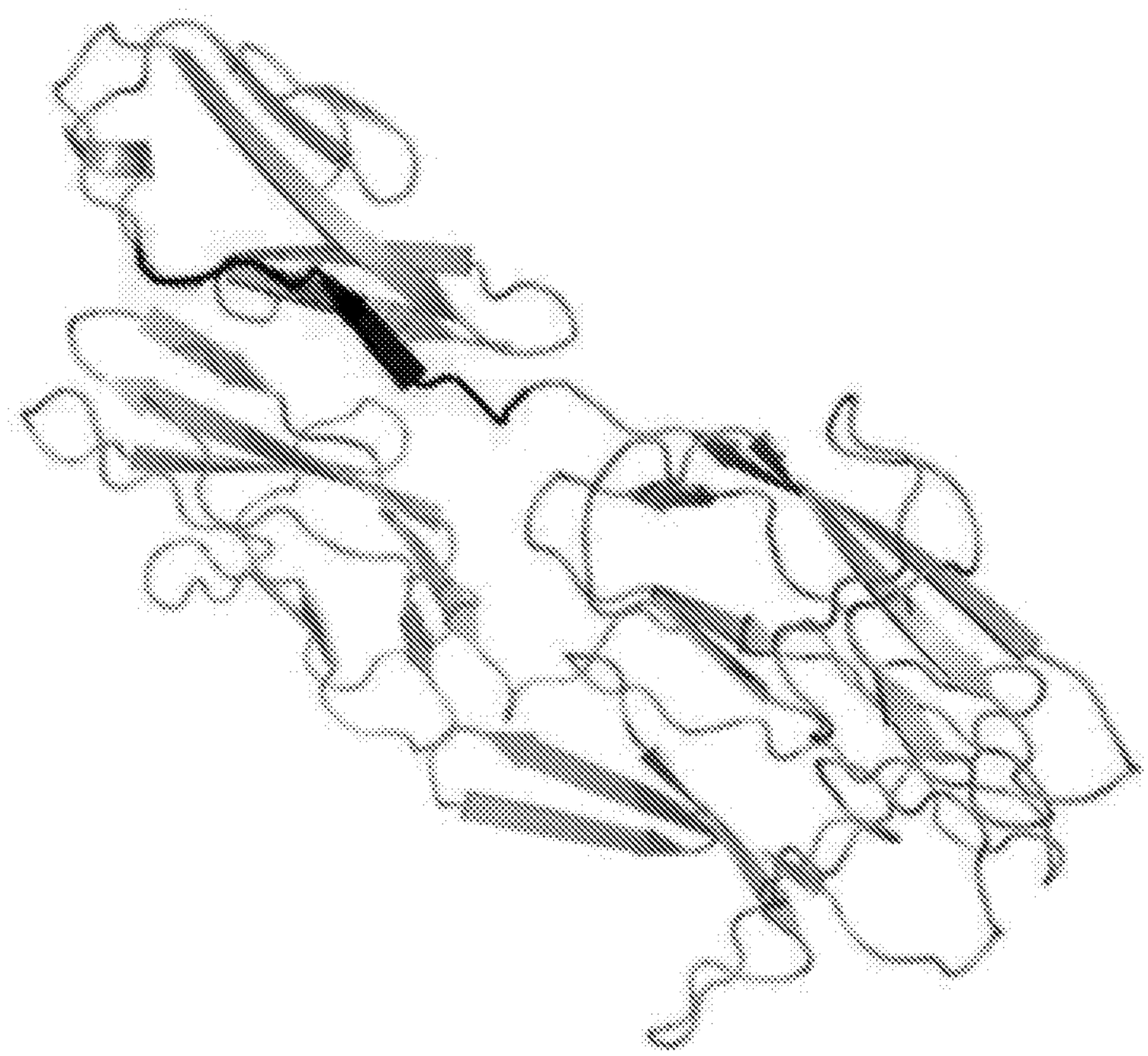


FIG. 16

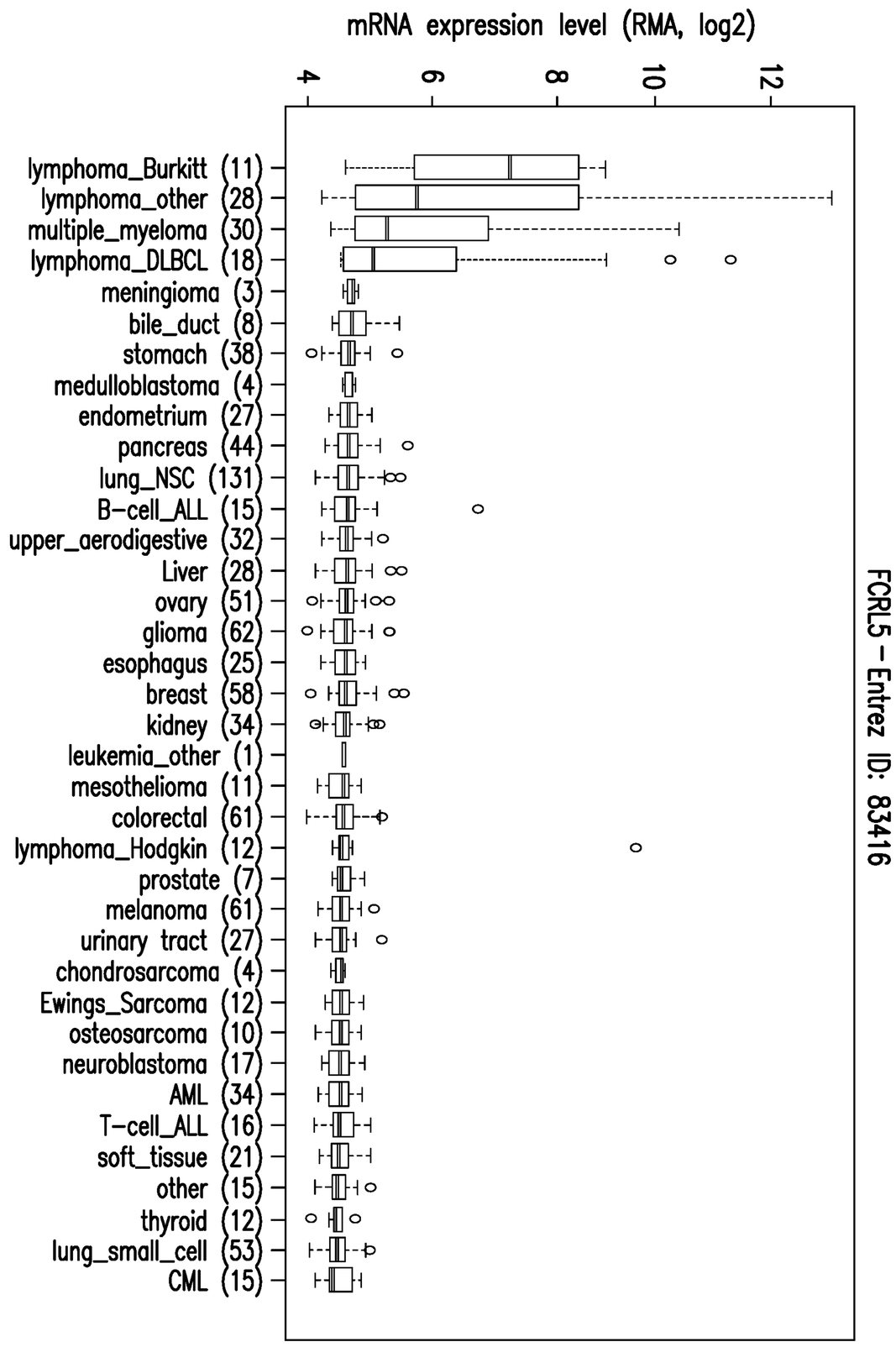


FIG. 1

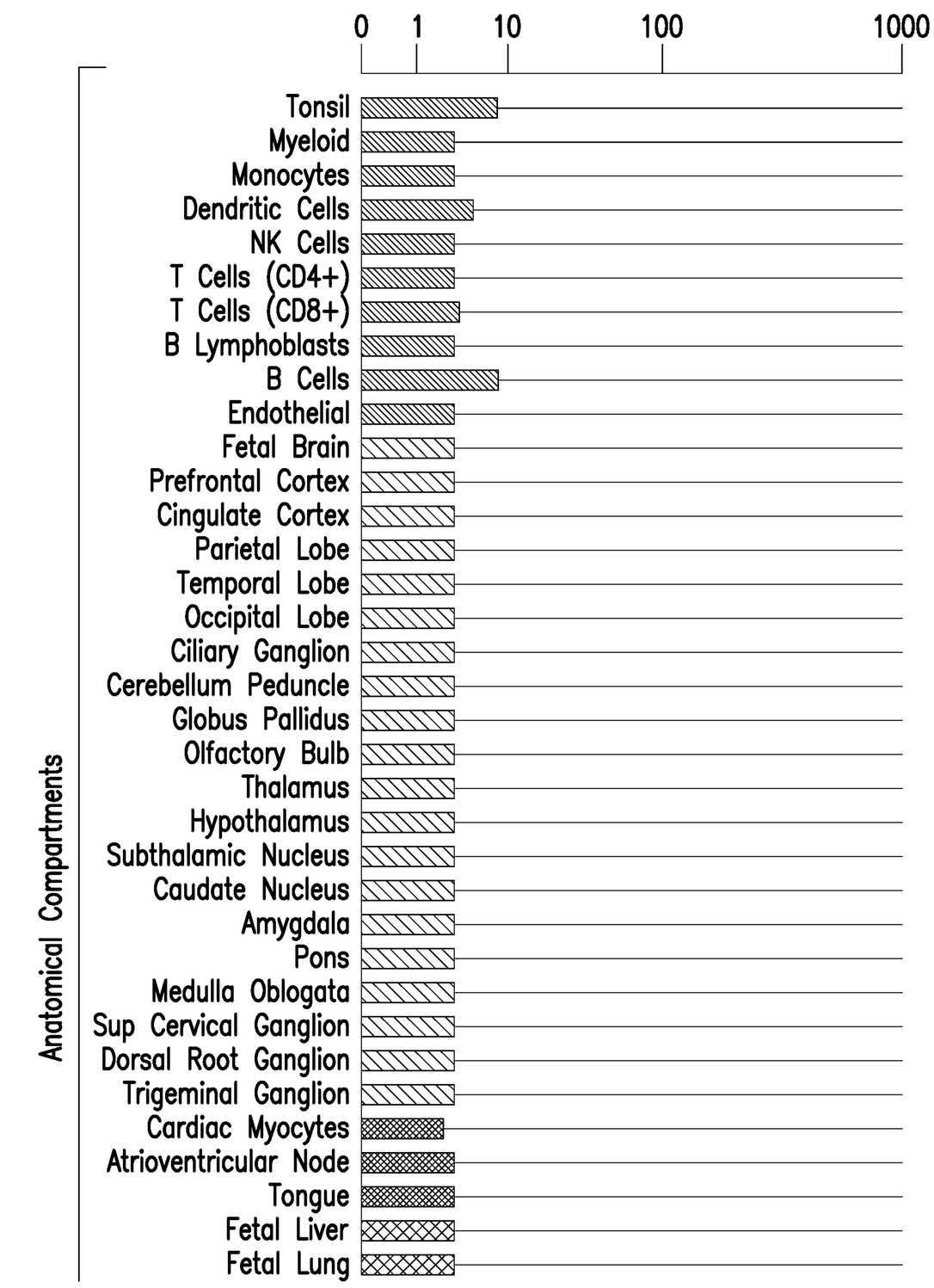


FIG. 1 (continued)

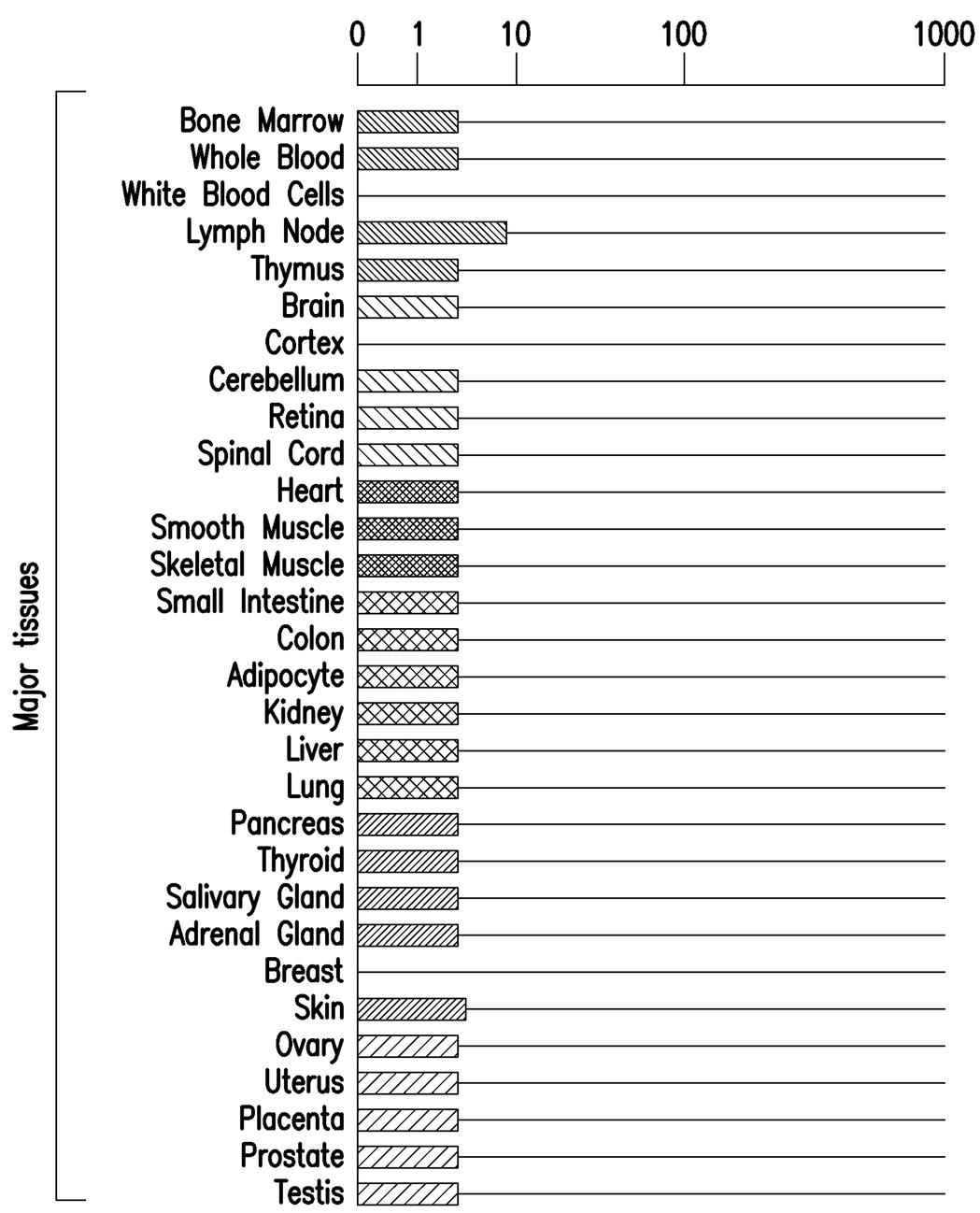


FIG. 1 (continued)

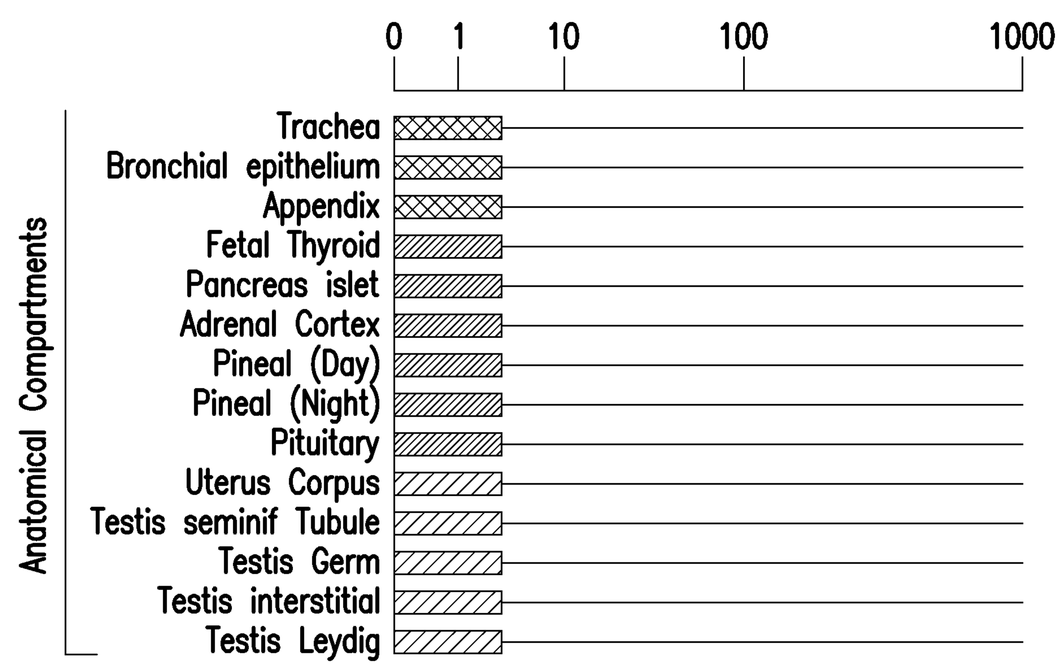


FIG. 1 (continued)