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(54) **Titre : PROCEDE DE DETECTION D'AU MOINS UN MECANISME DE RESISTANCE AUX CEPHALOSPORINES PAR SPECTOMETRIE DE MASSE**
(54) **Title: METHOD OF DETECTING AT LEAST ONE MECHANISM OF RESISTANCE TO CEPHALOSPORINS BY MASS SPECTROMETRY**

(57) **Abrégé/Abstract:**

The invention relates to a method for the mass spectrometry-based detection of at least one marker of at least one mechanism of resistance to at least one antimicrobial agent, for at least one microorganism included in a sample. The method is characterised in that the antimicrobial agent is a cephalosporin, and said resistance markers are proteins or peptides. Preferably, the proteins or peptides are proteins of the aforementioned microorganism.

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(54) Title : METHOD FOR DETECTING AT LEAST ONE CEPHALOSPORIN RESISTANCE MECHANISM BY MEANS OF MASS SPECTROMETRY

(54) Titre : PROCÉDE DE DETECTION D'AU MOINS UN MECANISME DE RESISTANCE AUX CEPHALOSPORINES PAR SPECTROMETRIE DE MASSE

(57) Abstract : The invention relates to a method for the mass spectrometry-based detection of at least one marker of at least one mechanism of resistance to at least one antimicrobial agent, for at least one microorganism included in a sample. The method is characterised in that the antimicrobial agent is a cephalosporin, and said resistance markers are proteins or peptides. Preferably, the proteins or peptides are proteins of the aforementioned microorganism.

(57) Abrégé : L'invention porte sur un procédé de détection, par spectrométrie de masse, d'au moins un marqueur d'au moins un mécanisme de résistance à au moins un antibiotique, résistance d'au moins un microorganisme compris dans un échantillon, caractérisé en ce que l'antimicrobien est une céphalosporine, et lesdits marqueurs de résistance sont des protéines ou des peptides. De façon préférentielle, lesdits protéines ou peptides sont des protéines dudit microorganisme.



WO 2012/143534 A3

DEMANDES OU BREVETS VOLUMINEUX

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JUMBO APPLICATIONS / PATENTS

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

THIS IS VOLUME __1__ OF __2__

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Method of detecting at least one mechanism of resistance to cephalosporins by mass spectrometry

The present invention relates to the field of microbiology. More precisely, the
5 invention relates to the detection of at least one mechanism of resistance to
cephalosporins of at least one microorganism from a sample by using mass
spectrometry.

Since Pasteur's discovery of microbes, microorganisms have been studied by
microscopy and biochemical analyses. These conventional methods are often long
10 and tedious, and analytical alternatives were sought very early on. This is why the
analysis of bacteria by mass spectrometry was initiated from 1975 by J. Anhalt and
C. Fenselau [1].

This preliminary work was followed by the study of fatty acids from the wall of the
microorganisms using gas chromatography combined with mass spectrometry (GC-
15 MS) [2]. This method was popularised under the English term FAME, standing for
Fatty Acid Methyl Ester. It currently constitutes a reference method for taxonomic
studies. However, its use remains limited to certain specialised laboratories dealing
with the treatment of the sample by saponification, hydrolysis and derivation.

In 1996, the works by M. Claydon et al. [3] as well as by T. Krishnamurthy and P.
20 Ross [4] demonstrated the possibility of identifying different bacterial species with a
MALDI-TOF mass spectrometer (English acronym for Matrix Assisted Laser
Desorption Ionization – Time Of Flight). The analysis combines the acquisition of a
mass spectrum and the interpretation of expert software. It is extremely simple and
can be carried out in a few minutes. However it has only been making it into medical
25 analysis laboratories fairly recently [5]. Its clinical use is currently limited to the
identification of bacteria and yeast species. It is not routinely used to identify
resistances to antimicrobials.

Yet the identification of resistances to antimicrobials such as antibiotics is an
essential element in ensuring optimal patient care.

30 Other mass spectrometry methods, particularly in tandem, have been proposed to
meet these needs. By way of example, it is possible to cite the work of C. Fenselau
et al. for identifying β -Lactamase with a quadripole-TOF (Q-TOF) [6].

However these research results are not applicable to routine clinical use. They were
obtained with research instruments requiring highly qualified personnel. The analysis

times, often greater than one hour per sample, are incompatible with the workload of a microbiological analysis laboratory.

More recently, S. Hofstadler et al. [7] proposed a method combining a microbial genome amplification by PCR to a detection of the PCR products by electrospray-TOF (ESI-TOF). This method is now fully automated [8]. However, it requires a PCR
5 amplification with the flaws inherent in molecular biology, namely extraction yield, cost of the probes, etc.

In this context, the objective of the present invention is to propose a method of detecting mechanisms of resistance to cephalosporins which makes it possible to
10 overcome the disadvantages of the prior art methods, namely providing an inexpensive method, without reagents specific to each species, particularly compared to molecular biology methods, which gives a result in a short amount of time, less than one hour, and which can be used in routine clinical work, without requiring highly qualified personnel.

15 To this end, the invention proposes a new method of detecting, by mass spectrometry, at least one mechanism of resistance to at least one antimicrobial of at least one microorganism from a sample, characterised in that the antimicrobial is a cephalosporin and in that proteins and/or peptides are detected as markers of said mechanism of resistance to at least one cephalosporin-class antibiotic.

20 Advantageously, markers of resistance to several different antimicrobials can be detected simultaneously.

As indicated in application PCT/FR2010/052181, markers of type and/or virulence of said microorganisms can be detected in the same way by mass spectrometry prior to or at the same time as the detection of the resistance mechanism markers.

25

Markers of resistance to at least one cephalosporin-class antimicrobial is understood to mean molecules of protein origin which are characteristic of said properties.

Cephalosporins are antibiotics belonging to the beta-lactam family. They are usually classified in several subclasses:

- 30 - first-generation cephalosporins, such as cefazolin, cephalothin, cefaclor, cephalexin, which are broken down by the beta-lactamases of groups 1 and 2b, 2br, 2be, 2ber

- second-generation cephalosporins, such as cefamandole, cefpodoxime, cefuroxime, which are broken down by the beta-lactamases of groups 1, 2be, 2ber
- third-generation cephalosporins, such as cefotaxime, ceftazidime, ceftriaxone, cefixime, which are broken down by the beta-lactamases of groups 1, 2be, 2ber, even though they are more stable than the first-generation and second-generation cephalosporins
- fourth-generation cephalosporins, such as cefepime and cefpirome, which are broken down by the beta-lactamases of groups 2be and 2ber
- cephalosporins exhibiting anti-MRSA activity such as ceftaroline and ceftobiprole, which are broken down by the beta-lactamases of groups 2be and 2ber
- cephamycins, such as cefoxitin, cefotetan, cefmetazole, which are broken down by the beta-lactamases of group 1

15

Determination of the resistance to at least one antimicrobial is understood to mean determining the susceptibility of a microorganism to being destroyed by an antimicrobial. The proteins involved in the resistance mechanisms will differ depending on the family and the species.

The nomenclature of the beta-lactamases, beta-lactam-resistant bacterial enzymes, is not standardised. They are either classified in four molecular classes (A to D) on the basis of their primary structure, or in functional groups on the basis of the target substrates and their resistance to inhibitors (for an overview, see [9] Bush and Jacoby, *Antimicrobial Agents and Chemotherapy*, 2010; 54 (3): 969-976). For molecular classification, sequencing techniques have made more precise classification possible: for example, 183 variants of the TEM protein have been described (labelled TEM-i, with i being between 1 and 183). For the functional classification, Bush and Jacoby (*supra*) have proposed new functional subgroups:

- the group 1 enzymes are cephalosporinases belonging to the molecular class C. ACC, ACT, MIR, MOX, DHA, CMY and FOX are plasmid-borne enzymes, belonging to this subgroup.
- the group 2 enzymes belong to molecular classes A and D. This group is itself subdivided into subgroups: 2a, 2b, 2be, 2br, 2ber, 2c, 2ce, 2d, 2de, 2df, 2f,

etc. CTX-M (2be), SHV (2b, 2be or 2br), PER (2be), VEB (2be) and TEM (2b, 2be, 2br or 2ber) are enzymes belonging to this group.

- 5 ○ The subgroup 2a corresponds to beta-lactamases which hydrolyse benzylpenicillin and penicillin derivatives, but which do not hydrolyse cephalosporins, carbapenems or monobactams.
- 10 ○ The subgroup 2b corresponds to broad-spectrum beta-lactamases which hydrolyse first-generation penicillins and cephalosporins such as cephaloridine and cephalothin, and which are inhibited by clavulanic acid, sulfobactam, or tazobactam. The variants TEM-1, TEM-2 and SHV-1 belong to this subgroup.
 - 15 ▪ The subgroup 2b corresponds to extended-spectrum beta-lactamases (ESBL) which are also inhibited by clavulanic acid, sulfobactam, or tazobactam. These enzymes, in addition to the properties of subgroup 2b, hydrolyse at least one oxyimino-beta-lactam such as cefotaxime or ceftazidime, and monobactams such as aztreonam. This subgroup contains numerous variants of TEM and SHV, variants of PER and VEB, as well as CTX-M, BEL-1, BES-1, SFO-1, TAL-1 and TAL-2.
 - 20 ▪ The subgroup 2br corresponds to beta-lactamases from the subgroup 2b which are insensitive to inhibition by clavulanic acid, sulfobactam or tazobactam. This subgroup contains variants of the enzymes TEM and SHV.
 - 25 ▪ The subgroup 2ber corresponds to beta-lactamases from the subgroup 2be which are insensitive to inhibition by clavulanic acid, sulfobactam or tazobactam. This subgroup contains TEM variants.
- 30 ○ The subgroup 2ce is characterised by its ability to hydrolyse carbenicillin or ticarcillin, as well as cefepime and ceftipime. CARB-10 is part of this subgroup.
- The subgroup 2d includes the OXA beta-lactamases capable of hydrolysing cloxacillin or oxacillin. The OXAs (or oxacillinases) correspond to class-D beta-lactamases, according to their primary sequence, and they can confer resistances to cephalosporins or to

cephalosporins and to carbapenems (Poirel et al., 2010, Antimicrobio. Agents Chemother., 54:24-38).

- The subgroup 2de includes OXAs having an extended spectrum extended to oxy-imino-beta-lactams, but not to carbapenems.
- 5
 - The subgroup 2df includes OXAs having a spectrum extended to carbapenems.
 - The subgroup 2e corresponds to extended-spectrum cephalosporinases, which are inhibited by clavulanic acid or tazobactam.
 - 10
 - The subgroup 2f corresponds to carbapenemases such as SME, KPC or certain variants of GES. The first GES beta-lactamase was isolated in 1998 in French Guiana (Poirel et al., 2000, Antimicrobio. Agents Chemother., 43:622-632). This enzyme (GES-1) conferred an ESBL resistance (subgroup 2be). The second isolate from a bacterium bearing a GES beta-lactamase was achieved in 2000 in South Africa (Poirel et al., 2001, Antimicrobio. Agents Chemother., 45: 2598-2603). This enzyme (GES-2) conferred a resistance to cephalosporins and to carbapenems such as imipenem (subgroup 2f).
 - The group 3 enzymes are metallo-beta-lactamases known for hydrolysing carbapenem-class antibiotics. The enzymes IMP, VIM, CAU, GOB or FEZ are part of this group.
- 20

The method of the invention can be employed to detect mechanisms of resistance to cephalosporins in bacteria. Thus, for example, as bacteria in which it is possible to seek a mechanism of resistance to cephalosporins according to the method of the invention, non-exhaustive mention may be made of:

- the Enterobacteriaceae, using group 1 and group 2 proteins and peptides as a resistance marker;
- non-fermenting bacteria (*Pseudomonas aeruginosa*, *Acinetobacter baumannii*)
- 30 - etc.

It should further be noted that the strains known to be resistant to carbapenems are also resistant to cephalosporins and to penicillins. Therefore, a method of detecting a mechanism of resistance to carbapenems also makes it possible to detect a mechanism of resistance to cephalosporins and to penicillins.

The sample on which the method of the invention can be employed is any sample susceptible of containing a target microorganism. The sample can be of biological origin, either animal, vegetable or human. In this case it may correspond to a specimen of biological fluid (whole blood, serum, plasma, urine, cerebrospinal fluid, organic secretion, for example), a tissue specimen or isolated cells. This specimen can be used such as it is insofar as the markers of mechanisms of bacterial resistance to beta-lactams are available in the sample tested, or it can, prior to the analysis, undergo preparation by enrichment, extraction, concentration, purification, culturing, in accordance with methods known to the person skilled in the art.

10 The sample can be of industrial origin, or, according to a non-exhaustive list, can be an air specimen, a water specimen, a surface specimen, a part or a manufactured product, or a food product. Amongst the food samples, non-exhaustive mention can be made of a sample of a dairy product (yogurts, cheeses), of meat, of fish, of egg, of fruit, of vegetable, of water, of a beverage (milk, fruit juice, soda, etc.). These food samples can also come from sauces or ready meals. Finally, a food sample can come from an animal feed, such as animal meals.

Upstream of the detection by mass spectrometry, the sample to be analysed is preferably pre-treated to produce peptides from the entirety of the proteins present in the sample to fragment these proteins into peptides, for example by digestion with a proteolytic enzyme (protease), or by the action of a chemical reagent. In fact, the cleaving of the protein can be performed by a physico-chemical treatment, by a biological treatment or by a combination of the two treatments. Amongst the useable treatments, mention can be made of treatment by hydroxyl radicals, in particular with H_2O_2 . Treatment by hydroxyl radicals results in a cutting of the peptide bonds which takes place randomly on any of the protein's peptide bonds. The hydroxyl radical concentration determines the number of cleavages performed, and therefore the length of the peptide fragments obtained. Other chemical treatments can also be used such as, for example, cyanogen bromide (CNBr) treatment which specifically splits the peptide bonds at the carboxyl group of the methionyl residues. It is also possible to perform partial acid cleaving at the aspartyl residues by heating a solution of proteins in trifluoroacetic acid to 1000 °C.

30 Treatment of the proteins by enzymatic digestion is nevertheless preferred over physico-chemical treatment because it preserves more of the structure of the protein, and is easier to control. "Enzymatic digestion" is understood to mean the single or

combined action of one or more enzymes under appropriate reaction conditions. The enzymes carrying out the proteolysis, which are called proteases, cut the proteins at specific locations. Each protease generally recognises a sequence of amino acids within which it always makes the same cut. Certain proteases recognise a single amino acid or a sequence of two amino acids between which they perform a cleavage, whereas other proteases only recognise longer sequences. These proteases can be endoproteases or exoproteases. Amongst the known proteases, mention may be made of the following as described in WO2005/098071:

- specific enzymes such as trypsin which splits the peptide bond at the carboxyl group of the Arg and Lys residues, endolysin which cleaves the peptide bond of the -CO group of the lysines, chymotrypsin which hydrolyses the peptide bond at the carboxylic group of the aromatic residues (Phe, Tyr and Trp), pepsin which makes a cut at the NH₂ group of the aromatic residues (Phe, Tyr and Trp), the protease V8 from the V8 strain of *Staphylococcus aureus* which cleaves the peptide bond at the carboxylic group of the Glu residue;
- the non-specific enzymes such as thermolysin from the bacteria *Bacillus thermoproteolyticus* which hydrolyses the peptide bond of the NH₂ group of hydrophobic amino acids (Xaa-The, Xaa-Ile, Xaa-Phe), subtilisin and pronase which are bacterial proteases which hydrolyse practically all the bonds and can transform the proteins into oligopeptides under controlled reaction conditions (enzyme concentration and duration of reaction).

Several proteases may be used simultaneously, if their modes of action are compatible, or they may be used successively. Within the framework of the invention, the digestion of the sample is preferably performed by the action of a protease enzyme, for example trypsin.

The generation of peptides using a chemical reagent or a protease can be obtained by means of a simple reaction in solution. It can also be performed with a microwave oven [10], or under pressure [11], or even with an ultrasound device [12]. In these three latter cases, the protocol will be much faster.

Amongst the peptides thus obtained, the peptides specific to the protein are referred to as proteotypic peptides. It is these which will be assayed by mass spectrometry.

According to the invention, the markers of the mechanisms of bacterial resistance to cephalosporins are proteins from the bacterium in which the mechanisms of

resistance to cephalosporins are to be sought. In particular, said proteins are digested into peptides, preferably by an enzyme, and more preferably by trypsin.

Similarly, the sample containing protein markers characterising mechanisms of bacterial resistance to cephalosporins can also be pre-treated for the purposes of purification. This purification pretreatment can be employed before or after the peptide production step as described above.

The sample purification pretreatment is widely known to the person skilled in the art and may in particular employ the techniques of centrifugation, filtration, electrophoresis or chromatography. These separating techniques can be used alone or in combination with one another to obtain a multidimensional separation. For example, multidimensional chromatography can be used by combining separation by ion exchange chromatography with reversed-phase chromatography, as described by T. Fortin et al. [13], or H. Keshishian et al. [14]. In these publications, the chromatography medium can be in a column or in a cartridge (solid-phase extraction).

The electrophoretic or chromatographic fraction (or the retention time in monodimensional or multidimensional chromatography) of the proteotypic peptides is characteristic of each peptide, and employing these techniques therefore makes it possible to select the proteotypic peptide or peptides to be assayed. Such a fractionation of the produced peptides makes it possible to increase the specificity of the subsequent assay by mass spectrometry.

An alternative to the electrophoresis or chromatography techniques for the fractionation of the peptides consists in specifically purifying the N-glycopeptides ([15] and patent application WO 2008/066629). However, such a purification only makes it possible to quantify the peptides which have undergone an N-glycosylation post-translational modification. Not all proteins are glycosylated though, which therefore limits its use.

The mass spectrometry to be employed in the method of the invention is widely known to the person skilled in the art as a powerful tool for analysing and detecting different types of molecules. Generally, any type of molecule able to be ionised can be detected according to its molecular mass with the aid of a mass spectrometer. According to the nature of the molecule to be detected, whether of protein or metabolic origin, certain mass spectrometry technologies can be more suitable. Nevertheless, whatever mass spectrometry method is used for the detection, this

latter includes a step of ionising the target molecule into so-called molecular ions, in the present case a step of ionising the characterising markers, and a step of separating the molecular ions obtained according to their mass.

All mass spectrometers therefore comprise:

- 5 - an ionising source intended to ionise the markers present in the sample to be analysed, i.e. to confer a positive or negative charge upon these markers;
- a mass analyser intended to separate the ionised markers, or molecular ions, according to their mass-to-charge ratio (m/z);
- 10 - a detector intended to measure the signal produced either directly by the molecular ions, or by ions produced from molecular ions as detailed hereafter.

The ionisation step necessary for employing mass spectrometry can be performed via any method known to the person skilled in the art. The ionising source makes it
15 possible to transform the molecules to be assayed into a gaseous and ionised state. An ionising source can be used either in positive mode to study the positive ions, or in negative mode to study the negative ions. Several types of sources exist and will be used depending on the result sought and the molecules analysed. In particular, mention may be made of:

- 20 - electron ionisation (EI), chemical ionisation (CI) and desorption chemical ionisation (DCI)
- fast atom bombardment (FAB), metastable atom bombardment (MAB) or ion bombardment (SIMS, LSIMS)
- inductively coupled plasma (ICP)
- 25 - atmospheric-pressure chemical ionisation (APCI) and atmospheric-pressure photoionisation (APPI)
- electrospray or electrospray (ESI)
- matrix-assisted laser desorption/ionisation (MALDI), surface-activated laser desorption/ionisation (SELDI) or desorption/ionisation on silicon (DIOS)
- 30 - ionisation/desorption by interaction with metastable species (DART)

In particular, ionisation can be employed as follows: the sample containing the target molecules is introduced into an ionisation source, where the molecules are ionised in gaseous state and thus transformed into molecular ions which correspond to the initial molecules. An electrospray ionisation (ESI) source makes it possible to ionise a

molecule by making it pass from a liquid state into a gaseous state. The molecular ions obtained therefore correspond to the molecules present in liquid state, with, in positive mode, one, two, or even three or more additional protons and therefore carry one, two, or even three or more charges. For example, when the target molecule is a

5 protein, an ionisation of the proteotypic peptides obtained after fractionation of the target protein, by means of an electrospray source functioning in positive mode, leads to polypeptide ions in gaseous state, with one, two, or even three or more additional protons and which therefore carry one, two, or even three or more charges, and makes it possible to move from a liquid state to a gaseous state [16].

10 This type of source is particularly well suited when the target molecules or proteotypic peptides obtained are separated beforehand by reversed-phase liquid chromatography. Nevertheless, the ionisation yield of the molecules present in the sample may vary depending on the concentration and the nature of the different species present. This phenomenon leads to a matrix effect well known to the person

15 skilled in the art.

A MALDI ionisation source will allow ionisation of the molecules from a solid-state sample.

The mass analyser in which the step of separating the ionised markers according to their mass-to-charge ratio (m/z) is performed is any mass analyser known to the

20 person skilled in the art. Mention can be made of low-resolution analysers, quadrupole or quadrupole (Q), 3D ion trap (IT) or linear ion trap (LIT), also called ion trap, and high-resolution analysers which make it possible to measure the exact mass of the analytes and which in particular use the magnetic sector linked to an electric sector, the time of flight (TOF), Fourier transform ion cyclotron resonance

25 (FT-ICR), orbitrap.

The separation of the molecular ions depending upon their m/z ratio can be employed just once (single mass spectrometry or MS), or several successive MS separations can be conducted. When two successive MS separations are carried out,

30 the analysis is called MS/MS or MS^2 . When three successive MS separations are carried out, the analysis is called MS/MS/MS or MS^3 , and more generally, when n successive MS separations are carried out, the analysis is called MS^n .

Amongst the techniques which employ several successive separations, SRM (Selected Reaction Monitoring) mode when detecting or assaying a single target

molecule, or MRM (Multiple Reaction Monitoring) mode when detecting or assaying several target molecules are particular uses of MS² separation. Similarly the MRM³ mode is a particular use of MS/MS/MS separation. This is referred to as targeted mass spectrometry.

- 5 In the case of a detection in single MS mode, it is the mass-to-charge ratio of the molecular ions obtained which is correlated to the target molecule to be detected. In the case of detection in MS/MS mode, essentially two steps are added, compared to an MS assay, which are:

- 10 - a fragmentation of the molecular ions, then called precursor ions, to give ions called 1st generation fragment ions, and
- a separation of the ions called 1st generation fragment ions according to their mass $(m/z)_2$, the ratio $(m/z)_1$ corresponding to the ratio (m/z) of the precursor ions.

15 It is therefore the mass-to-charge ratio of the 1st generation fragment ions thus obtained which is correlated to the target molecule to be detected. First-generation fragment ion is understood to be an ion derived from the precursor ion, following a fragmentation step and of which the mass-to-charge ratio m/z is different from the precursor ion.

20 The $(m/z)_1$ and $(m/z)_2$ pairs are called transitions and are representative of the characteristic ions to be detected.

The choice of the characteristic ions which are detected to be correlated to the target molecule is made by the person skilled in the art in accordance with the standard methods. Their selection will advantageously lead to the most sensitive, specific and robust assays possible, in terms of reproducibility and reliability. In the methods developed for the selection of proteotypic peptides $(m/z)_1$, and of the first-generation fragment $(m/z)_2$, the choice is essentially based on the intensity of the response. For more details, it is possible to refer to V. Fusaro et al. [17]. Commercially available software, such as the MIDAS and MRM Pilot software from Applied Biosystems or MRMAid [18] can be used by the person skilled in the art to allow him to predict all
30 the possible transition pairs. He can also make use of a database called PeptideAtlas constructed by F Desiere et al. [19] to compile all of the MRM transitions of peptides described by the scientific community. This database PeptideAtlas is freely available on the internet. For non-protein molecules, it is also possible to use databases, such

as, for example, the one accessible through the Cliquant software from the company Applied Biosystems (United States of America).

An alternative approach to selecting the proteotypic peptides $(m/z)_1$ and $(m/z)_2$ consists in using MS/MS fragmentation spectra obtained during other work. This work can be, for example, the phases of biomarker discovery and identification by proteomic analysis. This approach was proposed by Thermo Scientific during user conferences [18]. It makes it possible to generate a list of candidate transitions from the peptides identified through testing by the SIEVE (Thermo Scientific) software. Certain criteria were detailed by J. Mead et al. [18] for the choice of the ions $(m/z)_1$ and $(m/z)_2$ and are detailed hereafter:

- peptides with internal cleavage sites, i.e. with internal Lysine or Arginine, must be avoided, unless the Lysine or Arginine is followed by Proline,
- peptides with Asparagine or Glutamine must be avoided because they may deaminate,
- peptides with Glutamine or Glutamic Acid at the N-terminal must be avoided because they may cyclise spontaneously,
- peptides with Methionine must be avoided because they may be oxidised,
- peptides with Cysteine must be avoided because they may be non-reproducibly modified during a potential step of denaturation, reduction and blocking of the thiol functions,
- peptides with Proline may be considered to be favourable because they generally produce intense fragments in MS/MS with a very strong single peak. However, a very strong single fragment does not make it possible to validate the identity of the transition in a complex mixture. Indeed, only the simultaneous presence of several characteristic fragments makes it possible to verify that the precursor ion sought has actually been detected,
- the peptides having a Proline adjacent to the C-terminal (Position n-1) or in second position relative to the C-terminal (position n-2) should be avoided because, in this case, the size of the first-generation peptide fragment is generally considered to be too small to be sufficiently specific,
- the selection of fragments having a mass greater than the precursor should be given preference in order to promote specificity. To this end, it is necessary to select a dicharged precursor ion and select the most intense

first-generation ion fragment having a mass greater than the precursor, i.e. a monocharged first-generation fragment ion.

The fragmentation of the selected precursor ions is performed in a fragmentation cell such as the triple quadrupole model [20], ion trap model [21], or time-of-flight (TOF) model [22], which also make it possible to separate ions. The fragmentation or fragmentations will be conventionally performed by collision with an inert gas such as argon or nitrogen, within an electrical field, by photo-excitation or photo-dissociation using an intense light source, collision with electrons or radical species, by applying a potential difference, for example in a time-of-flight tube, or by any other activation mode. The characteristics of the electrical field determine the intensity and nature of the fragmentation. Thus, the electrical field applied in the presence of an inert gas, for example in a quadrupole, determines the collision energy provided to the ions. This collision energy will be optimised, by the person skilled in the art, to increase the sensitivity of the transition to be assayed. By way of example, it is possible to vary the collision energy between 5 and 180 eV in q2 in an AB SCIEX QTRAP® 5500 mass spectrometer from the company Applied Biosystems (Foster City, United States of America). Similarly, the duration of the collision step and the excitation energy within, for example, an ion trap will be optimised by the person skilled in the art to lead to the most sensitive assay. By way of example, it is possible to vary this duration, called excitation time, between 0.010 and 50 ms and the excitation energy between 0 and 1 (arbitrary unit) in Q3 in an AB SCIEX QTRAP® 5500 mass spectrometer by the company Applied Biosystems.

Finally, the detection of the selected characteristic ions takes place in the conventional manner, particularly by means of a detector and a processing system. The detector collects the ions and produces an electrical signal whose intensity depends on the amount of ions collected. The signal obtained is then amplified such that it can be processed by computer. A computer data processing assembly makes it possible to transform the information received by the mass spectrum detector.

The principle of the SRM mode, or even of the MRM mode, is to specifically select a precursor ion, fragment it, and then specifically select one of its fragment ions. For such applications, triple quadrupole or hybrid triple quadrupole/ion trap devices are generally used.

In the case of a triple quadrupole device (Q1q2Q3) used in MS² mode, with a view to assaying or detecting a target protein, the first quadrupole (Q1) makes it possible to

filter the molecular ions corresponding to the proteotypic peptides characteristic of the protein to be assayed and obtained during an earlier digestion step, depending on their mass-to-charge ratio (m/z). Only the peptides having the mass-to-charge ratio of the proteotypic peptide sought, which ratio is called $(m/z)_1$, are transmitted
5 into the second quadrupole ($q2$) and act as precursor ions for the subsequent fragmentation. The analyser $q2$ can fragment the peptides of mass-to-charge ratio $(m/z)_1$ into first-generation fragment ions. Fragmentation is generally obtained through collision of the precursor peptides with an inert gas, such as nitrogen or argon in $q2$. The first-generation fragment ions are transmitted into a third quadrupole
10 ($Q3$) which filters the first-generation fragment ions depending on a specific mass-to-charge ratio, called $(m/z)_2$. Only the first-generation fragment ions having the mass-to-charge ratio of a fragment characteristic of the sought proteotypic peptide $(m/z)_2$ are transmitted into the detector in order to be detected, or even quantified.

This mode of operation exhibits a double selectivity, with regard to the selection of
15 the precursor ion on the one hand, and the selection of the first-generation fragment ion on the other hand. Mass spectrometry in SRM or MRM mode is therefore advantageous for quantification.

When the mass spectrometry employed in the method according to invention is tandem mass spectrometry (MS^2 , MS^3 , MS^4 or MS^5), several mass analysers can be
20 linked to one another. For example, a first analyser separates the ions, a collision cell makes it possible to fragment the ions, and a second analyser separates the fragment ions. Certain analysers, such as the ion traps or the FT-ICR, constitute several analysers in one and make it possible to fragment the ions and analyse the fragments directly.

25 According to preferred embodiments of the invention, the method of the invention comprises one or more of the following characteristics:

- the mass spectrometry employed for the properties of potential resistance to at least one antimicrobial is MS/MS spectrometry, which has the advantage of producing a fragment which is specific to the molecule to be
30 detected or quantified, and thus of providing great specificity to the assaying method;
- the MS/MS spectrometry is MRM which has the advantage of using an analysis cycle time in the mass spectrometer of several tens of milliseconds, which makes it possible to detect or quantify, with a high

degree of sensitivity, a large number of different molecules in a multiplexed manner;

- where applicable, the determination of the type properties and of the virulence factor is performed in the same mass spectrometry apparatus as the determination of the markers of resistance to at least one antimicrobial, preferably simultaneously, which has the advantage of reducing the analysis time and the cost of the instrument, which also facilitates the processing and the yielding of the results.

10 In addition to determining the resistance to an antibiotic, it is necessary to identify the microorganism or microorganisms present in the sample to be tested.

The methods of identifying microorganisms are widely known to the person skilled in the art, as described for example by Murray P. R. et al. in Manual of Clinical Microbiology, 2007, 9th edition, and especially in Vol. I, Section III, chapters 15 and 16 for bacteria and yeasts, Vol. II, Section VI, chapter 82 for viruses, and Vol. II, 15 Section X, chapter 135 for protozoa. As an example of conventional identification methods, mention can be made of the determination of the biological profile, by using the Vitek 2 (bioMérieux) identification cards, for example, or even by using molecular biology techniques with identification criteria based on the study of the presence of certain genes, and on the study of their sequence.

20 Identification can be performed directly from the sample in which the identification is made, or the microorganisms contained in the sample can be cultured using methods well known to the person skilled in the art with optimal culture media and culturing conditions tailored to the species of microorganisms to be sought, as described by Murray P.R. et al. in Manual of Clinical Microbiology, 2007, 9th edition, Vol. I, Section 25 III, chapter 14, and in particular in Vol. I, Section IV, chapter 21 for bacteria, and Vol. II, Section VI, chapter 81 for viruses, Vol. II, Section VIII, chapter 117 for yeasts, and Vol. II, Section X, chapter 134 for protozoa.

Thus, generally, in the case of an identification using a biochemical method of a bacterium in a specimen, it is first necessary to obtain it in a pure culture, for example 30 after seeding on agar. Molecular biology (PCR) can in certain cases be applied directly to the sample to be analysed.

Instead of cultivating the microorganisms, they can be concentrated by capture directly in the sample by means of active surfaces. Such a method was described by W.-J. Chen et al. [11] who captured different bacterial species with the aid of

magnetic beads with an $\text{Fe}_3\text{O}_4/\text{TiO}_2$ -activated surface. Capture by other means is also possible, such as a capture by lectins [23], or by antibodies [24], or by Vancomycin [25]. The capture makes it possible to concentrate the microorganisms and thus to reduce or even eliminate the culture step. This results in a considerable time saving.

The identification may also be performed by mass spectrometry, in accordance with the techniques described previously, preferably by MS, by MS/MS, or even by MS followed by MS/MS spectrometry, which constitutes one embodiment of the invention. In this case too, the sample can be subjected to a culture step beforehand, such as seeding on agar.

The use of an MS identification method is advantageous in that it may be carried out in a few minutes, and in that it requires a mass spectrometer with a single analyser, i.e. a less complex instrument than a tandem mass spectrometer used in MS/MS.

The use of a method of identification by MS followed by MS/MS spectrometry is also advantageous. It makes it possible to check the identity of the ions observed by MS, which increases the specificity of the analysis.

The use of an MRM-type MS/MS identification method has the advantage of being more sensitive and simpler than the conventional MS followed by MS/MS approaches. This method requires neither a high-performance software to process the information between the acquisition of the MS spectrum and of the MS/MS spectrum, nor a change in the setting of the machine parameters for linking up MS then MS/MS spectra.

The method of identification by MS may be employed with an electrospray source on a raw sample, as described by S. Vaidyanathan et al. [26] or by R. Everley et al. [27] after chromatographic separation. Different m/z ranges thus make it possible to identify the microorganisms. S. Vaidyanathan et al. used a window of between 200 and 2000 Th, and R. Everley et al. used a window of between 620 and 2450 Th. The mass spectra may also be deconvoluted to access the mass of the proteins independently of their charge state. R. Everley et al. therefore used masses of between about 5,000 and 50,000 Da. Alternatively, the method of identification by MS can also be employed with the aid of a MALDI-TOF, as described by Claydon et al. [3] and T. Krishnamurthy and P. Ross [4]. The analysis combines acquisition of a mass spectrum and interpretation of expert software. It is extremely simple and can

be carried out in a few minutes. This method of identification is currently becoming more widespread in medical analysis laboratories [28].

The identification of bacteria by MS followed by MS/MS via their proteins present in the sample has been applied widely by a number of teams. By way of example, mention can be made of the recent work of Manes N. et al. [29], who studied the peptidome of *Salmonella enterica*, or the work of R. Nandakumar et al. [30] or of L. Hernychova et al. [31] who have studied the proteome of bacteria after digestion of the proteins with trypsin. The conventional approach consists in i) acquiring an MS spectrum, ii) successively selecting each precursor ion observed on the MS spectrum with an intense signal, iii) successively fragmenting each precursor ion and acquiring its MS/MS spectrum, iv) interrogating protein databases such as SWISS-PROT or NCBI, through software such as Mascot (Matrix Science, London, United Kingdom) or SEQUEST (Thermo Scientific, Waltham, United States of America), to identify the peptide which has a strong probability of matching the MS/MS spectrum observed. This method may lead to the identification of a microorganism if a protein or a peptide characteristic of the species is identified.

One of the advantages of the use of the mass spectrometry lies in that it is particularly useful for quantifying molecules, in the present case the markers of the mechanisms of bacterial resistance to beta-lactams. To this end, the current intensity detected is used, which is proportional to the quantity of target molecule. The current intensity thus measured may serve as a quantitative measurement making it possible to determine the quantity of target molecule present, which is characterised by its expression in International System (SI) mol/m³ or kg/m³ units, or by multiples or sub-multiples of these units, or by the usual derivatives of the SI units, including multiples or sub-multiples thereof. As a non-limiting example, the units such as ng/ml or fmol/l are units characterising a quantitative measurement.

A calibration is nevertheless necessary in order to be able to correlate the measured area of the peak, which corresponds to the current intensity induced by the detected ions, to the quantity of target molecule to be assayed. For this purpose, the calibrations conventionally used in mass spectrometry may be employed, within the framework of the invention. MRM assays are conventionally calibrated with the aid of external standards or, preferably, with the aid of internal standards such as described by T. Fortin et al. [13]. If the target molecule is a proteotypic peptide which permits the assaying of a protein of interest, the correlation between the quantitative

measurement and the quantity of target proteotypic peptide, and subsequently of protein of interest, is obtained by calibrating the measured signal relative to a standard signal for which the quantity to be assayed is known. The calibration may be performed using a calibration curve, for example obtained by successive
5 injections of standard proteotypic peptide at different concentrations (external calibration), or preferably by internal calibration using a heavy peptide as an internal standard, for example in accordance with the AQUA, QconCAT or PSAQ methods detailed below. "Heavy peptide" is understood to mean a peptide corresponding to the proteotypic peptide, but in which one or more atoms of carbon 12 (^{12}C) is (are)
10 replaced by carbon 13 (^{13}C), and/or one or more atoms of nitrogen 14 (^{14}N) is (are) replaced by nitrogen 15 (^{15}N).

The use of heavy peptides as internal standards (AQUA) was also proposed in US patent application 2004/0229283. The principle is to artificially synthesise proteotypic peptides with amino acids containing isotopes which are heavier than the usual
15 natural isotopes. Such amino acids are obtained, for example, by replacing some of the atoms of carbon 12 (^{12}C) with carbon 13 (^{13}C), or by replacing some of the atoms of nitrogen 14 (^{14}N) with nitrogen 15 (^{15}N). The artificial peptide (AQUA) thus synthesised has strictly the same physicochemical properties as the natural peptide (with the exception of a higher mass). It is generally added, at a given concentration,
20 to the sample, upstream of assaying by mass spectroscopy, for example between the treatment entailing the cleaving of the proteins in the sample of interest and the fractionation of the peptides obtained after the treatment step. Thus, the AQUA peptide is co-purified with the natural peptide to be assayed, during fractionation of the peptides. The two peptides are therefore injected simultaneously into the mass
25 spectrometer, for assaying. They then undergo the same ionisation yield in the source. The comparison of the peak areas of the natural and AQUA peptides, whose concentration is known, makes it possible to calculate the concentration of the natural peptide and thus trace back the concentration of the protein to be assayed. A variation of the AQUA technique was proposed by J.-M. Pratt et al. [32] under the
30 name QconCat. This variant is also described in patent application WO 2006/128492. It consists in concatenating various AQUA peptides and producing the artificial polypeptide in the form of a heavy recombinant protein. The recombinant protein is synthesised with amino acids comprising heavy isotopes. In this way, it is possible to obtain a standard to calibrate the simultaneous assay of several proteins at lower

cost. The QconCAT standard is added from the start, upstream of the treatment entailing the cleaving of the proteins and prior to the steps of protein fractionation, denaturation, reduction and blocking of the protein thiol functions, if these are present. The QconCAT standard therefore undergoes the same treatment cycle

5 entailing the cleaving of the proteins as the natural protein, which makes it possible to take account of the yield from the treatment step which entails the cleaving of the proteins. In fact, the treatment, particularly by digestion, of the natural protein may not be complete. In this case, the use of an AQUA standard would lead to underestimating the quantity of natural protein. For full assaying, it may therefore be

10 important to take into account the yields from treatment which entails the cleaving of the proteins. However, V. Brun et al. [33] have shown that the QconQAT standards sometimes do not exactly reproduce the treatment yield, particularly by digestion of the natural protein, undoubtedly due to a three-dimensional conformation different from the QconCAT protein.

15 V. Brun et al. [33] then proposed the use of a method dubbed PSAQ, and described in patent application WO 2008/145763. In this case, the internal standard is a recombinant protein having the same sequence as the natural protein but synthesised with heavy amino acids. The synthesis is performed ex-vivo with heavy amino acids. This standard has strictly the same physicochemical properties as the

20 natural protein (with the exception of a higher mass). It is added from the start, before the protein fractionation step, when the latter is present. It is therefore co-purified with the native protein, during the protein fractionation step. It exhibits the same treatment yield, particularly by digestion, as the native protein. The heavy peptide obtained after cleaving is also co-purified with the natural peptide, if a peptide fractionation

25 step is performed. The two peptides are therefore injected simultaneously into the mass spectrometer, to be quantitatively assayed. They then undergo the same ionisation yield in the source. Comparison of the peak areas of the natural and the reference peptides in the PSAQ method make it possible to calculate the concentration of the protein to be assayed taking into account all of the steps of the

30 assay method.

All of these techniques, namely AQUA, QconCAT or PSAQ or any other calibration technique, used in the mass spectrometry assays and in particular in MRM or MS assays, may be employed to carry out calibration, within the framework of the invention.

Preferably, the mass spectrometry used in the detection method according to the invention is MS/MS. More preferably, the mass spectrometry is MRM.

The method of the invention makes it possible to detect resistances to cephalosporin, characterised by the detection of at least one peptide as a resistance marker. Said resistance marker peptide preferably belongs to the proteins TEM, CMY, CTX-M, SHV, FOX, ACC, ACT, CARB, DHA, MIR, MOX, PER, VEB, OXA or GES.

In particular, the detection of a mechanism of resistance to cephalosporins induced by the expression of the TEM protein is characterised by the detection of at least one peptide belonging to the TEM protein and its different sequence variants **SEQ ID No. 1** to **SEQ ID No. 165** and **SEQ ID No. 1836** to **SEQ ID No. 1843**.

In some aspects, the present description relates to a method of detection, by mass spectrometry, that is an MS/MS spectrometry in multiple reaction monitoring (MRM) mode, for at least one microorganism contained in a sample, of at least one marker of resistance to at least one antimicrobial, wherein: (a) the antimicrobial is a cephalosporin, and (b) said at least one marker of resistance comprises at least one TEM protein or TEM peptide, wherein the TEM protein or peptide is or comprises at least one the peptides of SEQ ID NOs: 166-261, 1923, 1927 and 1928.

SEQ ID No. 1:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDGMTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHVTRLDRWEPELNEAIPNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAALPGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKHW

SEQ ID No. 2:

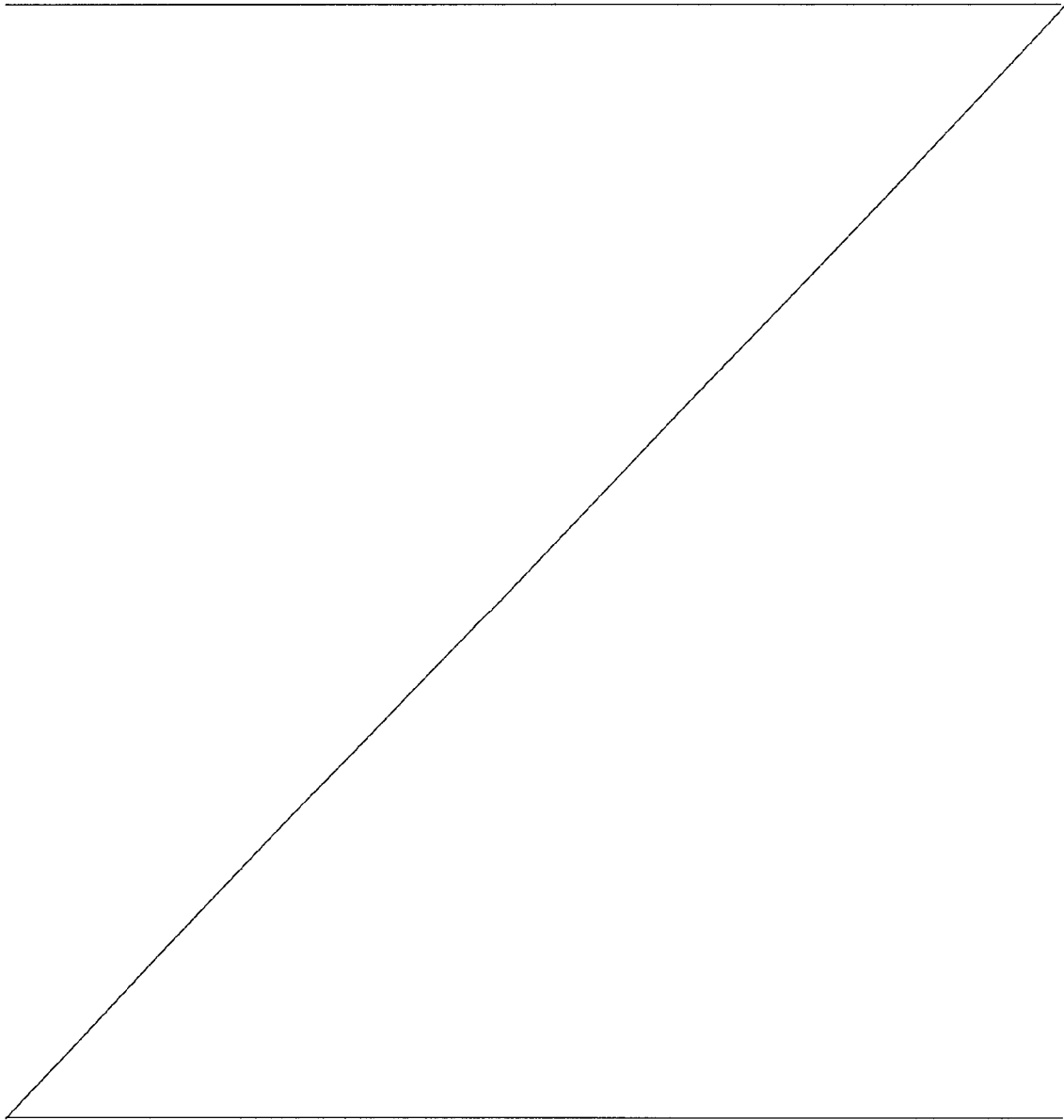
MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDGMTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHVTRLDRWEPELNEAIPNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAALPGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKHW

GWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLI
KHW

SEQ ID No. 3:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPTVEKHLTD
GMTVRELCSSAATMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNE
AIPNDERDTPAAMATTLRKLLTGELLTLASRQQLIDWMEADKVAGPLLRSALPA
GWFIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLI
KHW

SEQ ID No. 4:



MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
5 FIADKSGASERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 5:

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RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
FIADKSGTGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 6:

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20 W

SEQ ID No. 7:

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MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
25 PNDERDRTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
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W

SEQ ID No. 8:

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30 PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
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SEQ ID No. 9:

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PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
5 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 10:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 11:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
15 PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
20 W

SEQ ID No. 12:

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25 PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
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SEQ ID No. 13:

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W

SEQ ID No. 14:

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MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
5 PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
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SEQ ID No. 15:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
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SEQ ID No. 16:

15 MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
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PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
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20 W

SEQ ID No. 17:

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W

SEQ ID No. 18:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
30 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 19:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
5 FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 20:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSVPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLRNMGDHSVTRLDRWEPELNEAI
10 PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 21:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSVPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGGSESRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 22:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
20 PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSVPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGTGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 23:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
30 FIADKSGASERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 24:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSVPVTEKHLTDG

MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

5 **SEQ ID No. 25:**

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
10 FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 26:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 27:

20 MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
25 W

SEQ ID No. 28:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
30 PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSSGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 29:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES

RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSGGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

5 W

SEQ ID No. 30:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMISTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREPELNEAI
10 PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSGGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 31:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
15 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSGGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

20 **SEQ ID No. 32:**

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
25 FIADKSGAGERGSGGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 33:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
30 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSGGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH
W

SEQ ID No. 34:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAF LHNMGDHSVTR LDRWEPELNEAI
PNDERDTT MPAAMATTLRKLLTGELLTLASRQQ LIDWMEADKVAGP LLRSALPAGW
5 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH
W

SEQ ID No. 35:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMISTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAF LHNMGDHSVTR LDRWEPELNEAI
PNDERDTT MPAAMATTLRKLLTGELLTLASRQQ LIDWMEADKVAGP LLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH
W

SEQ ID No. 36:

15 MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAF LHNMGDHSVTR LDRWEPELNEAI
PNDERDTT MPAAMATTLRKLLTGELLTLASRQQ LIDWMEADKVAGP LLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDELNRQIAEIGASLIKH

SEQ ID No. 37:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPM LSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAF LHNMGDHSVTR LDRREPELNEAI
PNDERDTT MPAAMATTLRKLLTGELLTLASRQQ LIDWMEADKVAGP LLRSALPAGW
25 IADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH

SEQ ID No. 38:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMISTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAF LHNMGDHSVTR LDRWEPELNEAI
30 PNDERDTT MPAAMATTLRKLLTGELLTLASRQQ LIDWMEADKVAGP LLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 39:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR

RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSLPAGW
FIADKSGAGERGSTGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

5 **SEQ ID No. 40:**

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGVRVGYIELDLNSGKILESFR
PEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSLPAGW
10 FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 41:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSVPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSLPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 42:

20 MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSLPAGW
FIADKSGAGERGSSGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
25 W

SEQ ID No. 43:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMLSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
30 PNDERDRTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSLPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDEQNRQIAEIGASLIKH
W

SEQ ID No. 44:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR

PEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
 PNDERDTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
 FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

5 W

SEQ ID No. 45:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
 10 PNDERDTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
 FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
 W

SEQ ID No. 46:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 15 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
 PNDERDTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
 FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
 W

20 **SEQ ID No. 47:**

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
 PNDERDTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
 25 FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYMTGGQATMDERNRQIAEIGASLIKH
 W

SEQ ID No. 48:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
 30 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
 PNDERDTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
 FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH

SEQ ID No. 49:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES

RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
 PNDERDTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
 FIADKSGAGERGSHGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

5 W

SEQ ID No. 50:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSVPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
 10 PNDERDTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
 FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 51:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
 15 MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
 PNDERDTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

W

SEQ ID No. 52:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
 PNDERDTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
 FIADKSGAGERGSLGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

25 **SEQ ID No. 53:**

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
 PNDERDTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAEPLLRSALPAGW
 30 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

W

SEQ ID No. 54:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
 PEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSVPVTEKHLTDG

MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLRNMGDHSVTRLDLDRWEPELNEAI
 PNDERDTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
 W

5 **SEQ ID No. 55:**

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLDRRIHYSQNDLVEYSPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
 PNDERDTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
 10 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
 W

SEQ ID No. 56:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
 RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
 15 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
 PNDERDTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
 FIADKSGAGERGSSGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 57:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
 20 PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
 MTVRELCSAAITMGDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
 PNDERDTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
 W

25 **SEQ ID No. 58:**

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDKLGARVGYIELDPNNGKILES
 RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSVPVTEKHLTDG
 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
 PNDERDTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
 30 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
 W

SEQ ID No. 59:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
 PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG

MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

5 **SEQ ID No. 60:**

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
10 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 61:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSCGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 62:

20 MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMMSTFKVLLCGAVLSRVDAGQEQLDRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

25 **SEQ ID No. 63:**

MSIQHFRVALIPFFAAFCIPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
30 FIADKSGAGERGSCGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 64:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG

MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYMTGSQATMDELNRQIAEIGASLIKH
W

5 **SEQ ID No. 65:**

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
10 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 66:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 67:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILES
20 PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 68:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
25 RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSCGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
30 W

SEQ ID No. 69:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI

PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSSGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 70:

5 MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
10 W

SEQ ID No. 71:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMGDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
15 PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 72:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
20 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSSGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 73:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHREPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGWF
30 IADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH
W

SEQ ID No. 74:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI

PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSGGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 75:

5 MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMPLSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAVTMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSGRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH
10 W

SEQ ID No. 76:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMPLSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAVTMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
15 PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSGRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 77:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
20 RPEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSGRGIIAALGPDGKPSRIVVIYTTGSQATMDEQNRQIAEIGASLIKH
W

SEQ ID No. 78:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMPLSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRCEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGWF
30 IADKSGAGERGSGRGIIAALGPDGKPSRIVVIYTTGSQATMDEQNRQIAEIGASLIKH
W

SEQ ID No. 79:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMPLSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI

PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH
W

SEQ ID No. 80:

5 MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDSWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
10 W

SEQ ID No. 81:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDSWEPELNEAI
15 PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGTGKRGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 82:

MSIKHFRVALIPFFAAFCFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
20 PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLHCWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 83:

MSIQHFRVALIPFFAAFCFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDTTTPAAMATTLRKLLTDELLTLASRQQIDWMEADKVAGPLLRSALPAGW
30 FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 84:

MSIQHFRVALIPFFAAFCFCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMGDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI

PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKHW
SEQ ID No. 85:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
5 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTG
GMTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNE
AIPNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAG
WFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIK
HW

10 **SEQ ID No. 86:**

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDCEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
15 FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIK
W

SEQ ID No. 87:

MSIKHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
PEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
20 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKHW

SEQ ID No. 88:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
25 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKHW

SEQ ID No. 89:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
30 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIK

W

SEQ ID No. 90:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
5 MTVRELCSAAITMSDNTAANLLLLTTIGGAKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 91:

10 MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLGRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
15 W

SEQ ID No. 92:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
20 PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGASKRGRSGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIVEIGASLIKH
W

SEQ ID No. 93:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
25 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 94:

30 MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDELNRQIAEIGASLIKH
W

SEQ ID No. 95:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
5 PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIVEIGASLIKH
W

SEQ ID No. 96:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
10 RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 97:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
20 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 98:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
25 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 99:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
30 RPEERFPMMSTFKVLLCGAELSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTSELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERSRQIAEIGASLIKH
W

SEQ ID No. 100:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMLSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
5 PNDERDTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIK
H

SEQ ID No. 101:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
10 RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIK
H

SEQ ID No. 102:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
20 FIADKSGADERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIK
H

SEQ ID No. 103:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
25 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLRNMGDHSVTRLDHWEPELNEAI
PNDERDTTMAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIK
H

SEQ ID No. 104:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILES
30 PEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIK
H

SEQ ID No. 105:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDSEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
5 FIADKSGTGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 106:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 107:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRIDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPVAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
20 W

SEQ ID No. 108:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
25 PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 109:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
30 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 110:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
5 PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 111:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGTGKRGSSGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 112:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
15 RPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDEQNRQIAEIGASLIKH
W

SEQ ID No. 113:

MSIKHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
25 FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 114:

MSIKHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
PEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
30 PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 115:

MSIQHFRVALIPFLAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR

RPEERFPMLSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHVTRLDSREPELNEAIP
NDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGWF
IADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH

5 **SEQ ID No. 116:**

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHVTRLDWEPELNEAI
PNDERETTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
10 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 117:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDNVTRLDWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 118:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGEHVTRLDWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
25 W

SEQ ID No. 119:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILES
PEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHVTRLDWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
30 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 120:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKPAEDKLGARVGYIELDLNSGKILESFR

PEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLD SWEPELNEAI
PNDERDTT MPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGTGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

5 W

SEQ ID No. 121:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES F
RPEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLD SWEPELNEAI
10 PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGTGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 122:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES F
15 RPEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAV
PNDERDTT MPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

20 **SEQ ID No. 123:**

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES F
RPEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLD SWEPELNEAI
PNDERDTT MPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
25 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 124:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
30 MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTT MPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH W

SEQ ID No. 125:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES F

RPEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLR SALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
5 W

SEQ ID No. 126:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES F
RPEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
10 PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLR SALPAGW
FIADKSGTGKRGSRGIIAALGPDGKPSRIVVIYTTGGQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 127:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES F
15 RPEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLR SALPAGW
FIADKSGAGRRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 128:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES F
RPEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PIDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLR SALPAGWF
25 IADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH W

SEQ ID No. 129:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIEMDLNSGKILES F
RPEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
30 PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLR SALPAGW
FIADKSGASERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH W

SEQ ID No. 130:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVEDAEDQLGARVGYIELDLNSGKILES F
RPEERFPM MSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG

MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

5 **SEQ ID No. 131:**

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPTVEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
10 FIADKSGANERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 132:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 133:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSAIPAGW
FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
25 W

SEQ ID No. 134:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
30 PNDERDRTTMAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLMRSAIPAG
WFIADKSGAGERGSHGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIK
HW

SEQ ID No. 135:

MSIQHFRVALIPFFAAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES

RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLPD
GMTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNE
AIPNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSPALPAG
WFIADKSGAGERGSHGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIK

5 HW

SEQ ID No. 136:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
10 PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSLPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 137:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
15 RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDTTMPAAMATKLRLKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSPALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

20 **SEQ ID No. 138:**

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVKYSPVTEKHLDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDTTTTAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSPALPAGW
25 FIADKSGAGVRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 139:

MSIQHFRVALIPFFAAFCPLPVFAHPDTLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLDG
30 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSPALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 140:

MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMAPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
5 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGGSLIKH
W

SEQ ID No. 141:

MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMAPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH
W

SEQ ID No. 142:

MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMAPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
20 W

SEQ ID No. 143:

MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
25 PNDERDTTMAPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGW
FIADKSGAGKRGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 144:

MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
30 RPEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMAPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSALPAGWF
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 145:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMSTFKVLLCGAVLSRIDAGQEQLGRRRIHYSQSDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDRTMPVAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
5 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 146:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDWEPELNEAI
PNDERDRTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERDRQIAEIGASLIKH
W

SEQ ID No. 147:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
RPEERFPMISTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDRTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
20 W

SEQ ID No. 148:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMVSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDGM
TVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAIP
25 NDERDRTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGWF
IADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 149:

MSIKHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFR
PEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSVPVTEKHLTDG
30 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDRTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 150:

MSIQHFRVALIPFFAAFCCLPVFAHPKTLVKVKDAENQLGARVGYIELDLNSGKILES
RPEKRFPMSTFKVLLCGAVLSRIDAGQEQLGRRRIHYSQSDVVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTMPVAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
5 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 151:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDEQNRQIAEIGASLIKW

SEQ ID No. 152:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQVGARVGYIELDLNSGKILES
15 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQTAEIGASLIKH
W

SEQ ID No. 153:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
25 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 154:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
30 MTVRELCSAAITMSDNTAANLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDRTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 155:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSPTVEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSVLPAGW
5 FIADKSGASERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 156:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 157:

15 MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMLSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRGEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
20 W

SEQ ID No. 158:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMMSSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
25 PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEICASLIKH
W

SEQ ID No. 159:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMMSSTFKVLLCGAVLSRIDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
30 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDRWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 160:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
5 PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEVDKVAGPLLRSAIPAGW
FIADKSGAGERGSSGIIAALGPDKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 161:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEVDKVAGPLLRSAIPAGW
FIADKSGAGERGSSGIIAALGPDKPSRIVVIYTTGSQATMDERKRQIAEIGASLIKH

SEQ ID No. 162:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEVDKVAGPLLRSAIPAGW
FIADKSGAGERGSSRGIIAALGPDKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 163:

MSIQHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
25 FIADKSGAGERGSSRGIIAALGPDKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 164:

MSIKHFRVALIPFFAAFCPLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVKYSVPVTEKHLTDG
30 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDREWEPELNEAI
PNDERDTTTPAAMATTLRKLLTGELLTLASRQQIDWMEADKVAGPLLRSAIPAGW
FIADKSGTGKRGSSRGIIAALGPDKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 165:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGSTSGYIELDLNSGKILESFR
PEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGSQELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDEADTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMADKVAGPLLRSALPAGWFI
5 ADKSGARERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH

SEQ ID No. 1836:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
10 PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 1837:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
15 RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

20 **SEQ ID No. 1838:**

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDKLGARVGYIELDLNSGKILESFR
PEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
25 FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 1839:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILES
RPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRRIHYSQNDLVEYSPVTEKHLTDG
30 MTVRELCSAAITMSDNTAANLLLLTTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 1840:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
5 FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYMTGSQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 1841:

MSIQHFRVALIPFFAAFCFPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
10 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGASKRGSRGIIAALGPDGKPSRIVVIYMTGGQATMDERNRQIAEIGASLIKH
W

SEQ ID No. 1842:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
15 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDHWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
20 W

SEQ ID No. 1843:

MSIQHFRVALIPFFAAFCCLPVFAHPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLVEYSPVTEKHLTDG
25 MTVRELCSAAITMSDNTAANLLLTIGGPKELTAFLHNMGDHSVTRLDLDRWEPELNEAI
PNDERDTTMPAAMATTLRKLLTGELLTLASRQQQLIDWMEADKVAGPLLRSALPAGW
FIADKSGAGERGSSGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEIGASLIKH
W

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID No. 166** to **SEQ ID 261** and **SEQ ID No. 1923** to **SEQ ID 1928** as defined
30 hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the TEM protein(s)	Clinical interest
SEQ ID No. 166	CEPELNEAIPNDER	163-176 for the protein of SEQ No. 78	2br

SEQ ID No. 167	DAEDQLGAR	33-41 for the proteins of SEQ No. 1, 4, 5, 6, 9, 10, 12, 14, 16, 18, 19, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 55, 56, 60, 64, 65, 66, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 85, 86, 87, 88, 89, 90, 91, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 106, 107, 108, 109, 110, 112, 113, 114, 115, 116, 117, 118, 121, 122, 123, 125, 126, 127, 128, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 144, 145, 146, 147, 149, 151, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 1837, 1838, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 168	DAEDQLGSTSGYIELDLNSGK	33-53 for the protein of SEQ No. 165	2be
SEQ ID No. 169	DAEDQVGAR	33-41 for the protein of SEQ No. 152	2be
SEQ ID No. 170	DAENQLGAR	33-41 for the protein of SEQ No. 150	TEM
SEQ ID No. 171	DTTMPAAMATK	177-187 for the protein of SEQ No. 137	TEM
SEQ ID No. 172	DTTMPAAMATTLR	177-189 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 84, 85, 90, 91, 92, 93, 94, 95, 96, 99, 100, 101, 102, 103, 105, 106, 108, 109, 110, 111, 112, 113, 115, 117, 118, 119, 120, 122, 123, 124, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 139, 140, 141, 142, 143, 144, 146, 148, 151, 152, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 173	DTTMPVAMATTLR	177-189 for the proteins of SEQ No. 107, 145, 150	TEM
SEQ ID No. 174	DTTTPAAMATTLR	177-189 for the proteins of SEQ No. 19, 30, 41, 50, 60, 67, 82, 83, 86, 87, 88, 89, 97, 98, 104, 114, 121, 125, 138, 147, 149, 153, 164	TEM
SEQ ID No. 175	ELTAFLHNIGDHSVTR	145-159 for the protein of SEQ No. 144	TEM
SEQ ID No. 176	ELTAFLHNMGDHSVTR	145-159 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72,	TEM

		73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	
SEQ ID No. 177	ELTAFLHNMGDNVTR	145-159 for the protein of SEQ No. 117	2b
SEQ ID No. 178	ELTAFLHNMGEHVTR	145-159 for the protein of SEQ No. 118	2b
SEQ ID No. 179	ELTAFLR	145-151 for the proteins of SEQ No. 20, 54, 103	2be
SEQ ID No. 180	EPELNEAIPNDER	164-176 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 123, 124, 125, 126, 127, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 181	ETTTAAMATTLR	177-189 for the protein of SEQ No. 116	2be
SEQ ID No. 182	FPMISTFK	64-71 for the proteins of SEQ No. 30, 35, 38, 147	2br
SEQ ID No. 183	FPMLSTFK	64-71 for the proteins of SEQ No. 31, 33, 37, 43, 48, 72, 76, 78, 100, 115, 142, 146, 157, 1838	TEM
SEQ ID No. 184	FPMSTFK	64-71 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 39, 40, 41, 42, 44, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 74, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132,	TEM

		133, 134, 135, 136, 137, 138, 139, 143, 144, 145, 149, 150, 151, 152, 153, 154, 155, 156, 158, 159, 160, 161, 162, 163, 164, 165, 1837, 1839, 1840, 1841, 1842, 1843, 1844	
SEQ ID No. 185	FPMVSTFK	64-71 for the proteins of SEQ No. 32, 34, 36, 73, 77, 140, 141, 148	TEM
SEQ ID No. 186	GEPELNEAIPNDER	163-176 for the protein of SEQ No. 157	2be
SEQ ID No. 187	GIIAALGPDGKPSR	242-255 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844; 241-254 for the protein of sequence SEQ ID No. 165	TEM
SEQ ID No. 188	GSCGIIAALGPDGKPSR	239-255 for the proteins of SEQ No. 29, 61, 63, 68	2br
SEQ ID No. 189	GSGGIIAALGPDGKPSR	239-255 for the protein of SEQ No. 74	2br
SEQ ID No. 190	GSHGIIAALGPDGKPSR	239-255 for the proteins of SEQ No. 49, 134, 135	2br
SEQ ID No. 191	GSLGIIAALGPDGKPSR	239-255 for the protein of SEQ No. 52	2br
SEQ ID No. 192	GSSGIIAALGPDGKPSR	239-255 for the proteins of SEQ No. 28, 42, 56, 69, 72, 111, 160, 161, 1844	TEM
SEQ ID No. 193	GSTGIIAALGPDGKPSR	239-255 for the protein of SEQ No. 39	TEM
SEQ ID No. 194	HLPDGMTVR	110-118 for the protein of SEQ No. 135	TEM
SEQ ID No. 195	HLTDGMTVR	110-118 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 86, 87, 88, 89, 90, 91, 92, 93,	TEM

		94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	
SEQ ID No. 196	HLTGGMTVR	110-118 for the protein of SEQ No. 85	2b
SEQ ID No. 197	IDAGQEQLGR	82-91 for the proteins of SEQ No. 107, 145, 150, 159	TEM
SEQ ID No. 198	IHYSQNDLVEYSPVTEK	93-109 for the proteins of SEQ No. 1, 2, 5, 7, 10, 11, 12, 13, 18, 19, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 45, 46, 47, 49, 51, 52, 53, 55, 56, 57, 59, 61, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 85, 86, 88, 90, 91, 92, 93, 94, 95, 96, 99, 101, 103, 105, 106, 107, 108, 109, 110, 112, 115, 116, 117, 118, 122, 125, 126, 127, 130, 132, 133, 134, 135, 136, 137, 139, 140, 141, 142, 143, 144, 146, 147, 148, 151, 152, 153, 154, 156, 157, 158, 159, 160, 161, 162, 163, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 199	IHYSQNDLVK	93-102 for the proteins of SEQ No. 3, 4, 6, 8, 9, 14, 15, 16, 17, 20, 21, 22, 24, 41, 44, 48, 50, 54, 58, 60, 62, 82, 83, 84, 87, 89, 97, 98, 100, 102, 104, 111, 113, 114, 119, 120, 121, 123, 124, 128, 129, 131, 138, 149, 155, 164	2be
SEQ ID No. 200	IHYSQSDLVEYSPVTEK	93-109 for the protein of SEQ No. 145	2be
SEQ ID No. 201	IHYSQSDVVEYSPVTEK	93-109 for the protein of SEQ No. 150	TEM
SEQ ID No. 202	ILESFRPEER	54-63 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 1837, 1838,	TEM

		1839, 1840, 1841, 1842, 1843, 1844	
SEQ ID No. 203	ILESFRPEK	54-62 for the protein of SEQ No. 150	TEM
SEQ ID No. 204	IVIIYTTGSQATMDER	256-271 for the proteins of SEQ No. 56, 160	2br
SEQ ID No. 205	IVVIYMTGGQATMDER	256-271 for the proteins of SEQ No. 47, 1842	2be
SEQ ID No. 206	IVVIYMTGSQATMDELNR	256-273 for the protein of SEQ No. 64	2be
SEQ ID No. 207	IVVIYMTGSQATMDER	256-271 for the proteins of SEQ No. 4, 9, 13, 23, 25, 40, 45, 46, 68, 69, 70, 80, 81, 89, 93, 101, 102, 109, 131, 155, 156, 1840, 1841	TEM
SEQ ID No. 208	IVVIYTTGGQATMDER	256-271 for the protein of SEQ No. 126	2be
SEQ ID No. 209	IVVIYTTGSQATMDELNR	256-273 for the proteins of SEQ No. 36, 94	2br
SEQ ID No. 210	IVVIYTTGSQATMDEQNR	256-273 for the proteins of SEQ No. 43, 77, 78, 112, 151	2br
SEQ ID No. 211	IVVIYTTGSQATMDER	256-271 for the proteins of SEQ No. 1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 41, 42, 44, 48, 49, 50, 51, 52, 53, 54, 55, 57, 58, 59, 60, 61, 62, 63, 65, 66, 67, 71, 72, 73, 74, 75, 76, 79, 82, 83, 84, 85, 86, 87, 88, 90, 91, 92, 95, 96, 97, 98, 99, 100, 103, 104, 105, 106, 107, 108, 110, 111, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 127, 128, 129, 130, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 152, 153, 154, 157, 158, 159, 161, 162, 163, 164, 1837, 1838, 1839, 1843, 1844	TEM
SEQ ID No. 212	LDCWEPELNEAIPNDER	160-176 for the proteins of SEQ No. 86, 132, 133	2be
SEQ ID No. 213	LDHWEPELNEAIPNDER	160-176 for the proteins of SEQ No. 6, 11, 15, 25, 26, 27, 41, 59, 70, 98, 100, 106, 109, 124, 136, 140, 141, 149, 1843	2be
SEQ ID No. 214	LDHWEPELNEAVPNDER	160-176 for the protein of SEQ No. 122	2be
SEQ ID No. 215	LDSWEPELNEAIPNDER	160-176 for the proteins of SEQ No. 5, 7, 8, 9, 10, 12, 22, 24, 44, 51, 58, 60, 80, 81, 93, 105, 111, 119, 120, 121, 123, 126, 127, 138, 142, 143, 146, 153, 164	2be
SEQ ID No. 216	LHCWEPELNEAIPNDER	160-176 for the protein of SEQ No. 82	2be
SEQ ID No. 217	LLTDELLTLASR	191-202 for the protein of SEQ No. 83	2be

SEQ ID No. 218	LLTGELLTLASQQQLIDWMEADK	191-213 for the protein of SEQ No. 65	TEM
SEQ ID No. 219	LLTGELLTLASR	191-202 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 220	LLTSELLTLASR	191-202 for the protein of SEQ No. 99	TEM
SEQ ID No. 221	MSIQHFR	1-7 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 83, 84, 85, 86, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 222	NMGDHSVTR	152-159 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161,	2be

		162, 163, 164, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	
SEQ ID No. 223	QIAEICASLIK	274-284 for the protein of SEQ No. 158	TEM
SEQ ID No. 224	QIAEIGASLIK	274-284 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 93, 94, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 153, 154, 155, 156, 157, 159, 160, 161, 162, 163, 164, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844; 273-283 for the protein of sequence SEQ ID No. 165	TEM
SEQ ID No. 225	QIAEIGGSLIK	274-284 for the protein of SEQ No. 140	2be
SEQ ID No. 226	QIVEIGASLIK	274-284 for the proteins of SEQ No. 92, 95	2be
SEQ ID No. 227	QQLIDWMADK	203-212 for the protein of SEQ No. 165	2be
SEQ ID No. 228	QQLIDWMEADK	203-213 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 163, 164, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 229	QQLIDWMEVDK	203-213 for the proteins of SEQ No. 160, 161, 162	TEM
SEQ ID No. 230	QTAEIGASLIK	274-284 for the protein of SEQ No. 152	2be

SEQ ID No. 231	SALPAGWFIADK	221-232 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 156, 157, 158, 159, 160, 161, 162, 164, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844; 220-231 for the protein of sequence SEQ ID No. 165	TEM
SEQ ID No. 232	SGADER	233-238 for the protein of SEQ No. 102	TEM
SEQ ID No. 233	SGAGER	233-238 for the proteins of SEQ No. 1, 2, 6, 7, 9, 11, 12, 13, 15, 16, 17, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 49, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 63, 65, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 82, 85, 90, 91, 93, 94, 95, 96, 97, 99, 100, 101, 106, 107, 108, 109, 112, 114, 115, 116, 117, 118, 119, 123, 125, 130, 132, 134, 135, 136, 137, 139, 140, 142, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 156, 157, 158, 159, 160, 161, 162, 163, 1837, 1838, 1839, 1843, 1844	TEM
SEQ ID No. 234	SGAGVR	233-238 for the protein of SEQ No. 138	2be
SEQ ID No. 235	SGANER	233-238 for the protein of SEQ No. 131	TEM
SEQ ID No. 236	SGASER	233-238 for the proteins of SEQ No. 3, 4, 8, 14, 18, 19, 20, 23, 48, 50, 62, 83, 84, 87, 89, 98, 103, 104, 110, 113, 124, 128, 129, 155	2be
SEQ ID No. 237	SGASK	233-237 for the proteins of SEQ No. 40, 45, 46, 47, 64, 66, 67, 88, 92, 1840, 1841, 1842	2be
SEQ ID No. 238	SGGSR	233-238 for the protein of SEQ No. 21	2be
SEQ ID No. 239	SGTGER	233-238 for the proteins of SEQ No. 120, 121	2be
SEQ ID No. 240	SVLPAGWFIADK	221-232 for the proteins of SEQ No. 136, 155, 163	2be
SEQ ID No. 241	VAEPLLR	214-220 for the protein of SEQ No. 53	2b

SEQ ID No. 242	VAGPLLR	214-220 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844; 213-219 for the protein of sequence SEQ ID No. 165	TEM
SEQ ID No. 243	VAGPLMR	214-220 for the protein of SEQ No. 134	2br
SEQ ID No. 244	VALIPFFAAFCFPVFAHPETLVK	8-30 for the proteins of SEQ No. 4, 9, 23, 46, 47, 51, 60, 68, 69, 70, 80, 81, 89, 93, 101, 106, 108, 110, 121, 123, 147, 155, 1841, 1842	TEM
SEQ ID No. 245	VALIPFFAAFCIPVFAHPETLVK	8-30 for the protein of SEQ No. 63	2br
SEQ ID No. 246	VALIPFFAAFCLPVFAHPDTLVK	8-30 for the protein of SEQ No. 139	TEM
SEQ ID No. 247	VALIPFFAAFCLPVFAHPETLVK	8-30 for the proteins of SEQ No. 1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 48, 49, 50, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 64, 65, 66, 67, 71, 72, 73, 74, 75, 76, 77, 78, 79, 82, 83, 84, 85, 86, 87, 88, 90, 91, 92, 94, 95, 96, 97, 98, 99, 100, 102, 103, 104, 105, 107, 109, 111, 112, 113, 114, 116, 117, 118, 119, 120, 122, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 140, 141, 142, 143, 144, 145, 146, 148, 149, 151, 152, 153, 154, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 1837, 1838, 1839, 1840, 1843, 1844	TEM
SEQ ID No. 248	VALIPFFAAFCLPVFAHPK	8-26 for the protein of SEQ No. 150	TEM
SEQ ID No. 249	VALIPFLAAFCLPVFAHPETLVK	8-30 for the protein of SEQ No. 115	2be
SEQ ID No. 250	VDAGQEQLDR	82-91 for the proteins of SEQ No. 55, 62	TEM
SEQ ID No. 251	VDAGQEQLGR	82-91 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26,	TEM

		27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 146, 147, 148, 149, 151, 152, 153, 154, 155, 156, 157, 158, 160, 161, 162, 163, 164, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	
SEQ ID No. 252	VEDAEDQLGAR	31-41 for the protein of SEQ No. 130	2b
SEQ ID No. 253	VGYIELDLNSGK	42-53 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 254	VGYIELDPNSGK	42-53 for the protein of SEQ No. 58	2be
SEQ ID No. 255	VGYIEMDLNSGK	42-53 for the protein of SEQ No. 129	2be
SEQ ID No. 256	VKPAEDK	31-37 for the protein of SEQ No. 120	2be
SEQ ID No. 257	VLLCGAELSR	72-81 for the protein of SEQ No. 99	TEM
SEQ ID No. 258	VLLCGAVLSR	72-81 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111,	TEM

		112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	
SEQ ID No. 259	WEPELNEAIPIDER	163-176 for the protein of SEQ No. 128	2be
SEQ ID No. 260	WEPELNEAIPNDER	163-176 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 75, 76, 77, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 116, 117, 118, 119, 120, 121, 123, 124, 125, 126, 127, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 158, 159, 160, 161, 162, 163, 164, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 261	YSPVTEK	103-109 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	2be
SEQ ID No. 1923	DAEDK	33-37 for the proteins of SEQ No. 2, 3, 7, 8, 11, 13, 15, 17, 20, 21, 22, 40, 42, 44, 54, 57, 58, 59, 61, 62, 63, 67, 84, 92, 104, 105, 111, 119, 124, 129, 143, 148, 164, 1839	TEM
SEQ ID No. 1924	GIIAALGPDGK	242-252 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48,	TEM

		49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844; 241-251 for the protein of sequence SEQ ID No. 165	
SEQ ID No. 1925	GSSGIIAALGPDGK	239-252 for the proteins of SEQ No. 28, 42, 56, 69, 72, 111, 160, 161, 1844	TEM
SEQ ID No. 1926	ILESFR	54-59 for the proteins of SEQ No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844	TEM
SEQ ID No. 1927	SGAGK	233-237 for the proteins of SEQ No. 10, 25, 26, 44, 59, 80, 86, 122, 133, 141, 143	2be
SEQ ID No. 1928	SGTGK	233-237 for the proteins of SEQ No. 5, 22, 81, 105, 111, 126, 164	2be

In the clinical interest column, the entries 2b, 2br, 2be and 2ber correspond to the functional subgroups of TEM beta-lactamases which the corresponding peptide makes it possible to detect. Thus, the detection of a 2be peptide indicates the presence of a beta-lactamase with an extended spectrum (ESBL) capable of hydrolysing penicillins, first-generation cephalosporins such as cephaloridine and cefalotin, and at least one antibiotic from the oxyimino-beta-lactam class such as cefotaxime, ceftazidime or monobactams such as aztreonam.

The entry TEM indicates a common peptide between at least two of the

subgroups 2b, 2br and 2be or 2ber. The corresponding peptide indicates the presence of a TEM beta-lactamase and the presence of a mechanism of resistance to at least penicillins and first-generation cephalosporins.

The detection of a mechanism of resistance to ESBL (extended-spectrum beta-lactamase) cephalosporins, induced by the TEM protein, is characterised by the detection of at least one resistance-marking 2be peptide, chosen from the sequences SEQ ID No. 168, SEQ ID No. 169, SEQ ID No. 179, SEQ ID No. 181, SEQ ID No. 186, SEQ ID No. 199, SEQ ID No. 200, SEQ ID No. 205, SEQ ID No. 206, SEQ ID No. 208, SEQ ID No. 212, SEQ ID No. 213, SEQ ID No. 214, SEQ ID No. 215, SEQ ID No. 216, SEQ ID No. 217, SEQ ID No. 222, SEQ ID No. 225, SEQ ID No. 226, SEQ ID No. 227, SEQ ID No. 230, SEQ ID No. 234, SEQ ID No. 236, SEQ ID No. 237, SEQ ID No. 238, SEQ ID No. 239, SEQ ID No. 240, SEQ ID No. 249, SEQ ID No. 254, SEQ ID No. 255, SEQ ID No. 256, SEQ ID No. 259, SEQ ID No. 261, SEQ ID No. 1927, SEQ ID No. 1928.

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The detection of a mechanism of resistance to cephalosporins induced by the expression of the CMY protein is characterised by the detection of at least one peptide belonging to the CMY protein and to its different sequence variants **SEQ ID No. 262 to SEQ ID No. 311 and SEQ ID No. 1844 to SEQ ID No. 1870.**

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SEQ ID No. 262:

MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
LKDGKAHYFNYGVANRESGASVSEQTLFEIGSVSKTLTATLGAYAVVKGAMQLDDK
ASRHAPWLKGSVFDSITMGELATYSAGGLPLQFPPEEVDSSSEKMRAYYRQWAPVYS
PGSHRQYSNPSIGLFGHLAASSLKQPFQALMEQTLLPGLGMHHTYVNVPKQAMAS
YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLAFVKANIGGVDDKALQQAISLTH
KGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVILEANPTAAPRESGSQVLFN
KTGSTNGFGAYVAFVPARGIGIVMLANRNYPIPARVKAAHAILAQLAG

SEQ ID No. 263:

MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
LKDGKAHYFNYGVANRESGAGVSEQTLFEIGSVSKTLTATLGAYAVVKGAMQLDDK
ASRHAPWLKGSFDSITMGELATYSAGGLPLQFPPEEVDSSSEKMRAYYRQWAPVYS
PGSHRQYSNPSIGLFGHLAASSLKQPFAPLMEQTLLPGLGMHHTYVNVPKQAMAS
YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLRFVKANIGGVDDKALQQAISLTH

30

QGHYSVGGMTQQLGWESYAYPVTEQTLLAGNSAKVILEANPTAAPRESGSQVLFN
 KTGSTNGFGAYVAFVPARGIGIVMLANRNYPIEARIKAAHAILAQLAG

SEQ ID No. 264:

MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
 5 LKDGAHYFNYGVANRESGAGVSEQTLFEIGSVSKTLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSAFDSITMGELATYSAGGLPLQFPPEEVDSSSEKMRAYYRQWAPVYS
 PGSHRQYSNPSIGLFGHLAASSLKQPFAPLMEQTLLPGLGMHHTYVNVPKQAMAS
 YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLRFVKANIGGVDDKALQQAISLTH
 QGHYSVGGMTQQLGWESYAYPVTEQTLLAGNSAKVSLEANPTAAPRESGSQVLFN
 10 KTGSTNGFGAYVAFVPARGIGIVMLANRNYPIEARIKAAHAILAQLAG

SEQ ID No. 265:

MMKKSLCCALLLTASFSTFASAKTEQQIADIVNRTITPLMQEQAIIPGMAVAIIYQGKPY
 YFTWKGADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPEL
 TGKQWQGISLLHLATYTAGGLPLQIPDDVTDKAALLRFYQNWQPQWAPGAKRLYA
 15 NSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYREG
 KPVHVSPGQLDAEAYGVKSNVTDMARWVQVNMDASRVQEKTLLQQGIALAQSRYW
 RIGDMYQQLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVHKT
 GSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 266:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 20 YYFTWKGADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
 25 WRIGDMYQQLGWEMLNWPLKADSIINGSDSKVAFAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 267:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWKGADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 30 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
 WRIGDMYQQLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASW
 VHKTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 268:

MKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKPY
 YFTWKGKADIANNHPVTQQTLELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPEL
 TGKQWQGISLLHLATYTAGGLPLQIPDDVTDKAALLHFYQNWQPQWTPGAKRLYA
 5 NSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYREG
 KPVEHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGIALAQSRYW
 RIGDMYQGLGWEMLNWPLKADSIINGSDNKVALAALPAVEVNPPAPAVKASWVHKT
 GSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 269:

10 MMKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKPY
 YFTWKGKADIANNHPVTQQTLELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGELAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGKLDAAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGIALAQSRY
 15 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 270:

MMKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKPY
 YFTWKGKADIANNHPVTQQTLELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 20 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAYWRILEKLQ

SEQ ID No. 271:

MMKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKPY
 YFTWKGKADIANNHPVTQQTLELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 30 EGKPVHVSPGQLDAGAYGVKSSVIDMARWVQANMDASHVQEKTLLQGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 272:

MMKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKPY

YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVTDKAALLHFYQNWQPQWTPGAKRLY
 ANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 5 WRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 273:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 10 ELTGKQWQGIIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKAVHVSPGQLDAEAYGVKSSVIDMARWVQVNMDSRVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 274:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 20 EGKPVYVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 275:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 25 YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGELAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDDNKVALAALPAVEVNPPAPAVKASWVH
 30 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 276:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL

YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGRLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

5 **SEQ ID No. 277:**

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQFPDDVRDKAALLHFYQNWQPPQWTPGAKRL
 YANSSIGLFGELAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 10 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 278:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 15 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHGSPPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 20 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 279:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDCIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPPQWTPGAKRL
 25 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPENEQKDYAWGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 280:

30 MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVTDKAALLHFYQNWQPPQWTPGAKRL
 ANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY

WRIGDMYQGLGWEMPLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 281:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKP
5 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYACGYRE
GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSR
WRIGDMYQGLGWEMPLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
10 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 282:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGISLLHLATYTAGGLPLQIPDDVTDKAALLRFYQNWQPPQWTPGAKRL
15 ANSSIGLFGTLAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQSEQKDYAWGYRE
GKPVHVSPGQLDAEAYGVKSSVIDMAHWVQANMDASHVQEKTLLQGGIELAQSR
WRIGDMYQGLGWEMPLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
KTGYTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 283:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKP
20 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
EGKPVHVSPEQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSR
25 WRIGDMYQGLGWEMPLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 284:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
30 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSR
WRIGDMYQGLGWEMPLNWPLKADSIINGSDSKVAALPAVEVNPPAPAVKASWVHKT
GSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 285:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
5 YANSSIGLFAALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYRE
GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 286:

10 MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
15 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVAPAVEVNPPAPAVKASWVHKTGS
TGGFGSYVAFVPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 287:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAIIYQGKPY
YFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPEL
20 TGKQWQGISLLHLATYTAGGLPLQIPDDVTDKAALLRFYQNWQPQWTPGAKRLYA
NSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYREG
KPVHVTPGQLDAEAYGVKSNVTDMARWIQVNMDASRVQEKTLLQGGIALAQSRYW
RIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALHTVEVNPPAPAVKASWVHKT
GSTGGFGSYVAFIPEKNLGIVMLANKSYNPNVRVEAAWRILEKLQ

SEQ ID No. 288:

MMKKSICCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAIIYEGKPY
YFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPEL
TGKQWRGISLLHLATYTAGGLPLQIPDEVTDKAELLRFYQNWQPQWTPGAKRLYAN
SSIGLFGALVVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQSEQKNYAWGYREGK
30 PVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIELAQSRYWRI
GDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVHKTG
STGGFGSYVAFVPEKNLGIVMLANKSYNPNARVEAAWRILEKLQ

SEQ ID No. 289:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP

YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGQLELDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQS
 5 RYWRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASW
 VHKTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 290:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPE
 10 LTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPPQWTPGAKRLY
 ANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 291:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 20 EGKPVHVSPGQFDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 292:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 25 YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKTDSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH
 30 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 293:

MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
 LKDGAHYFNYGVANRESGASVSEQTLFDIGSVSKTLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSVFDSITMGELATYSAGGLPLQFPPEEVDSSSEKMRAYYRQWAPVYS

PGSHRQYSNPSIGLFGHLAASSLKQPFAQLMEQTLLPGLGMHHTYVNVPKQAMAS
 YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLAFVKANIGGVDDKALQQAISLTH
 KGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVILEANPTAAPRESGSQVLFN
 KTGSTNGFGAYVAFVPARGIGIVMLANRNYPIPARVKAAHAILAQLAG

5 **SEQ ID No. 294:**

MQQRQSILWGAVATLMWAGLAHAGEASPVDP LRPVVDASIQPLLKEHRIPGMAVAV
 LKDGKAHYFNYGVANRESGASVSEQTLFDIGSVSKTLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSVFDSITMGELATYSAGGLPLQFP EEVDSSEKMRAYRQWAPVYS
 PGSHRQYSNPSIGLFGHLAASSLKQPFAQLMEQTLLPGLGMHHTYVNVPKQAMAS
 10 YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLAFVKANIGGVDDKALQQAISLTH
 KGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVSLEANPTAAPRESGSQVLFN
 KTGSTNGFGAYVAFVPARGIGIVMLANRNYPIPARVKAAHAILAQLAG

SEQ ID No. 295:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAI PGMAVAVIYQGKP
 15 YYFTWKGKADIANNHPVTQQT L FELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWS
 ELTGKQWQGISLLHLATYTAGGLPLQIPDDVTDKTALLHFYQNWQPQWAPGAKRLY
 ANSSIGLFGALAVKPSGMSYEEAMTRRV LQPLKLAHTWITVPQSEQKD YAWGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASRVQEKT LQQGIALAQSR Y
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAAIPAVEVNPPAPAVKASWVHK
 20 TGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPIRVEAAWRILEKLQ

SEQ ID No. 296:

MMKKSLLCCALLLTASFSTFASAKTEQQIADIVNRTITPLMQEQAI PGMAVAVIYQGKT
 YYFTWKGKADIANNHPVTQQT L FELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQDISLLHLATYTAGGLPLQIPDDVTDKTALLHFYQNWQPQWAPGAKRLY
 25 ANSSIGLFGALAVKPSGMSYEEAMTRRV LQPLKLAHTWITVPQSEQKD YAWGYRE
 GKPVHVSPGQLDAEAYGVKSNVTD MARWVQVNMDASRVQEKT LQQGIALAQSR Y
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 297:

MMKKSLLCCALLLTAPLSTFAAAKTEQQIADIVNRTITPLMQEQAI PGMAVAVIYQGKP
 30 YYFTWKGKADITNNHPVTQQT L FELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPE
 LTGKQWQGISLLHLATYTAGGLPLQIPDDVTDKAALLRFYQNWQPQWAPGAKRLYA
 NSSIGLFGALAVKPSGMSYEEAMTRRV LQPLKLAHTWIKVPQSEQKD YAWGYREG
 KAVHVSPGQLDAEAYGVKSSVIDMARWVQVNMDASRVQEKT LQQGIALAQSR YW

RIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVHKT
GSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 298:

MMKKSICCALLLTASFSTFAATKTEQQIADIVNRTITPLMQEQAIPGMAVAIIYEEKPY
5 YFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPEL
TGKQWRGISLLHLATYTAGGLPLQIPDEVTDKAALLRFYQNWQPQWTPGAKRLYAN
SSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQSEQKNYAWGYREGK
PVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIELAQSRWRI
GDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVHKTG
10 STGGFGSYVAFVPEKNLGIVMLANKSYPNPARVEAAWRILEKLQ

SEQ ID No. 299:

GPGHLFAFNYGTDFMMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQ
AIPGMAVAVIYQGKPYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIAR
GEIKLSDPVTKYWPELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQN
15 WQPQWTPGAKRLYANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVP
QNEQKDYAWGYREGKPVHASPGQLDAEAYGVKSSVIDMARWVQANMDASHVQE
KTLQGGIALAQSRWRIWDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEV
NPPAPAVKASWVHKTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRIL
EKLQ

SEQ ID No. 300:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGK
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
25 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSR
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 301:

MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
30 LKDGKAHYFNYGVANRESGAGVSEQTLFEIGSVSKTLTATLGAYAVVKGAMQLDDK
ASRHAPWLKGSAFDSITMGELATYSAGGLPLQFPPEEVDSSSEKMRAYYRQWAPVYS
PGSHRQYSNPSIGLFGHLAASSLKQPFAPLMEQTLLPGLGMHHTYVNVPKQAMAS
YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLRFVKANIGGVDDKALQQAISLTH
QGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVILEANPTAAPRESGSQVLFN

KTGSTNGFGAYVAFVPARGIGIVMLANRNPNEARIKAAHAILAQLAG

SEQ ID No. 302:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
YYFTWGWKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
5 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHIFYQNWQPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNPVRVEAAWRILEKLQ

10 **SEQ ID No. 303:**

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
YYFTWGWKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHIFYQNWQPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
15 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNPVRVEAAWRILEKLQ

SEQ ID No. 304:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
20 YYFTWGWKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHIFYQNWQPQWTPGAKRL
YSNSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPAPAVKASWVH
25 KTGSTGGFGSYVAFVPEKNLGIVMLANKNYPNPVRVEAAWRILEKLQ

SEQ ID No. 305:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
YYFTWGWKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHIFYQNWQPQWTPGAKRL
30 YANSSIGLFGELAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNPVRVEAAWRILEKLQ

SEQ ID No. 306:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKP
 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYALGYRE
 5 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 307:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKP
 10 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKFSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 15 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 308:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKP
 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 20 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKNYPNPVRVEAAWRILEKLQ

SEQ ID No. 309:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKP
 25 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 30 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEINPPAPAVKASWVHK
 TGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 310:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIPGMAVAVIYQGKP
 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP

ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YSNSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSR
 YWRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 5 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNPVRVEAAWRILEKLQ

SEQ ID No. 311:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWVGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 10 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
 GKPVHVSPGQLNAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSR
 YWRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKNYPNPVRVEAAWRILEKLQ

SEQ ID No. 1844:

15 MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
 LKDGAHYFNYGVANRESGAGVSEQTLFEIGSVSKTLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSFDSITMGELATYSAGGLPLQFPFEEVDSSEKMRAYRQWAPVYS
 PGSHRQYSNPSIGLFGHLAASSLKQPFAPLMEQTLLPGLGMHHTYVNVPKQAMAS
 YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLRFVKANIGGVDDKALQQAISLTH
 20 QGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVILEANPTAAPRESGSQVLFN
 KTGSTNGFGAYVAFVPARGIGIVMLANRNYPIEARIKAAHAILAQLAG

SEQ ID No. 1845:

MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
 LKDGAHYFNYGVANRESGAGVSEQTLFEIGSVSKTLTATLGAYAVVKGAMQLDDK
 25 ASRHAPWLKGSFDSITMGELATYSAGGLPLQFPFEEVDSSEKMRAYRQWAPVYS
 PGSHRQYSNPSIGLFGHLAASSLKQPFAPLMEQTLLPGLGMHHTYVNVPKQAMAS
 YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLRFVKANIGGVDDKALQQAISLTH
 QGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVSLEANPTAAPRESGSQVLFN
 KTGSTNGFGAYVAFVPARGIGIVMLANRNYPIEARIKAAHAILAQLAG

30 SEQ ID No. 1846:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWVGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR

EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVAFAALPAVEVNPPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1847:

5 MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMMAVAVIYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
10 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASW
VHKTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1848:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMMAVAVIYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
15 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAYWRILEKLQ

20 **SEQ ID No. 1849:**

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMMAVAVIYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
YANSSIGLFGELAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
25 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
WRIGDMYQGLGWEMLNWPLKADSIINGSDNKVALAALPAVEVNPPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1850:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMMAVAVIYQGKP
30 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVAALPAVEVNPPAPAVKASWVHKT

GSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1851:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
5 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSR
WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVAPAVEVNPPAPAVKASWVHKTGS
TGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

10 **SEQ ID No. 1852:**

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVLYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYLP
LTGKQWQGISLLHLATYTAGGLPLQIPDDVTDKAALLRFYQNWQPQWTPGAKRLYA
NSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYREG
15 KPVHVTPGQLDAEAYGVKSNVTDMARWIQVNMDSRVQEKTLLQQGIALAQSR
RIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPTVEVNPPAPAVKASWVHKT
GSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1853:

MMKKSICCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAIIYEGKPY
20 YFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
TGKQWRGISLLHLATYTAGGLPLQIPDDVTDKAALLRFYQNWQPQWTPGAKRLYAN
SSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQSEQKNYAWGYREGK
PVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIELAQSRWRI
GDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVHKTG
25 STGGFGSYVAFVPEKNLGIVMLANKSYPNPARVEAAWRILEKLQ

SEQ ID No. 1854:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
30 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSR
WRIGDMYQGLGWEMLNWPLKTDIINGSDSKVALAALPAVEVNPPAPAVKASWVH
KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1855:

MMKKSLCCALLLTASLSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAIAVIYQGKPY
 YFTWKGADITNNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPEL
 TGKQWQGISLLHLATYTAGGLPLQIPDDVTDKAALLRFYQNWQPQWAPGAKRLYA
 NSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYREG
 5 KAVHVSPGQLDAEAYGVKSSVIDMARWVQVNMDASRVQEKTLLQGGIALAQSRYW
 RIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVHKT
 GSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1856:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKPY
 10 YYFTWKGADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGQLDAEAYCVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 15 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1857:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKPY
 YYFTWKGADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPE
 LTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRLY
 20 ANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1858:

MMNRYAAALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKPY
 25 YFTWKGADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWPEL
 TGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRLYA
 NSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYREG
 KPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRYW
 30 RIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVHKT
 GSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1859:

MMKKSLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKPY
 YYFTWKGADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP

ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFSALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPAPAVKASWVH
 5 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1860:

MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
 LKDGGKAHYFNHYGVANRESGASVSEQTLFDIGSVSKTLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSVFDSITMGELATYSAGGLPLQFPFEEVDSSEKMRAYYRQWAPVYS
 10 PGSHRQYSNPSIGLFGHLAASSLKQPFQAQLMEQTLLPGLGMHHTYVNVPKQAMAS
 YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLAFVKANIGGVDDKALQQAISLTH
 KGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVILEANPTAAPRESGSQVLFN
 KTGSTNGFGAYVAFVPARGIGIVMLANRNYPIPARVKAAHAILAQLAG

SEQ ID No. 1861:

MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
 LKDGGKAHYFNHYGVANRESGASVSEQTLFDIGSVSKTLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSVFDSITMGELATYSAGGLPLQFPFEEVDSSEKMRAYYRQWAPVYS
 PGSHRQYSNPSIGLFGHLAASSLKQPFQAQLMEQTLLPGLGMHHTYVNVPKQAMAS
 YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLAFVKANIGGVDDKALQQAISLTH
 20 KGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVSLEANPTAAPRESGSQVLFN
 KTGSTNGFGAYVAFVPARGIGIVMLANRNYPIPARVKAAHAILAQLAG

SEQ ID No. 1862:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWGGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 25 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYPNPVRVEAAWRILEKLQ

SEQ ID No. 1863:

MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
 LKDGGKAHYFNHYGVANRESGAGVSEQTLFEIGSVSKTLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSFAFDSITMGELATYSAGGLPLQFPFEEVDSSEKMRAYYRQWAPVYS
 PGSHRQYSNPSIGLFGHLAASSLKQPFAPLMEQTLLPGLGMHHTYVNVPKQAMAS

YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLRFVKANIGGVDDKALQQAISLTH
 QGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVILEANPTAAPRESGSQVLFN
 KTGSTNGFGAYVAFVPARGIGIVMLANRNPNEARIKAAHAILAQLAG

SEQ ID No. 1864:

5 MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWGWKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
 10 WRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNPVRVEAAWRILEKLQ

SEQ ID No. 1865:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWGWKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 15 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YSNSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKNYPNPVRVEAAWRILEKLQ

SEQ ID No. 1866:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWGWKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGELAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYAWGYR
 25 EGKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPNPVRVEAAWRILEKLQ

SEQ ID No. 1867:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 30 YYFTWGWKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQQGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDDSKVALAALPAVEVNPPAPAVKASWVH

KTGSTGGFGSYVAFVPEKNLGIVMLANKNYPNPVRVEAAWRILEKLQ

SEQ ID No. 1868:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 5 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YANSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEINPPAPAVKASWVHK
 TGSTGGFGSYVAFVPEKNLGIVMLANKSYNPVRVEAAWRILEKLQ

10 **SEQ ID No. 1869:**

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLQIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 YSNSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYRE
 15 GKPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRY
 WRIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVH
 KTGSTGGFGSYVAFVPEKNLGIVMLANKSYNPVRVEAAWRILEKLQ

SEQ ID No. 1870:

MMKKSLLCCALLLTASFSTFAAAKTEQQIADIVNRTITPLMQEQAIIPGMAVAVIYQGKP
 20 YYFTWKGKADIANNHPVTQQTLFELGSVSKTFNGVLGGDAIARGEIKLSDPVTKYWP
 ELTGKQWQGIRLLHLATYTAGGLPLKIPDDVRDKAALLHFYQNWQPQWTPGAKRL
 SNSSIGLFGALAVKPSGMSYEEAMTRRVLQPLKLAHTWITVPQNEQKDYARGYREG
 KPVHVSPGQLDAEAYGVKSSVIDMARWVQANMDASHVQEKTLLQGGIALAQSRYW
 RIGDMYQGLGWEMLNWPLKADSIINGSDSKVALAALPAVEVNPPAPAVKASWVHKT
 25 GSTVGFGSYVAFVPEKNLGIVMLANKSYNPVRVEAAWRILEKLQ

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID No. 312** to **SEQ ID No. 350**, **SEQ ID No. 734**, **SEQ ID No. 735** and **SEQ ID No. 1929** to **SEQ ID No. 2007**, as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the CMY protein
SEQ ID No. 312	AALLHFYQNWQPQWTPGAK	149-167 for the proteins of SEQ No. 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 283, 284, 285, 286, 289, 290, 291, 292, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1854, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870;

		148-166 for the protein of sequence SEQ ID No. 268; 163-181 for the protein of sequence SEQ ID No. 299; 148-166 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 313	ADIANNHPVTQQTLFELGSVSK	66-87 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 295, 296, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 65-86 for the protein of sequence SEQ ID No. 268; 80-101 for the protein of sequence SEQ ID No. 299; 65-86 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 314	ADSIINGSDSK	300-310 for the proteins of SEQ No. 265, 266, 269, 270, 271, 272, 273, 274, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 290, 291, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1848, 1850, 1851, 1852, 1853, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 302-312 for the protein of sequence SEQ ID No. 289; 314-324 for the protein of sequence SEQ ID No. 299; 299-309 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 315	ASWVHK	330-335 for the proteins of SEQ No. 265, 266, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 285, 287, 288, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1848, 1849, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 332-337 for the protein of sequence SEQ ID No. 267; 329-334 for the protein of sequence SEQ ID No. 268; 328-333 for the protein of sequence SEQ ID No. 284; 326-331 for the protein of sequence SEQ ID No. 286; 332-337 for the protein of sequence SEQ ID No. 289; 344-349 for the protein of sequence SEQ ID No. 299; 332-337 for the protein of sequence SEQ ID No. 1847; 328-333 for the protein of sequence SEQ ID No. 1850; 326-331 for the protein of sequence SEQ ID No. 1851; 329-334 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 316	DYAWGYR	218-224 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 282, 283, 284, 285, 286, 287, 289, 290, 291, 292, 295, 296, 297, 300, 305, 307, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1854, 1855, 1856, 1857, 1859, 1862, 1866; 217-223 for the protein of sequence SEQ ID No. 268; 232-238 for the protein of sequence SEQ ID No. 299; 217-223 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 317	IGDMYQGLGWEMLNWPLK	282-299 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 281-298 for the protein of sequence SEQ ID No. 268; 284-301 for the protein of sequence SEQ ID No. 289; 296-313 for the protein of sequence SEQ ID No. 299; 281-298 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 318	LAHTWITVPQNEQK	204-217 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 280, 281, 283, 284, 285, 286, 287, 289, 290, 291, 292, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 203-216 for the protein of sequence SEQ ID No. 268; 218-231 for the protein of sequence SEQ ID No. 299; 203-216 for the protein of sequence SEQ ID No. 1858

SEQ ID No. 319	LLHLATYTAGGLPLQIPDDVR	126-146 for the proteins of SEQ No. 266, 267, 269, 270, 271, 273, 274, 275, 276, 278, 279, 281, 283, 284, 285, 286, 289, 290, 291, 292, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1854, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869; 140-160 for the protein of sequence SEQ ID No. 299; 125-145 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 320	LSDPVTK	105-111 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 104-110 for the protein of sequence SEQ ID No. 268; 119-125 for the protein of sequence SEQ ID No. 299; 104-110 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 321	LYANSSIGLFGALAVK	169-184 for the proteins of SEQ No. 265, 266, 267, 270, 271, 272, 273, 274, 276, 278, 279, 280, 281, 283, 284, 286, 287, 289, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 306, 307, 308, 309, 311, 1846, 1847, 1848, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1862, 1864, 1867, 1868; 168-183 for the protein of sequence SEQ ID No. 268; 183-198 for the protein of sequence SEQ ID No. 299; 168-183 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 322	NLGIVMLANK	353-362 for the proteins of SEQ No. 265, 266, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 285, 287, 288, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1848, 1849, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 355-364 for the protein of sequence SEQ ID No. 267; 352-361 for the protein of sequence SEQ ID No. 268; 351-360 for the protein of sequence SEQ ID No. 284; 349-358 for the protein of sequence SEQ ID No. 286; 355-364 for the protein of sequence SEQ ID No. 289; 367-376 for the protein of sequence SEQ ID No. 299; 355-364 for the protein of sequence SEQ ID No. 1847; 351-360 for the protein of sequence SEQ ID No. 1850; 349-358 for the protein of sequence SEQ ID No. 1851; 352-361 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 323	QWQGIR	120-125 for the proteins of SEQ No. 266, 267, 269, 270, 271, 273, 274, 275, 276, 277, 278, 279, 280, 281, 283, 284, 285, 286, 289, 290, 291, 292, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1854, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 134-139 for the protein of sequence SEQ ID No. 299; 119-124 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 324	SLCCALLLTASFSTFAAAK	5-23 for the proteins of SEQ No. 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 289, 290, 291, 292, 295, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1854, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 4-22 for the protein of sequence SEQ ID No. 268; 19-37 for the protein of sequence SEQ ID No. 299
SEQ ID No. 325	SSVIDMAR	245-252 for the proteins of SEQ No. 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 283, 284, 285, 286, 288, 290, 291, 292, 295, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 244-251 for the protein of sequence SEQ ID No. 268; 247-254 for the protein of sequence

		SEQ ID No. 289; 259-266 for the protein of sequence SEQ ID No. 299; 244-251 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 326	SYNPVVR	363-369 for the proteins of SEQ No. 265, 266, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 285, 287, 290, 291, 292, 296, 297, 300, 302, 303, 305, 306, 307, 309, 310, 1846, 1848, 1849, 1852, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1866, 1868, 1869, 1870; 365-371 for the protein of sequence SEQ ID No. 267; 362-368 for the protein of sequence SEQ ID No. 268; 361-367 for the protein of sequence SEQ ID No. 284; 359-365 for the protein of sequence SEQ ID No. 286; 365-371 for the protein of sequence SEQ ID No. 289; 377-383 for the protein of sequence SEQ ID No. 299; 365-371 for the protein of sequence SEQ ID No. 1847; 361-367 for the protein of sequence SEQ ID No. 1850; 359-365 for the protein of sequence SEQ ID No. 1851; 362-368 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 327	TEQQIADIVNR	24-34 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 23-33 for the protein of sequence SEQ ID No. 268; 38-48 for the protein of sequence SEQ ID No. 299; 23-33 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 328	TFNGVLGGDAIAR	88-100 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 87-99 for the protein of sequence SEQ ID No. 268; 102-114 for the protein of sequence SEQ ID No. 299; 87-99 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 329	TGSTGGFGSYVAFVPEK	336-352 for the proteins of SEQ No. 265, 266, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 283, 285, 288, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1848, 1849, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869; 338-354 for the protein of sequence SEQ ID No. 267; 335-351 for the protein of sequence SEQ ID No. 268; 334-350 for the protein of sequence SEQ ID No. 284; 332-348 for the protein of sequence SEQ ID No. 286; 338-354 for the protein of sequence SEQ ID No. 289; 350-366 for the protein of sequence SEQ ID No. 299; 338-354 for the protein of sequence SEQ ID No. 1847; 334-350 for the protein of sequence SEQ ID No. 1850; 332-348 for the protein of sequence SEQ ID No. 1851; 335-351 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 330	TITPLMQEQAI PGMAVAVIYQ GK	35-57 for the proteins of SEQ No. 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 289, 290, 291, 292, 295, 296, 297, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1854, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 34-56 for the protein of sequence SEQ ID No. 268; 49-71 for the protein of sequence SEQ ID No. 299; 34-56 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 331	TLQQGIALAQSR	267-278 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 283, 284, 285, 286, 287, 290, 291, 292, 295, 296, 297, 300, 302, 303, 304,

		305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 266-277 for the protein of sequence SEQ ID No. 268; 269-280 for the protein of sequence SEQ ID No. 289; 281-292 for the protein of sequence SEQ ID No. 299; 266-277 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 332	VALAALPAVEVNPPAPAVK	311-329 for the proteins of SEQ No. 265, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 285, 288, 290, 291, 292, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 310, 311, 1848, 1849, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1869, 1870; 313-331 for the protein of sequence SEQ ID No. 267; 310-328 for the protein of sequence SEQ ID No. 268; 313-331 for the protein of sequence SEQ ID No. 289; 325-343 for the protein of sequence SEQ ID No. 299; 313-331 for the protein of sequence SEQ ID No. 1847; 310-328 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 333	VEAAWR	370-375 for the proteins of SEQ No. 265, 266, 269, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 285, 287, 288, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1849, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 372-377 for the protein of sequence SEQ ID No. 267; 369-374 for the protein of sequence SEQ ID No. 268; 368-373 for the protein of sequence SEQ ID No. 284; 366-371 for the protein of sequence SEQ ID No. 286; 372-377 for the protein of sequence SEQ ID No. 289; 384-389 for the protein of sequence SEQ ID No. 299; 372-377 for the protein of sequence SEQ ID No. 1847; 368-373 for the protein of sequence SEQ ID No. 1850; 366-371 for the protein of sequence SEQ ID No. 1851; 369-374 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 334	VLQPLK	198-203 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 197-202 for the protein of sequence SEQ ID No. 268; 212-217 for the protein of sequence SEQ ID No. 299; 197-202 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 335	WVQANMDASHVQEK	253-266 for the proteins of SEQ No. 266, 267, 269, 270, 271, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 288, 290, 291, 292, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1853, 1854, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 252-265 for the protein of sequence SEQ ID No. 268; 255-268 for the protein of sequence SEQ ID No. 289; 267-280 for the protein of sequence SEQ ID No. 299; 252-265 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 336	YWPELTGK	112-119 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 111-118 for the protein of sequence SEQ ID No. 268; 126-133 for the protein of sequence SEQ ID No. 299; 111-118 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 337	AHYFNYGVANR	62-72 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863

SEQ ID No. 338	ANIGGVDDK	261-269 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 339	ESGSQVLFNK	326-335 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 340	GAMQLDDK	105-112 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 341	GIGIVMLANR	353-362 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 342	HAPWLK	116-121 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 343	IPGMAVAVLK	49-58 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 344	PVVDASIQPLLK	34-45 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 345	QAMASYAYGYSK	218-229 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 346	QWAPVYSPGSHR	161-172 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 347	QYSNPSIGLFGHLAASSLK	173-191 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 348	TGSTNGFGAYVAFVPAR	336-352 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 349	TLTATLGAYAVVK	92-104 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 350	VNPGMLADEAYGIK	236-249 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 734	PSGMSYEEAMTR	185-196 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 184-195 for the protein of sequence SEQ ID No. 268; 199-210 for the protein of sequence SEQ ID No. 299; 184-195 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 735	PYYFTWGK	58-65 for the proteins of SEQ No. 265, 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 295, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 57-64 for the protein of sequence SEQ ID No. 268; 72-79 for the protein of sequence SEQ ID No. 299; 57-64 for the protein of sequence SEQ ID No. 1858

SEQ ID No. 1929	AALLR	149-153 for the proteins of SEQ No. 265, 282, 287, 297, 298, 1852, 1853, 1855
SEQ ID No. 1930	ADSIINGNGSDSK	300-312 for the proteins of SEQ No. 267, 1847
SEQ ID No. 1931	ADSIINGS DNK	300-310 for the proteins of SEQ No. 275, 1849; 299-309 for the protein of sequence SEQ ID No. 268
SEQ ID No. 1932	AELLR	149-153 for the protein of SEQ No. 288
SEQ ID No. 1933	ALQQAISLTHK	270-280 for the proteins of SEQ No. 262, 293, 294, 1860, 1861
SEQ ID No. 1934	AVHVSPGQLDAEAYGVK	228-244 for the proteins of SEQ No. 273, 297, 1855
SEQ ID No. 1935	DYACGYR	218-224 for the protein of SEQ No. 281
SEQ ID No. 1936	DYALGYR	218-224 for the protein of SEQ No. 306
SEQ ID No. 1937	EDKPIR	230-235 for the proteins of SEQ No. 262, 263, 264, 293, 294, 301, 1844, 1845, 1860, 1861, 1863
SEQ ID No. 1938	EGKPVHASPGQLDAEAYGVK	239-258 for the protein of SEQ No. 299
SEQ ID No. 1939	EGKPVHGSPGQLDAEAYGVK	225-244 for the protein of SEQ No. 278
SEQ ID No. 1940	EGKPVHVSPEQLDAEAYGVK	225-244 for the protein of SEQ No. 283
SEQ ID No. 1941	EGKPVHVSPGK	225-235 for the protein of SEQ No. 269
SEQ ID No. 1942	EGKPVHVSPGQFDAEAYGVK	225-244 for the protein of SEQ No. 291
SEQ ID No. 1943	EGKPVHVSPGQLDAEAYCVK	225-244 for the proteins of SEQ No. 1856
SEQ ID No. 1944	EGKPVHVSPGQLDAEAYGVK	225-244 for the proteins of SEQ No. 265, 266, 267, 270, 272, 275, 277, 279, 280, 281, 282, 284, 285, 286, 288, 290, 292, 295, 296, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 1846, 1847, 1848, 1849, 1850, 1851, 1853, 1854, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 224-243 for the protein of sequence SEQ ID No. 268; 224-243 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 1945	EGKPVHVSPGQLDAGAYGVK	225-244 for the protein of SEQ No. 271

SEQ ID No. 1946	EGKPVHIVSPGQLNAEAYGVK	225-244 for the protein of SEQ No. 311
SEQ ID No. 1947	EGKPVHVSPGR	225-235 for the protein of SEQ No. 276
SEQ ID No. 1948	EGKPVHVTPGQLDAEAYGVK	225-244 for the proteins of SEQ No. 287, 1852
SEQ ID No. 1949	EGKPVYVSPGQLDAEAYGVK	225-244 for the protein of SEQ No. 274
SEQ ID No. 1950	ESGAGVSEQTLFEIGSVSK	73-91 for the proteins of SEQ No. 263, 264, 301, 1844, 1845, 1863
SEQ ID No. 1951	ESGASVSEQTLFDIGSVSK	73-91 for the proteins of SEQ No. 293, 294, 1860, 1861
SEQ ID No. 1952	ESGASVSEQTLFEIGSVSK	73-91 for the protein of SEQ No. 262
SEQ ID No. 1953	FSDPVTK	105-111 for the protein of SEQ No. 307
SEQ ID No. 1954	FYQNWQPQWAPGAK	154-167 for the proteins of SEQ No. 265, 295, 296, 297, 1855
SEQ ID No. 1955	FYQNWQPQWTPGAK	154-167 for the proteins of SEQ No. 266, 267, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 153-166 for the protein of sequence SEQ ID No. 268; 168-181 for the protein of sequence SEQ ID No. 299; 153-166 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 1956	IPDDVR	141-146 for the proteins of SEQ No. 266, 267, 269, 270, 271, 273, 274, 275, 276, 278, 279, 281, 283, 284, 285, 286, 289, 290, 291, 292, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 1846, 1847, 1848, 1849, 1850, 1851, 1854, 1856, 1857, 1859, 1862, 1864, 1865, 1866, 1867, 1868, 1869, 1870; 155-160 for the protein of sequence SEQ ID No. 299; 140-145 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 1957	LAHTWIK	204-210 for the protein of SEQ No. 297
SEQ ID No. 1958	LAHTWITVPENEQK	204-217 for the protein of SEQ No. 279
SEQ ID No. 1959	LAHTWITVPQSEQK	204-217 for the proteins of SEQ No. 282, 288, 295, 296, 298, 1853
SEQ ID No. 1960	LDAEAYGVK	236-244 for the proteins of SEQ No. 265, 266, 267, 269, 270, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 290, 292, 295, 296, 297, 298, 300, 302, 303, 304, 305, 306, 307, 308, 309, 310, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1857, 1859, 1862, 1864,

		1865, 1866, 1867, 1868, 1869, 1870; 235-243 for the protein of sequence SEQ ID No. 268; 238-246 for the protein of sequence SEQ ID No. 289; 250-258 for the protein of sequence SEQ ID No. 299; 235-243 for the protein of sequence SEQ ID No. 1858
SEQ ID No. 1961	LLHLATYTAGGLPLK	126-140 for the proteins of SEQ No. 1870
SEQ ID No. 1962	LLHLATYTAGGLPLQFPDDVR	126-146 for the protein of SEQ No. 277
SEQ ID No. 1963	LYANSSIGLFAALAVK	169-184 for the protein of SEQ No. 285
SEQ ID No. 1964	LYANSSIGLFGALVVK	169-184 for the protein of SEQ No. 288
SEQ ID No. 1965	LYANSSIGLFGELAVK	169-184 for the proteins of SEQ No. 269, 275, 277, 305, 1849, 1866
SEQ ID No. 1966	LYANSSIGLFGTLAVK	169-184 for the protein of SEQ No. 282
SEQ ID No. 1967	LYANSSIGLFSALAVK	169-184 for the proteins of SEQ No. 1859
SEQ ID No. 1968	LYSNSSIGLFGALAVK	169-184 for the proteins of SEQ No. 304, 310, 1865, 1869, 1870
SEQ ID No. 1969	NYAWGYR	218-224 for the proteins of SEQ No. 288, 298, 1853
SEQ ID No. 1970	NYPIPAR	363-369 for the proteins of SEQ No. 262, 293, 294, 1860, 1861
SEQ ID No. 1971	NYPNEAR	363-369 for the proteins of SEQ No. 301, 1863
SEQ ID No. 1972	NYPNPVR	363-369 for the proteins of SEQ No. 304, 308, 311, 1865, 1867
SEQ ID No. 1973	SICCALLLTASFSTFAAAK	5-23 for the proteins of SEQ No. 288, 1853
SEQ ID No. 1974	SICCALLLTASFSTFAATK	5-23 for the protein of SEQ No. 298
SEQ ID No. 1975	SLCCALLLTAPLSTFAAAK	5-23 for the protein of SEQ No. 297
SEQ ID No. 1976	SLCCALLLTASFSTFASAK	5-23 for the proteins of SEQ No. 265, 296
SEQ ID No. 1977	SLCCALLLTASLSTFAAAK	5-23 for the proteins of SEQ No. 1855

SEQ ID No. 1978	SNVTDMAR	245-252 for the proteins of SEQ No. 265, 287, 296, 1852
SEQ ID No. 1979	SYPNPIR	363-369 for the protein of SEQ No. 295
SEQ ID No. 1980	TALLHFYQNWQPQWAPGAK	149-167 for the proteins of SEQ No. 295, 296
SEQ ID No. 1981	TDSIHNGSDSK	300-310 for the proteins of SEQ No. 292, 1854
SEQ ID No. 1982	TFIGVLGGDAIAR	88-100 for the proteins of SEQ No. 1857
SEQ ID No. 1983	TFNGVLGGDCIAR	88-100 for the protein of SEQ No. 279
SEQ ID No. 1984	TFNGVLGGDAIAR	88-100 for the protein of SEQ No. 290
SEQ ID No. 1985	TGSTVGFGSYVAFVPEK	336-352 for the proteins of SEQ No. 1870
SEQ ID No. 1986	TGYTGGFGSYVAFVPEK	336-352 for the protein of SEQ No. 282
SEQ ID No. 1987	TLQQGIELAQSR	267-278 for the proteins of SEQ No. 282, 288, 298, 1853
SEQ ID No. 1988	TSSADLLAFVK	250-260 for the proteins of SEQ No. 262, 293, 294, 1860, 1861
SEQ ID No. 1989	TSSADLLR	250-257 for the proteins of SEQ No. 263, 264, 301, 1844, 1845, 1863
SEQ ID No. 1990	TYYFTWGK	58-65 for the protein of SEQ No. 296
SEQ ID No. 1991	VAALPAVEVNPPAPAVK	311-327 for the proteins of SEQ No. 284, 1850
SEQ ID No. 1992	VAFAALPAVEVNPPAPAVK	311-329 for the proteins of SEQ No. 266, 1846
SEQ ID No. 1993	VALAAIPAVEVNPPAPAVK	311-329 for the protein of SEQ No. 295
SEQ ID No. 1994	VALAALHTVEVNPPAPAVK	311-329 for the protein of SEQ No. 287
SEQ ID No. 1995	VALAALPAVEINPPAPAVK	311-329 for the proteins of SEQ No. 309, 1868

SEQ ID No. 1996	VALAALPTVEVNPPAPAVK	311-329 for the proteins of SEQ No. 1852
SEQ ID No. 1997	VAPAVEVNPPAPAVK	311-325 for the proteins of SEQ No. 286, 1851
SEQ ID No. 1998	VEAYWR	370-375 for the proteins of SEQ No. 270, 1848
SEQ ID No. 1999	VILEANPTAAPR	314-325 for the proteins of SEQ No. 262, 263, 293, 301, 1844, 1860, 1863
SEQ ID No. 2000	VPQSEQK	211-217 for the proteins of SEQ No. 282, 288, 295, 296, 297, 298, 1853
SEQ ID No. 2001	VSLEANPTAAPR	314-325 for the proteins of SEQ No. 264, 294, 1845, 1861
SEQ ID No. 2002	WIQVNMDASR	253-262 for the proteins of SEQ No. 287, 1852
SEQ ID No. 2003	WVQANMDASR	253-262 for the protein of SEQ No. 295
SEQ ID No. 2004	WVQVNMDASR	253-262 for the proteins of SEQ No. 265, 273, 296, 297, 1855
SEQ ID No. 2005	YAAALLLTASFSTFAAAK	5-22 for the proteins of SEQ No. 1858
SEQ ID No. 2006	YLPETGK	112-119 for the proteins of SEQ No. 1852
SEQ ID No. 2007	YWSELTGK	112-119 for the protein of SEQ No. 295

The detection of a mechanism of resistance to cephalosporins induced by the expression of the CTX-M protein is characterised by the detection of at least one peptide belonging to the CTX-M protein and to its different sequence variants **SEQ ID No. 351** to **SEQ ID No. 445** and **SEQ ID No. 1871** to **SEQ ID No. 1908**.

SEQ ID No. 351:

MMTQSIRRSMLTVMATLPLLFSSATLHAQTNVQQQLEALEKSSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMTLAEALGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRDLRTEP
 TLNTAIPGDPRDTTTPPLAMAQTLKNLTGKALAETQRAQLVTWLKGNTTGSASIRAG
 LPKSWGVDGDKTGSGDYGTTNDIAVIWPANHAPLVLVITYFTQPEQKAESRRDVLAAA
 AKIVTHGF

SEQ ID No. 352:

MMRHRVKRMMMLMTTACISLLLGSAPLYAQANDVQQKLAALKSSGGRLGVALIDTA
DNAQTLRYRADERFAMCSTSKVMAAAAVLKQSETQKKVLSQKVEIKSSDLINYNPITE
KHAVNGTMTLAELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARAIGDNTFRLDRTEP
5 TLNTAIPGDPRDTTTTPLAMAQTLRNLTLSALGETQRAQLVTWLKGNTTGAASIQAG
LPTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLILVTYFTQPEQKAESRRDVLAAAA
KIVTDGY

SEQ ID No. 353:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSVQQKLAALKSSGGRLGVALIDTA
10 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYPNPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFARAIGDETFRDLRT
EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTAGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 354:

MVKKSLRQFTLMATATVTLLLSVPLYAQTVDVQQKLAEEQQSGGRLGVALINTA
DNSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVYNYPNPIAE
KHAVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTE
PTLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQ
20 AGLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVL
SAAKIVTDGL

SEQ ID No. 355:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSVQQKLAALKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYPNPIA
25 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFARAIGDETFRDLRT
EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 356:

MVTKRMQRMMFAAAACIPLLLGSAPLYAQTSVQQKLAALKSSGGRLGVALIDTK
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYPNPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAREIGDETFRDLRT
EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDV
35 LASAARIAEGL

SEQ ID No. 357:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAGLERQSGGRLGVALINTA
DNSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVYNYPNPIAE
KHAVNGTMSPAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTE
40 PTLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQ
AGLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRHVLA
S

SEQ ID No. 358:

MVKKSLRQFTLMATAAVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTA
45 DNSQILYRADERFAMCSTSKVMAAAAVLKKSESEPSLLNQRVEIKKSDLVYNYPNPIAE
KHAVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTE
PTLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQ
AGLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDILAS
AAKIVTDGL

SEQ ID No. 359:

MVTKRVQRM MF AAAACIPLLLGSAPLYAQTSAVQQKLA ALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFA RAIGDETFRDLRT
5 EPTLNTAIPGDPRD TTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTAGDKTGSGGYGTTNDIAVIWPQGRAPLVLVTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 360:

MVTKRVQRM MF AAAACIPLLLGSAPLYAQTSAVQQKLA ALEKSSGGRLGVALIDTA
10 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFA RAIGDETFRDLRT
EPTLNTAIPGDPRD TTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 361:

MVTKRVQRM MF AAAACIPLLLGSAPLYAQTSAVQQKLA ALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFA RAIGDETFRDLRT
15 ESTLNTAIPGDPRD TTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVTYFTQPQQNAESRRDV
20 LASAARIAEGL

SEQ ID No. 362:

MVTKRVQRM MF AAAACIPLLLGSAPLYAQTSAVQQKLA ALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
25 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFA RAIGDETFRDLRT
EPTLNTAIPGDPRD TTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVTYFTQPQQNAESRRDV
LASAARIAKGL

SEQ ID No. 363:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLA ELERQSGGRLGVALINTAD
30 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
HVN GTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEP
TLNTAIPGDPRD TTTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
35 AAKIVTDGL

SEQ ID No. 364:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLA ELERQSGGRLGVALINTAD
NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
HVN GTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEP
40 TLNTAIPGDPRD TTTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
AAKIVTNGL

SEQ ID No. 365:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLA ELERQSGGRLGVALINTAD
45 NSQILYRADERFAMCSTSKVMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
HVN GTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTET
TLNTAIPGDPRD TTTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
AAKIVTNGL

SEQ ID No. 366:

MMRKSVRRLMTTACVSLLLASVPLCAQANDVQQKLAALEKSSGGRLGVALINTA
 DNTQTLRYADERFAMCSTSKVMAAAVLKQSETQKGLLSQRVEIKPSDLINYNPIAE
 KHVNGTMTFGELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARTIGDDTFRLDRTE
 5 PTLNTAIPGDPRDTTTTPLAMAQALRNLT LGNALGDTQRAQLVMWLKGNTTGAASIQ
 AGLPTSWVVGDKTGSGGYGTTNDIAVIWPEGRAPLVLVITYFTQSEPKAESRRDVL
 AAARIVTDGY

SEQ ID No. 367:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
 10 DNTQVLYRGDERFPMCSTSKVMAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
 EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAERRRDV
 LASAARIAEGL

SEQ ID No. 368:

MMRKSVRRLMTTACVSLLLASVPLCAQANDVQQKLAALEKSSGGRLGVALINTA
 DNTQTLRYADERFAMCSTSKVMAAAVLKQSETQKGLLSQRVEIKPSDLINYNPIAE
 KHVNGTMTFGELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARTIGDDTFRLDRTE
 PTLNTAIPGDPRDTTTTPLAMAQALRNLT LGNALGDTQRAQLVMWLKGNTTGAASIR
 20 AGLPTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLVLVITYFTQSEPKAESRRDVL
 AAARIVTDGY

SEQ ID No. 369:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSTSKVMAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
 25 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
 EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGGYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 LASAARIAEGL

SEQ ID No. 370:

MVKKSLRQFTLMATATVTL LLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 30 NSQILYRADERFAMCSTSKVMAAAVLKKSESEPNLLNQRVEIKKSDLVNYSPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEP
 TLNTAIPGDPRDTTSPRAMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 35 AAKIVTDGL

SEQ ID No. 371:

MVKKSLRQFTLMATAAVTLL LLSVPLYAQTADVQQKLAELERQSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAE
 KHVDGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTE
 40 PTLNTAIPGDPRDTTSPRAMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQ
 AGLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVL
 SAAKIVTNGL

SEQ ID No. 372:

MVKKSLRQFTLMATAAVTLL LLSVPLYAQTADVQQKLAELERQSGGRLGVALINTA
 45 DNSQILYRADERFAMCSTSKVMAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAE
 KHVDGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTE
 PTLNTAIPGDPRDTTSPRAMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQ
 AGLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVL
 SAAKIVTDGL

SEQ ID No. 373:

MVKKSLRQFTLMATATVTLLLSVPLYAQTVDVQQKLAELEQQSGGRLGVALINTA
DNSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAE
KHVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTE
5 PTLNTAIPGDPRDTTSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQ
AGLPASWVVGDKTGSCDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVL
SAAKIVTDGL

SEQ ID No. 374:

MVKKSLRQFTLMATATVTLLLSVPLHAQTADVQQKLAELEQQSGGRLGVALINTA
10 DNSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAE
KHVDGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTE
PTLNTAIPGDPRDTTSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQ
AGLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVL
SAAKIVTDGL

SEQ ID No. 375:

MRHRVKRMMMLMTTACISLLLSAPLYAQANDVQQKLALEKSSGGRLGVALIDTAD
NAQTLYRADERFAMCSTSKVMAAAAVLKQSETQKNVLSQKVEIKSSDLINYNPIAEK
HVNGTMTLAELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARAIGDDTFRDLRTEPT
15 LNTAIPGDPRDTTTPRMAQTLRHLTLGSALGETQRAQLVTWLKGNTTGAASIQAGL
PTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLILVTYFTQPEQKAESRRDVLAAAA
KIVTDGY

SEQ ID No. 376:

MVTKRVQRMFMFAAAACIPLLLGSAPLYAQTSAVQQKLALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYNPIA
25 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
EPTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAARI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 377:

MVTKRVQRMFMFAAAACIPLLLGSAPLYAQTSAVQQKLALEKSSGGRLGVALIDTAD
30 NTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYNPIAE
KHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRTE
PTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASIR
AGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDVL
35 ASAARIAEGL

SEQ ID No. 378:

MVTKRVQRMFMFAAAACIPLLLGSAPLYAQTNVQQKLALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYNPIA
40 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
EPTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 379:

MVTKRVQRMFMFAAAACIPLLLGSAPLYAQTSAVQQKLALEKSSGGRLGVPLIDTAD
45 NTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYNPIAE
KHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRTE
PTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASIR
AGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDV
ASAARIAEGL

SEQ ID No. 380:

MVTKRVQRMFFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVPLIDTA
 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQNPVEIKPADLVNYPNPIA
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAARAIGDETFRDLRT
 5 EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 LASAARIAEGL

SEQ ID No. 381:

MVTKRVQRMFFAAAACIPLLLGSAPLYAQTNAVQQKLAALEKSSGGRLGVPLIDTA
 10 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQNPVEIKPADLVNYPNPIA
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAARAIGDETFRDLRT
 EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 LASAARIAEGL

SEQ ID No. 382:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRGTEP
 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 20 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 383:

MMRKSVRRLMTTACVSLLLASVPLCAQANDVQQKLAALEKSSGGRLGVALINTA
 DNTQTLYRADERFAMCSTSKVMAAAAVLKQSETQKGLLSQRVEIKPSDLNYPNPIAE
 25 KHVNGTMTFGELSAALQYSDNTAMNKLIAHLGGPDKVTAFARTIGDDTFRDLRTE
 PTLNTAIPGDPRDTTTPLAMAQALRNLTGKALGDTQRAQLVMWLKGNTTGAASIQ
 AGLPTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLVLVITYFTQSEPKAESRRDVL
 AAKIVTDGY

SEQ ID No. 384:

MMRKSVRRLMTTACVSLLLASVPLCAQANDVQQKLAALEKSSGGRLGVALINTA
 DNTQTLYRADERFAMCSTSKVMAAAAVLKQSETQKGLLSQRVEIKPSDLVNYPNPIA
 EKHVNGTMTFGELIAAALQYSDNTAMNKLIAHLGGPDKVTAFARTIGDDTFRDLRTE
 PTLNTAIPGDPRDTTTPLAMAQALRNLTGKALGDTQRAQLVMWLKGNTTGAASIQ
 AGLPTSWVVGDKTGSGGYGTTNDIAVIWPEGRAPLVLVITYFTQSEPKAESRRDVL
 35 AAKIVTDGY

SEQ ID No. 385:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTET
 40 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 386:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 45 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLNQRVEIKKSDLVNYPNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRDLRTE
 PTLNTAIPGDPRDTTTPLAMAQTLKNLTGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGGYGTTNDIAVIWPENHAPLVLVITYFTQPEQKAERRRDILAA
 AAKIVTHGF

SEQ ID No. 387:

MVTKRVQRMFMFAAACIPLLLGSAPLYAQTSAVQQKLAALKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSTSKVMAVA AVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFA RAIGDETFR LDRTE
 5 EPTLNTAIPGDPRD TTTSPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTAGDKTGSGDYGTTNDIAVIWPQGRAPLVLVTYFTQPQQNAESRRDV
 LASAARIIEGL

SEQ ID No. 388:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 10 NSQILYRADERFAMCSTSKVMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLI AHVGGPASVTAFARQLGDETFR LDRTES
 TLNTAIPGDPRD TTTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 389:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLI AHVGGPASVTAFARQLGDETFR LDRTEP
 TLNTAIPGDPRD TTTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
 20 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 390:

MVKKSLRQFTLMATATVTLLLSVPLYAQTVDVQQKLAEELEQQSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAE
 25 KHVNGTMSLAELSAAALQYSDNVAMNKLI AHVGGPASVTAFARQLGDETFR LDRTE
 PTLNTAIPGDPRD TTTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
 AGLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVIYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 391:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLI AHVGGPASVTAFARQLGDETFR LDRTEQ
 TLNTAIPGDPRD TTTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 35 AAKIVTDGL

SEQ ID No. 392:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKLLLNQRVEIKKSDLVNYPNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLI AHLGGPDKVTAFARSLGDETFR LDRTE
 40 PTLNTAIPGDPRD TTTPLAMAQTLKNLT LGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVTYFTQPEQKAESRRDILAA
 AAKIVTHGF

SEQ ID No. 393:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 45 NSQILYRADERFAMCSTSKVMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLI AHVGGPASVTAFARQLGDETFR LDRTEP
 TLNTAIPGDPRD TTTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 394:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMABAVALKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
 5 TLNTAIPGDPRDTPSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 395:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 10 NSQILYRADERFAMCSTSKVMABAVALKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVDGTMSLAELSAAALQYSDNVAMNKLISHVGGPASVTAFARQLGDETFRLDRTEP
 TLNTAIPGDPRDTPSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTNGL

SEQ ID No. 396:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMABAVALKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVDGTMSLAELSAAALQYSDNVAMNKLISHVGGPASVTAFARQLGDETFRLDRTEP
 TLNTAIPGDPRDTPSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 20 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 397:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAVALKQSESDKHLLNQRVEIKKSDLVNYNPIAE
 25 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPKVTAFARSLGDETFRLDRTE
 PTLNTAIPGDPRDTTTPRMAQTLKNLTGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPENHAPLVLTFTQPEQKAENRRDILAA
 AAKIVTHGF

SEQ ID No. 398:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSAVQQKLALEKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSSTSKVMABAVALKQSETQKQLLNQPVKPADLVNYNPIAE
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRTE
 EPTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTQPQQAERRRDV
 35 LASAARIIEGL

SEQ ID No. 399:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMABAVALKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
 40 TLNTAIPGDPRDTPSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTNGL

SEQ ID No. 400:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 45 NSQILYRADERFAMCSTSKVMAAAVALKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
 TLNTAIPGDPRDTPSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 401:

MVKKSLRQFTLMATATVTL LLGNVPLYAQTADVQQKLAELERQSGGRLGVALINTA
DNSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAE
KHAVNGTMSLAELSAAALQYSDNVAMNKLI AHVGGPASVTAFARQLGDETFRLDRTE
5 PTLNTAIPGDPRD TTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQ
AGLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLA
SAAKIVTDGL

SEQ ID No. 402:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSAVQQKLA ALEKSSGGRLGVALIDTA
10 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYSPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLI AQLGGPGGVTAFA RAIGDETFRLDRT
EPTLNTAIPGDPRD TTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLV LVTYFTQPQQNAESRRDV
LASAARIIA EGL

SEQ ID No. 403:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSAVQQKLA ALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLEQSETQKQLLNQPV EIQPADLVNYSPIA
EKHVNGTMTLAELSAAALQYSDHTAMNKLI AQLGGPGGVTAFA RAIGDETFRLDRT
EPTLNTAIPGDPRD TTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
20 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLV LVTYFTQPQQNAESRRDV
LASAARIIA EGL

SEQ ID No. 404:

MVKKSLRQFTLMATATVTL LLGSVPLHAQTVDVQQKLAELERQSGGRLGVALINTA
DNSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAE
25 KHAVNGTMSLAELSAAALQYSDNVAMNKLI AHVGGPASVTAFARQLGDDTFRLDRTE
PTLNTAIPGDPRD TTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQ
AGLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLA
SAAKIVTDGL

SEQ ID No. 405:

MVKKSLRQFTLMATATVTL LLGSVPLYAQTVDVQQKLAELERQSGGRLGVALINTAD
30 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
HVNGTMSLAELSAAALQYSDNVAMNKLI AHVGGPASVTAFARQLGDETFRLDRTEP
TLNTAIPGDPRD TTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
35 AAKIVTDGL

SEQ ID No. 406:

MVKKSLRQFTLMATATVTL LLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
NSQILYRADERFAMCSTSKVMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
HVNGTMSLAELSAAALQYSDNVAMNKLI AHVGGPASVTAFARQLGDETFRLDRTEP
40 TLNTAIPGDPRD TTSPRMAQTLRNLT LGKALGDSQRAQLVTWMKGNTTGAASIQA
GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPN AESRRDVLAS
AAKIVTNGL

SEQ ID No. 407:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSAVQQKLA ALEKSSGGRLGVALIDTA
45 DNTQVLYRGDERFPMCSTSKVMAVA AVLKKQSETQKQLLNQPV EIKPADLVNYSPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLI AQLGGPGGVTAFA RAIGDETFRLDRT
ELTLNTAIPGDPRD TTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASIR
AGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLV LVTYFTQPQQNAESRRDVL
ASAARIIA EGL

SEQ ID No. 408:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
DNTHVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYPNIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
5 EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 409:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
10 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYPNIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVAWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 410:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYPNIA
EKHVNGTMTPAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
20 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 411:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYPNFA
25 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 412:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
30 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNIAEK
HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEP
TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRHDVLAS
35 AAKIVTDGL

SEQ ID No. 413:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAVA AVLKQSETQKQLLNQPVEIKPADLVNYPNIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
40 EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 414:

MMRKSVRRAMLMTTACVSLLLASVPLCAQANDVQQKLAALEKSSGGRLGVALINTA
45 DNTQTLYRADERFAMCSTSKVMAVA AVLKQSETQKGLLSQRVEIKPSDLINYPNIAE
KHVNGTMTFGELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARTIGDDTFRDLRTE
PTLNTAIPGDPRDTTTPLAMAQALRNLTGNGALGDTQRAQLVMWLKGNTTGAASIQ
AGLPTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLVLVITYFTQSEPKAESRRDVLA
AAARIVTDGY

SEQ ID No. 415:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRDLRTE
 5 TTLNTAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVITYFTQPEQKAESRRDILAA
 AAKIVTHGF

SEQ ID No. 416:

MMTQSIRRSMLTVMATLSLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 10 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRDLRTE
 PTLNTAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVITYFTQPEQKAESRRDILAA
 AAKIVTHGF

SEQ ID No. 417:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEP
 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 20 GLPASWVVGDKTGSCGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 418:

MMRKSVRRAMLMTTACVSLLLASVPLCAQANDVQQKLALEKSSGGRLGVALINTA
 DNTQTLYRADERFAMCSTSKVMAVAAVLKQSETQKGLLSQRVEIKPSDLINYNPIAE
 25 KHVNGTMTFGELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARTIGDDTFRDLRTE
 PTLNTAIPGDPRDTTTTPLAMAQSLRNLTGKALGDTQRAQLVMWLKGNTTGAASIQ
 AGLPTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLVLVITYFTQSEPKAESRRDVLAA
 AARIVTDGY

SEQ ID No. 419:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 30 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRDLRTE
 PTLNTAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRTQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVITYFTQPEQKAESRRDILAA
 35 AAKIVTHGF

SEQ ID No. 420:

MMRKSVRRAMLMTTACVSLLLASVPLCAQANDVQQKLALEKSSGGRLGVALINTA
 DNTQTLYRADERFAMCSTSKVMAAAAVLKQSETQKGLLSQRVEIKPSDLINYNPIAE
 KHVNGTMTLGELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARTIGDDTFRDLRTEP
 40 TLNTAIPGDPRDTTTTPLAMAQALRNLTGKALGDTQRAQLVMWLKGNTTGAASIQA
 GLPTSWVVGDKTGSGGYGTTNDIAVIWPEGRAPLVLVITYFTQSEPKAESRRDVLAA
 AARIVTDGY

SEQ ID No. 421:

MVTKRVQRMMFAAACIPLLLGSAPLYAQTSAVQQKLALEKSSGGRLGVALIDTA
 45 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVEIKPADLVNYNPIA
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
 ESTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAERRRDV
 LASAARIIEGL

SEQ ID No. 422:

MMTQSIGRSMMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRLDRTE
 5 PTLNTAIPGDPRDTTTTPLAMAQTLKNLTGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVITYFTQPEQKAESRRDILAA
 AAKIVTHGF

SEQ ID No. 423:

MVTKRVQRMFMFAAAACIPLLLGSAPLYAQTSAVQQKLALEKSSGGRLGVALIDTA
 10 DNTQVLYRGDERFPMCMSTSKVMAAAAVLKQSETQKQLLNQNPVEIKPADLVNYPNIA
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
 EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGGYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 LASAARIAEGL

SEQ ID No. 424:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRLDRTE
 PTLNTAIPGDPRDTTTTPLAMAQTLKNLTGKALAETQRAQLVTWLKGNTTGSASIRA
 20 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVITYFTQPEQKAERRRDILAA
 AAKIVTHGF

SEQ ID No. 425:

MVTKRVQRMMSAAAACIPLLLGSPTLYAQTSAVQQKLALEKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCMSTSKVMAAAAVLKQSETQKQLLNQNPVEIKPADLVNYPNIA
 25 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
 EPTLNTAIPGDPRDTTTTARAGADVASLRWVMRWAKPSGAVGDVAQRQYDRAAGIR
 AGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDVL
 ASAARIAEGL

SEQ ID No. 426:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 30 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVDGTMSLAELSAAALQYSDNVAMNKLISHVGGPASVTAFARQLGDETFRLDRTEP
 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 35 AAKIVTNGL

SEQ ID No. 427:

MRHRVKRMMLMTTACISLLLGSAPLYAQANDVQQKLALEKSSGGRLGVALIDTAD
 NAQTLYRADERFAMCSTSKVMAAAAVLKQSETQKNVLSQKVEIKSSDLINYPNIAEK
 HVNGTMTLAELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARAIGDDTFRLDRTEPT
 40 LNTAIPGDPRDTTTTPLAMAQTLRHLTGSAALGETQRAQLVTWLKGNTTGAASIQAGL
 PTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLILVITYFTQPEQKAENRRDVLAAAA
 KIVTDGY

SEQ ID No. 428:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 45 NSQILYRADERFPMCMSTSKVMAAAAVLKQSETQKQLLNQNPVEIKPADLVNYPNIAEK
 HVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRTEP
 TLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASIRA
 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 429:

MMTQSIIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYLADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKASDLVNYPNIAE
 KHVNGTMTLAELGAGALQYSDNTAMNKLIAHLGGPKVTAFAARSLGDETFRDLRTE
 5 PTLNSAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKCWVVGDKTGSGDYGTTNDIAVIWPENHAPLVLVITYFTQPEQKAESRRDVLAA
 AAKIVTHGF

SEQ ID No. 430:

MMTQSIIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 10 DNSQILYVADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIRASDLVNYPNIAE
 KHVNGTMTLAQLGAGALQYSDNTAMNKLIAHLGGPKVTAFAARSLGDETFRDLRTE
 PTLNSAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVGVDKGTGSGDYGTTNDIAVIWPENHAPLVLVITYFTQPEQKAESRRDVLAA
 AAKIVTHGF

SEQ ID No. 431:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAVAAVLKKSESEPNLLNQRVEIKKSDLVNYPNIAEK
 HVDGTMSLAELSAALQYSDNVAMNKLISHVGGPASVTAFARQLGDETFRDLRTEP
 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQAA
 20 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 AAKIVTNGL

SEQ ID No. 432:

MMTQSIIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYPNIAE
 25 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPKVTAFAARSLGDETFRDLRTE
 PTLNTAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPENHAPLVLVITYFTQPEQKAESRRDILAA
 AAKIVTHGF

SEQ ID No. 433:

MVKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNIAEK
 HVNGTMSLAELSAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEP
 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQAA
 30 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 434:

MMTQSIIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVAQINTA
 DNSQILYVADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIRASDLVNYPNIAE
 KHVNGTMTLAELGAGALQYSDNTAMNKLIAHLGGPKVTAFAARSLGDETFRDLRTE
 40 PTLNSAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 GMPKSWVGVDKGTGSGDYGTTNDIAVIWPENHAPLVLVITYFTQPEQKAESRRDILAA
 AAKIVTHGF

SEQ ID No. 435:

MMTQSIIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 45 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYPNIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPKVTAFAARSLGDETFRDLRTE
 PTLNTAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPENHAPLVLVITYFTQPEQKAESRRDILAA
 AAKIVTHGF

SEQ ID No. 436:

MVTKRVQRMMFAGGAGIPLLLGSAPFYAQTSAGQQKLALEKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
 EKHVNGTMTLAELSAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRDLRT
 5 EPTLNTAIPGDPRDTTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPPQGRAPLVLVITYFTQPQQNAESRRDV
 LASAARIAEGL

SEQ ID No. 437:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 10 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
 HVNGTMSLAELSAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEP
 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 AAKIVTNGL

SEQ ID No. 438:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEK
 HVDGTMSLAELSAALQYSDNVAMNKLISHVGGPASVTAFARQLGDETFRDLRTEP
 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 20 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 AAKIVTNGL

SEQ ID No. 439:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYPNPIAE
 25 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDESFRDLRTE
 PTLNTAIPGDPRDTTTPLAMAQTLKNLTGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVITYFTQPEQKAESRRDILAA
 AAKIVTHGF

SEQ ID No. 440:

MVKKSLRQFTLMATAAVTLLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKKSESEPSLLNQRVEIKKSDLVNYPNPIAE
 KHVNGTMSLAELSAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTE
 PTLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQ
 30 AGLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDILAS
 AAKIVTDGL

SEQ ID No. 441:

MVKKSLRQFTLMATAAVTLLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAVA AVLKKSESEPSLLNQRVEIKKSDLVNYPNPIAE
 KHVNGTMSLAELSAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTE
 40 PTLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQ
 AGLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDILAS
 AAKIVTDGL

SEQ ID No. 442:

MMTQSIRRSMLTVMATLPLLFSSATLHAQNSVQQQLKALEKSSGGRLGVALINTAD
 45 NSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYPNPIAEK
 HVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRDLRTEP
 TLNTAIPGDPRDTTTPLAMAQTLKNLTGKALAETQRAQLVTWLKGNTTGSASIQAG
 LPKSWVVGDKTGSGDYGTTNDIAIWPENHAPLVLVITYFTQPEQKAESRRDVLAAAA
 KIVTRGF

SEQ ID No. 443:

MMRKSVRRAILMTTACVSLLLASVPLYAQANDIQQKLAALEKSSGGRLGVALINTAD
 NTQTLYRADERFAMCSTSKVMAAAAVLKQSETQKDLLSQRVEIKSSDLINYNPIAEK
 HVNGTMTLGELSAAALQYSDNTAMNKLIAHLGGPGKVTAFAFARVIGDDTFRLDRTEP
 5 TLNTAIPGDPRDTTTPPLAMAQTLRNLTGLNALGDTQRAQLVTWLKGNTTGAASIQA
 GLPTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLVLVITYFTQPEPKAESRRDVLAA
 AARIVTDGY

SEQ ID No. 444:

MMTQSIRRSMLTVMATLPLLFSSATLHAQTNSVQQQLEALEKSSGGRLGVALINTAD
 10 NSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRLDRTEP
 TLNTAIPGDPRDTTTPPLAMAQTLKNLTGLKALAETQRAQLVTWLKGNTTGSASIRAG
 LPKSWVGDKTGSGDYGTTNDIAVIWPENHAPLVLVITYFTQPEQKAESRRDVLAAA
 AKIVTHGF

SEQ ID No. 445:

MMTQSIRRSMLTVMATLPLLFSSATLHAQTNSVQQQLEALEKSSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAALLKQSESDKHLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRLDRTEP
 TLNTAIPGDPRDTTTPPLAMAQTLKNLTGLKALAETQRAQLVTWLKGNTTGSASIQAG
 20 LPKSWVVGDKTGSGDYGTTNDIAVIWPENHAPLVLVITYFTQPEQKAESRRDVLAAA
 AKIVTHGF

SEQ ID No. 1871:

MVTKRVQRMFMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYNPIA
 25 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAFARAIGDETFRLDRT
 EPTLNTAIPGDPRDTTTPPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 LASAARIIEGL

SEQ ID No. 1872:

MVTKRVQRMFMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYNPIA
 30 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAFARAIGDETFRLDRT
 ESTLNTAIPGDPRDTTTPPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 35 LASAARIIEGL

SEQ ID No. 1873:

MVTKRVQRMFMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYNPIA
 40 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAFARAIGDETFRLDRT
 EPTLNTAIPGDPRDTTTPPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 LASAARIIAKGL

SEQ ID No. 1874:

MVKKSLRQFTLMATATVTLLLSVPLYAQTDVQQKLAELERQSGGRLGVALINTAD
 45 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
 TLNTAIPGDPRDTTTPPRAMAQTLRNLTGLKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 1875:

MVKKSLRQFTLMATATVTLGGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
 5 TLNTAIPGDPRDTTSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTNGL

SEQ ID No. 1876:

MVTKRVQRMFMAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
 10 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPVVEIKPADLVNYNPIA
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
 EPTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQAERRRDV
 LASAARIAEGL

SEQ ID No. 1877:

MRHRVKRMMLMTTACISLLLGSAPLYAQANDVQQKLAALEKSSGGRLGVALIDTAD
 NAQTLYRADERFAMCSTSKVMAAAAVLKQSETQKNVLSQKVEIKSSDLINYNPIAEK
 HVNGTMTLAELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARAIGDDTFRLDRTEPT
 LNTAIPGDPRDTTTPLAMAQTLRHLTLGSALGETQRAQLVTWLKGNTTGAASIQA
 20 PTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLILVTYFTQPEQKAESRRDVLAAAA
 KIVTDGY

SEQ ID No. 1878:

MVKKSLRQFTLMATATVTLGGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAVAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 25 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
 TLNTAIPGDPRDTTSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 1879:

MVKKSLRQFTLMATATVTLGGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAVAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 30 HVDGTMSLAELSAAALQYSDNVAMNKLISHVGGPASVTAFARQLGDETFRLDRTEP
 TLNTAIPGDPRDTTSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
 35 AAKIVTDGL

SEQ ID No. 1880:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRLDRTE
 40 PTLNTAIPGDPRDTTTPLAMAQTLKNTLTKALAEQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPENHAPLVLTFTYFTQPEQKAENRRDILAA
 AAKIVTHGF

SEQ ID No. 1881:

MVTKRVQRMFMAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
 45 DNTQVLYRGDERFPMCSTSKVMAVAAVLKQSETQKQLLNQPVVEIKPADLVNYNPIA
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
 EPTLNTAIPGDPRDTTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQAERRRDV
 LASAARIAEGL

SEQ ID No. 1882:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
NSQILYRADERFAMCSTSKVMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
5 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQAGLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
AAKIVTNGL

SEQ ID No. 1883:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
10 NSQILYRADERFAMCSTSKVMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQAGLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
AAKIVTNGL

SEQ ID No. 1884:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
15 TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQAGLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
AAKIVTDGL

SEQ ID No. 1885:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAVA AVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
25 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
EPTLNTAIPGDPRDTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 1886:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
30 NSQILYRADERFAMCSTSKAMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
TLNTAIPGDPRDTTSPRAMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQAGLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
35 AAKIVTDGL

SEQ ID No. 1887:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
40 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
ESTLNTAIPGDPRDTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVTYFTQPQQNAERRRDV
LASAARIAEGL

SEQ ID No. 1888:

MVTKRVQRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
45 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
EPTQNTAIPGDPRDTTTPRAMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGGYGTTNDIAVIWPQGRAPLVLVTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 1889:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
NSQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
HVNGTMSLAELIAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEPT
5 LNTAIPGDPRDTTSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQAG
LPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLASA
AKIVTDGL

SEQ ID No. 1890:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
10 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQNPVEIKPADLVNYNPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
EPTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQREQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGGYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 1891:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAVAAVLKQSETQKQLLNQNPVEIKPADLVNYNPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
EPTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQREQLVTWLKGNTTGAASI
20 RAGLPTSWTVGDKTGSGGYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 1892:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQNPVEIKPADLVNYNPIA
25 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
EPTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAENRRDV
LASAARIAEGL

SEQ ID No. 1893:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQNPVEIKPADLVNYNPIA
EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
EPTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
30 RAGLPTSWTVGDRGTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRHDV
LASAARIAEG

SEQ ID No. 1894:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
NSQILYRADERFAMCSTSKVMAVAAVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
40 TLNTAIPGDPRDTTSPRMAQTLRNLTGKALGDSQRAQLVTWMKGNTTGAASIQAG
LPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPQPKAESRRDVLAS
AAKIVTNGL

SEQ ID No. 1895:

MVTKRVQRRMMFAAAACIPLLLGSAPLYAQTSAVQQKLAALEKSSGGRLGVALIDTA
45 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQNPVEIKPADLVNYNPIA
EEHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAAIGDETFRLDRT
EPTLNTAIPGDPRDTTTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLTFTYFTQPQQNAESRRDV
LASAARIAEGL

SEQ ID No. 1896:

MVTKRVQRMFMAAAACIPLLLGSAPLYAQTSAVQQKLAALKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGGGVTAFARAIGDETFRDLRT
 5 EPTLNTAIPGDPRDTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 LASAARIAEGL

SEQ ID No. 1897:

VKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTADN
 10 SQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEKH
 VNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEPT
 LNTAIPGDPRDTPRMAQTLRNLTLGKALGDSQRAQLVTWMKGNTTGAASIQAG
 LPASWVVGDRGTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLASA
 AKIVT

SEQ ID No. 1898:

VKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTADN
 SQILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRAEIKKSDLVNYPNPIAEKH
 VNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEPT
 LNTAIPGDPRDTPRMAQTLRNLTLGKALGDSQRAQLVTWMKGNTTGAASIQAG
 20 LPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLASA
 AKIVT

SEQ ID No. 1899:

MVTKRVQRMFMAAAACIPLLLGSAPLYAQTSAVQQKLAALKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSTSKVMAAAAVLKQSETQKQLLNQPV EIKPADLVNYPNPIA
 25 EKHVNGTMTLAELGAAALQYSDNTAMNKLIAQLGGPGGVTAFAARAIGDETFRDLRT
 EPTLNTAIPGDPRDTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 LASAARIAEGL

SEQ ID No. 1900:

MVTKRVQRMFMAAAACIPLLLGSAPLYAQTSAVQQKLAALKSSGGRLGVALIDTA
 DNTQVLYRGDERFPMCSTSKVMAAAAVLKRSETQKQLLNQPV EIKPADLVNYPNPIA
 30 EKHVNGTMTLAELSAAALQYSDNTAMNKLIAQLGGPGGVTAFAARAIGDETFRDLRT
 EPTLNTAIPGDPRDTPRMAQTLRQLTLGHALGETQRAQLVTWLKGNTTGAASI
 RAGLPTSWTVGDKTGSGDYGTTNDIAVIWPQGRAPLVLVITYFTQPQQNAESRRDV
 35 LASAARIAEGL

SEQ ID No. 1901:

VKKSLRQFTLMATATVTLLLSVPLYAQTADVQQKLAELERQSGGRLGVALINTADN
 SRILYRADERFAMCSTSKVMAAAAVLKKSESEPNLLNQRVEIKKSDLVNYPNPIAEKH
 VNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRDLRTEPT
 40 LNTAIPGDPRDTPRMAQTLRNLTLGKALGDSQRAQLVTWMKGNTTGAASIQAG
 LPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVITYFTQPQPKAESRRDVLASA
 AKIVTK

SEQ ID No. 1902:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 45 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYPNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRDLRTE
 PTLNTAIPGDPRDTPPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVITYFTQPEQKAERRRDILAA
 AAKIVTHGF

SEQ ID No. 1903:

MRHRVCRMMLMTTACISLLLGSAPLYAQANDVQQKLAALKSSGGRLGVALIDTAD
 NAQTLYRADERFAMCSTSKVMAAAAVLKQSETQKNVLSQKVEIKSSDLINYNPIAEK
 HVNGTMTLAELSAAALQYSDNTAMNKLIAHLGGPDKVTAFARAIGDDTFRLDRTEPT
 5 LNTAIPGDPRDTTTTPLAMAQTLRHLTLGSALGETQRAQLVTWLKGNTTGAASIQAGL
 PTSWVVGDKTGSGDYGTTNDIAVIWPEGRAPLILVTYFTQPEQKAENRRDVLAAAA
 KIVTDGY

SEQ ID No. 1904:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 10 NSQILYRADERFAMCSTSKVMAVA AVLKKSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVDGTMSLAELSAAALQYSDNVAMNKLISHVGGPASVTAFARQLGDETFRLDRTEP
 TLNTAIPGDPRDTTSPRMAQTLRNLTLGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPPKAESRRDVLAS
 AAKIVTNGL

SEQ ID No. 1905:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRLDRTE
 PTLNTAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 20 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVTYFTQPEQKAESRRDILAA
 AAKIVTHGF

SEQ ID No. 1906:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKQSESEPNLLNQRVEIKKSDLVNYNPIAEK
 25 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
 TLNTAIPGDPRDTTSPRMAQTLRNLTLGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGDYGTTNDIAVIWPKDRAPLILVTYFTQPPKAESRRDVLAS
 AAKIVTDGL

SEQ ID No. 1907:

MMTQSIRRSMLTVMATLPLLFSSATLHAQANSVQQQLEALEKSSGGRLGVALINTA
 DNSQILYRADERFAMCSTSKVMAAAAVLKQSESDKHLLNQRVEIKKSDLVNYNPIAE
 KHVNGTMTLAELGAAALQYSDNTAMNKLIAHLGGPDKVTAFARSLGDETFRLDRTE
 PTLNTAIPGDPRDTTTTPLAMAQTLKNLTLGKALAETQRAQLVTWLKGNTTGSASIRA
 30 GLPKSWVVGDKTGSGDYGTTNDIAVIWPNHAPLVLVTYFTQPEQKAESRRDFLAA
 AAKIVTHGF

SEQ ID No. 1908:

MVKKSLRQFTLMATATVTLLLGSVPLYAQTADVQQKLAELERQSGGRLGVALINTAD
 NSQILYRADERFAMCSTSKVMAAAAVLKQSESEPNLLNQRVEIKKSDLVNYNPIAEK
 HVNGTMSLAELSAAALQYSDNVAMNKLIAHVGGPASVTAFARQLGDETFRLDRTEP
 40 TLNTAIPGDPRDTTSPRMAQTLRNLTLGKALGDSQRAQLVTWMKGNTTGAASIQA
 GLPASWVVGDKTGSGGYGTTNDIAVIWPKDRAPLILVTYFTQPPKAESRRDVLAS
 AAKIVTNGL

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID**

No. 446 to SEQ ID 495 and SEQ ID No. 2008 to SEQ ID No. 2092 as defined

hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the CTX-M protein	Clinical interest
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SEQ ID No. 446	AGLPK	226-230 for the proteins of SEQ No. 351, 386, 392, 397, 415, 416, 419, 422, 424, 429, 430, 432, 435, 439, 442, 444, 445, 1881, 1903, 1906, 1908	2be
SEQ ID No. 447	AGLPTSWTVGDK	226-237 for the proteins of SEQ No. 355, 356, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 398, 402, 403, 407, 408, 409, 410, 411, 413, 421, 423, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1896, 1897, 1900, 1901; 224-235 for the protein of sequence SEQ ID No. 425	2be
SEQ ID No. 448	AIGDETFR	157-164 for the proteins of SEQ No. 353, 355, 359, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 387, 398, 402, 403, 407, 408, 409, 410, 411, 413, 421, 423, 425, 428, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901	2be
SEQ ID No. 449	ALAETQR	201-207 for the proteins of SEQ No. 351, 386, 392, 397, 415, 416, 419, 422, 424, 429, 430, 432, 434, 435, 439, 442, 444, 445, 1881, 1903, 1906, 1908	2be
SEQ ID No. 450	ALGDSQR	201-207 for the proteins of SEQ No. 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 406, 412, 417, 426, 431, 433, 437, 438, 440, 441, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 200-206 for the protein of sequence SEQ ID No. 1898; 200-206 for the protein of sequence SEQ ID No. 1899; 200-206 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 451	AMAQTLR	188-194 for the proteins of SEQ No. 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 367, 369, 370, 371, 372, 373, 374, 376, 377, 378, 379, 380, 381, 382, 385, 387, 388, 389, 390, 391, 393, 394, 395, 396, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 417, 421, 423, 426, 428, 431, 433, 436, 437, 438, 440, 441, 443, 1872, 1873, 1874, 1875, 1876, 1877, 1879, 1880, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1900, 1901, 1905, 1907, 1909; 187-193 for the protein of sequence SEQ ID No. 375; 187-193 for the protein of sequence SEQ ID No. 427; 187-193 for the protein of sequence SEQ ID No. 1878; 187-193 for the protein of sequence SEQ ID No. 1898; 187-193 for the protein of sequence SEQ ID No. 1899; 187-193 for the protein of sequence SEQ ID No. 1902; 187-193 for the protein of sequence SEQ ID No. 1904	2be
SEQ ID No. 452	APLILVTYFTQPQPK	258-272 for the proteins of SEQ No. 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 412, 417, 426, 428, 431, 433, 437, 438, 440, 441, 1875, 1876, 1879, 1880, 1883, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 257-271 for the protein of sequence SEQ ID No. 1898; 257-271 for the protein of sequence SEQ ID No. 1899; 257-271 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 453	APLVLVITYFTQPQQNAE SR	258-276 for the proteins of SEQ No. 353, 355, 356, 359, 360, 361, 362, 369, 376, 377, 378, 379, 380, 381, 387, 402, 403, 407, 408, 409, 410, 411, 413, 423, 436, 1872, 1873, 1874, 1886, 1889, 1891, 1892, 1894, 1896, 1897, 1900, 1901; 256-274 for the protein of sequence SEQ ID No. 425	2be

SEQ ID No. 454	AQLVTWLK	208-215 for the proteins of SEQ No. 351, 352, 353, 355, 356, 359, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 386, 387, 392, 397, 398, 402, 403, 407, 408, 410, 411, 413, 415, 416, 421, 422, 423, 424, 428, 429, 430, 432, 434, 435, 436, 439, 442, 443, 444, 445, 1872, 1873, 1874, 1877, 1881, 1882, 1886, 1888, 1889, 1893, 1894, 1896, 1897, 1900, 1901, 1903, 1906, 1908; 207-214 for the protein of sequence SEQ ID No. 375; 207-214 for the protein of sequence SEQ ID No. 427; 207-214 for the protein of sequence SEQ ID No. 1878; 207-214 for the protein of sequence SEQ ID No. 1904	2be
SEQ ID No. 455	AQLVTWMK	208-215 for the proteins of SEQ No. 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 406, 412, 417, 426, 431, 433, 437, 438, 440, 441, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 207-214 for the protein of sequence SEQ ID No. 1898; 207-214 for the protein of sequence SEQ ID No. 1899; 207-214 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 456	DILAAAAK	278-285 for the proteins of SEQ No. 386, 392, 397, 415, 416, 419, 422, 424, 432, 434, 439, 1881, 1903, 1906	2be
SEQ ID No. 457	DTTSPR	182-187 for the proteins of SEQ No. 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 406, 412, 417, 426, 431, 433, 437, 438, 440, 441, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 181-186 for the protein of sequence SEQ ID No. 1898; 181-186 for the protein of sequence SEQ ID No. 1899; 181-186 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 458	DTTTPlamaQTLK	182-194 for the proteins of SEQ No. 351, 386, 392, 397, 415, 416, 419, 422, 424, 429, 430, 432, 434, 435, 439, 442, 444, 445, 1881, 1903, 1906, 1908	2be
SEQ ID No. 459	DTTTPR	182-187 for the proteins of SEQ No. 353, 355, 356, 359, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 387, 398, 402, 403, 407, 408, 409, 410, 411, 413, 421, 423, 428, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901	2be
SEQ ID No. 460	DVLAAAAK	277-284 for the proteins of SEQ No. 375, 427, 1878, 1904; 278-285 for the protein of sequence SEQ ID No. 351; 278-285 for the protein of sequence SEQ ID No. 352; 278-285 for the protein of sequence SEQ ID No. 429; 278-285 for the protein of sequence SEQ ID No. 430; 278-285 for the protein of sequence SEQ ID No. 442; 278-285 for the protein of sequence SEQ ID No. 444; 278-285 for the protein of sequence SEQ ID No. 445	2be
SEQ ID No. 461	DVLASAAK	278-285 for the proteins of SEQ No. 354, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 406, 412, 417, 426, 428, 431, 433, 437, 438, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 277-284 for the protein of sequence SEQ ID No. 1898; 277-284 for the protein of sequence SEQ ID No. 1899; 277-284 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 462	DVLASAAR	278-285 for the proteins of SEQ No. 353, 355, 356, 359, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 387, 398, 402, 403, 407, 408, 409, 410, 411, 413, 421,	2be

		423, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901; 276-283 for the protein of sequence SEQ ID No. 425	
SEQ ID No. 463	FAMCSTSK	69-76 for the proteins of SEQ No. 351, 352, 354, 357, 358, 363, 364, 365, 366, 368, 370, 371, 372, 373, 374, 382, 383, 384, 385, 386, 388, 390, 391, 392, 393, 394, 395, 396, 397, 399, 400, 401, 404, 405, 406, 412, 414, 415, 416, 417, 418, 419, 420, 422, 424, 426, 429, 430, 431, 432, 433, 434, 435, 437, 438, 439, 440, 441, 442, 443, 444, 445, 1875, 1876, 1879, 1880, 1881, 1883, 1884, 1885, 1887, 1890, 1895, 1903, 1905, 1906, 1907, 1908, 1909; 68-75 for the protein of sequence SEQ ID No. 375; 68-75 for the protein of sequence SEQ ID No. 427; 68-75 for the protein of sequence SEQ ID No. 1878; 68-75 for the protein of sequence SEQ ID No. 1898; 68-75 for the protein of sequence SEQ ID No. 1899; 68-75 for the protein of sequence SEQ ID No. 1902; 68-75 for the protein of sequence SEQ ID No. 1904	2be
SEQ ID No. 464	FPMCSTSK	69-76 for the proteins of SEQ No. 353, 355, 356, 359, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 387, 389, 398, 402, 403, 407, 408, 409, 410, 411, 413, 421, 423, 425, 428, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901	2be
SEQ ID No. 465	GNTTGAASIQAGLPASW VVGDK	216-237 for the proteins of SEQ No. 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 406, 412, 417, 426, 431, 433, 437, 438, 440, 441, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 215-236 for the protein of sequence SEQ ID No. 1899; 215-236 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 466	GNTTGAASIQAGLPTSW VVGDK	215-236 for the proteins of SEQ No. 375, 427, 1878, 1904; 216-237 for the protein of sequence SEQ ID No. 352; 216-237 for the protein of sequence SEQ ID No. 366; 216-237 for the protein of sequence SEQ ID No. 383; 216-237 for the protein of sequence SEQ ID No. 384; 216-237 for the protein of sequence SEQ ID No. 414; 216-237 for the protein of sequence SEQ ID No. 418; 216-237 for the protein of sequence SEQ ID No. 420; 216-237 for the protein of sequence SEQ ID No. 443	2be
SEQ ID No. 467	GNTTGAASIR	216-225 for the proteins of SEQ No. 353, 355, 356, 359, 360, 361, 362, 367, 368, 369, 377, 378, 379, 380, 381, 387, 398, 402, 403, 407, 408, 409, 410, 411, 413, 421, 423, 428, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901	2be
SEQ ID No. 468	GNTTGSASIR	216-225 for the proteins of SEQ No. 351, 386, 392, 397, 415, 416, 419, 422, 424, 429, 430, 432, 434, 435, 439, 444, 1881, 1903, 1906, 1908	2be
SEQ ID No. 469	HLLNQR	92-97 for the proteins of SEQ No. 351, 386, 397, 415, 416, 419, 422, 424, 429, 430, 432, 434, 435, 439, 442, 444, 445, 1881, 1903, 1906, 1908	2be
SEQ ID No. 470	LAALEK	36-41 for the proteins of SEQ No. 375, 427, 1878, 1904; 37-42 for the proteins of sequence SEQ ID No. 352, 353, 355, 356, 359, 360, 361, 362, 366, 367, 368, 369, 376, 377, 378, 379, 380, 381, 383, 384, 387, 398, 402, 403, 407, 408, 409, 410, 411, 413, 414, 418, 420, 421, 423, 425, 436, 443, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901	2be

SEQ ID No. 471	LAELER	37-42 for the proteins of SEQ No. 358, 363, 364, 365, 370, 371, 372, 382, 385, 388, 389, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 406, 412, 417, 426, 428, 431, 433, 437, 438, 440, 441, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 36-41 for the protein of sequence SEQ ID No. 1898; 36-41 for the protein of sequence SEQ ID No. 1899; 36-41 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 472	LGVALIDTADNTQVLYR	48-64 for the proteins of SEQ No. 353, 355, 359, 360, 361, 362, 367, 369, 376, 377, 378, 387, 398, 402, 403, 407, 409, 410, 411, 413, 421, 423, 425, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901	2be
SEQ ID No. 473	LGVALINTADNSQILYR	48-64 for the proteins of SEQ No. 351, 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 386, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 399, 400, 401, 404, 405, 406, 412, 415, 416, 417, 419, 422, 424, 426, 428, 431, 432, 433, 435, 437, 438, 439, 440, 441, 442, 444, 445, 1875, 1876, 1879, 1880, 1881, 1883, 1884, 1885, 1887, 1890, 1895, 1903, 1905, 1906, 1907, 1908, 1909; 47-63 for the protein of sequence SEQ ID No. 1898; 47-63 for the protein of sequence SEQ ID No. 1899	2be
SEQ ID No. 474	LIAHLGGPDK	141-150 for the proteins of SEQ No. 351, 352, 366, 368, 383, 384, 386, 392, 397, 414, 415, 416, 418, 419, 420, 422, 424, 429, 430, 432, 434, 435, 439, 442, 444, 445, 1881, 1903, 1906, 1908; 140-149 for the protein of sequence SEQ ID No. 375; 140-149 for the protein of sequence SEQ ID No. 427; 140-149 for the protein of sequence SEQ ID No. 1878; 140-149 for the protein of sequence SEQ ID No. 1904	2be
SEQ ID No. 475	LIAHVGGPASVTAFAR	141-156 for the proteins of SEQ No. 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 399, 400, 401, 404, 405, 406, 412, 417, 433, 437, 440, 441, 1875, 1876, 1879, 1883, 1884, 1885, 1887, 1890, 1895, 1907, 1909; 140-155 for the protein of sequence SEQ ID No. 1898; 140-155 for the protein of sequence SEQ ID No. 1899; 140-155 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 476	LIAQLGGPGGVTAFAAR	141-156 for the proteins of SEQ No. 353, 355, 356, 359, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 387, 398, 402, 403, 407, 408, 409, 410, 411, 413, 421, 423, 425, 428, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1900, 1901	2be
SEQ ID No. 477	NLTLGK	195-200 for the proteins of SEQ No. 351, 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 386, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 399, 400, 401, 404, 405, 406, 412, 415, 416, 417, 419, 422, 424, 426, 429, 430, 431, 432, 433, 434, 435, 437, 438, 439, 440, 441, 442, 444, 445, 1875, 1876, 1879, 1880, 1881, 1883, 1884, 1885, 1887, 1890, 1895, 1903, 1905, 1906, 1907, 1908, 1909; 194-199 for the protein of sequence SEQ ID No. 1898; 194-199 for the protein of sequence SEQ ID No. 1899; 194-199 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 478	QLGDETFR	157-164 for the proteins of SEQ No. 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 395, 396, 399, 400, 401, 405, 406, 412, 417, 426, 431, 433, 437, 438, 440, 441, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905,	2be

		1907, 1909; 156-163 for the protein of sequence SEQ ID No. 1898; 156-163 for the protein of sequence SEQ ID No. 1899; 156-163 for the protein of sequence SEQ ID No. 1902	
SEQ ID No. 479	QLLNQPVEIK	92-101 for the proteins of SEQ No. 353, 355, 356, 359, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 387, 398, 402, 407, 408, 409, 410, 411, 413, 421, 423, 425, 428, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901	2be
SEQ ID No. 480	QLTLGHALGETQR	195-207 for the proteins of SEQ No. 353, 355, 356, 359, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 387, 398, 402, 403, 407, 408, 409, 410, 411, 413, 421, 423, 428, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901	2be
SEQ ID No. 481	QSESDK	86-91 for the proteins of SEQ No. 351, 386, 392, 397, 415, 416, 419, 422, 424, 429, 430, 432, 434, 435, 439, 442, 444, 445, 1881, 1903, 1906, 1908	2be
SEQ ID No. 482	QSETQK	85-90 for the proteins of SEQ No. 375, 427, 1878, 1904; 86-91 for the protein of sequence SEQ ID No. 352; 86-91 for the protein of sequence SEQ ID No. 353; 86-91 for the protein of sequence SEQ ID No. 355; 86-91 for the protein of sequence SEQ ID No. 356; 86-91 for the protein of sequence SEQ ID No. 359; 86-91 for the protein of sequence SEQ ID No. 360; 86-91 for the protein of sequence SEQ ID No. 361; 86-91 for the protein of sequence SEQ ID No. 362; 86-91 for the protein of sequence SEQ ID No. 366; 86-91 for the protein of sequence SEQ ID No. 367; 86-91 for the protein of sequence SEQ ID No. 368; 86-91 for the protein of sequence SEQ ID No. 369; 86-91 for the protein of sequence SEQ ID No. 376; 86-91 for the protein of sequence SEQ ID No. 377; 86-91 for the protein of sequence SEQ ID No. 378; 86-91 for the protein of sequence SEQ ID No. 379; 86-91 for the protein of sequence SEQ ID No. 380; 86-91 for the protein of sequence SEQ ID No. 381; 86-91 for the protein of sequence SEQ ID No. 383; 86-91 for the protein of sequence SEQ ID No. 384; 86-91 for the protein of sequence SEQ ID No. 387; 86-91 for the protein of sequence SEQ ID No. 398; 86-91 for the protein of sequence SEQ ID No. 402; 86-91 for the protein of sequence SEQ ID No. 403; 86-91 for the protein of sequence SEQ ID No. 407; 86-91 for the protein of sequence SEQ ID No. 408; 86-91 for the protein of sequence SEQ ID No. 409; 86-91 for the protein of sequence SEQ ID No. 410; 86-91 for the protein of sequence SEQ ID No. 411; 86-91 for the protein of sequence SEQ ID No. 413; 86-91 for the protein of sequence SEQ ID No. 414; 86-91 for the protein of sequence SEQ ID No. 418; 86-91 for the protein of sequence SEQ ID No. 420; 86-91 for the protein of sequence SEQ ID No. 421; 86-91 for the protein of sequence SEQ ID No. 423; 86-91 for the protein of sequence SEQ ID No. 425; 86-91 for the protein of sequence SEQ ID No. 428; 86-91 for the protein of sequence SEQ ID No. 436; 86-91 for the protein of sequence SEQ ID No. 443; 86-91 for the protein of sequence SEQ ID No. 1872; 86-91 for the protein of sequence SEQ ID No. 1873; 86-91 for the protein of sequence SEQ ID No. 1874; 86-91 for the	2be

		protein of sequence SEQ ID No. 1877; 86-91 for the protein of sequence SEQ ID No. 1882; 86-91 for the protein of sequence SEQ ID No. 1886; 86-91 for the protein of sequence SEQ ID No. 1888; 86-91 for the protein of sequence SEQ ID No. 1889; 86-91 for the protein of sequence SEQ ID No. 1891; 86-91 for the protein of sequence SEQ ID No. 1892; 86-91 for the protein of sequence SEQ ID No. 1893; 86-91 for the protein of sequence SEQ ID No. 1894; 86-91 for the protein of sequence SEQ ID No. 1896; 86-91 for the protein of sequence SEQ ID No. 1897; 86-91 for the protein of sequence SEQ ID No. 1900	
SEQ ID No. 483	QSGGR	43-47 for the proteins of SEQ No. 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 406, 412, 417, 426, 428, 431, 433, 437, 438, 440, 441, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 42-46 for the protein of sequence SEQ ID No. 1898; 42-46 for the protein of sequence SEQ ID No. 1899; 42-46 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 484	SDLVNYNPIAEK	103-114 for the proteins of SEQ No. 351, 354, 357, 358, 363, 364, 365, 371, 372, 373, 374, 382, 384, 385, 386, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 399, 400, 401, 404, 405, 406, 412, 415, 416, 417, 419, 422, 424, 426, 429, 430, 431, 432, 433, 434, 435, 437, 438, 439, 440, 441, 442, 444, 445, 1875, 1876, 1879, 1880, 1881, 1883, 1884, 1885, 1887, 1890, 1895, 1903, 1905, 1906, 1907, 1908, 1909; 102-113 for the protein of sequence SEQ ID No. 1898; 102-113 for the protein of sequence SEQ ID No. 1899; 102-113 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 485	SESEPNLLNQR	87-97 for the proteins of SEQ No. 354, 357, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 406, 412, 417, 426, 431, 433, 437, 438, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 86-96 for the protein of sequence SEQ ID No. 1898; 86-96 for the protein of sequence SEQ ID No. 1899; 86-96 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 486	SLGDETFR	157-164 for the proteins of SEQ No. 351, 386, 392, 397, 415, 416, 419, 422, 424, 429, 430, 432, 434, 435, 442, 444, 445, 1881, 1903, 1906, 1908	2be
SEQ ID No. 487	SSGGR	43-47 for the proteins of SEQ No. 351, 352, 353, 355, 356, 359, 360, 361, 362, 366, 367, 368, 369, 376, 378, 380, 381, 383, 384, 386, 387, 392, 397, 398, 402, 403, 407, 408, 409, 410, 411, 413, 414, 415, 416, 418, 419, 420, 421, 422, 423, 424, 425, 429, 430, 432, 434, 435, 436, 439, 442, 443, 444, 445, 1872, 1873, 1874, 1877, 1881, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901, 1903, 1906, 1908; 42-46 for the protein of sequence SEQ ID No. 375; 42-46 for the protein of sequence SEQ ID No. 427; 42-46 for the protein of sequence SEQ ID No. 1878; 42-46 for the protein of sequence SEQ ID No. 1904	2be
SEQ ID No. 488	SWVVGDK	231-237 for the proteins of SEQ No. 352, 354, 357, 358, 363, 364, 365, 366, 368, 370, 371, 372, 373, 374, 382, 383, 384, 385, 386, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 399, 400, 401, 404, 405, 406, 412, 414, 415, 416, 417, 418, 419, 420, 422, 424, 426, 428, 431,	2be

		432, 433, 435, 437, 438, 439, 440, 441, 442, 443, 445, 1875, 1876, 1879, 1880, 1881, 1883, 1884, 1885, 1887, 1890, 1895, 1903, 1905, 1906, 1907, 1908, 1909; 230-236 for the protein of sequence SEQ ID No. 375; 230-236 for the protein of sequence SEQ ID No. 427; 230-236 for the protein of sequence SEQ ID No. 1878; 230-236 for the protein of sequence SEQ ID No. 1899; 230-236 for the protein of sequence SEQ ID No. 1902; 230-236 for the protein of sequence SEQ ID No. 1904	
SEQ ID No. 489	TEPTLNTAIPGDPR	168-181 for the proteins of SEQ No. 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 362, 363, 364, 366, 367, 368, 369, 370, 371, 372, 373, 374, 376, 377, 378, 379, 380, 381, 382, 383, 384, 386, 387, 389, 390, 392, 393, 394, 396, 397, 398, 399, 401, 402, 403, 404, 405, 406, 408, 409, 410, 411, 412, 413, 414, 416, 417, 418, 419, 420, 422, 423, 424, 425, 426, 428, 431, 432, 433, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 1872, 1874, 1875, 1876, 1877, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1900, 1901, 1903, 1905, 1906, 1907, 1908, 1909; 167-180 for the protein of sequence SEQ ID No. 375; 167-180 for the protein of sequence SEQ ID No. 427; 167-180 for the protein of sequence SEQ ID No. 1878; 167-180 for the protein of sequence SEQ ID No. 1898; 167-180 for the protein of sequence SEQ ID No. 1899; 167-180 for the protein of sequence SEQ ID No. 1902; 167-180 for the protein of sequence SEQ ID No. 1904	2be
SEQ ID No. 490	TGSGDYGTTNDIAVIWPK	238-255 for the proteins of SEQ No. 354, 357, 358, 364, 365, 372, 374, 382, 385, 388, 391, 395, 396, 400, 401, 404, 405, 426, 431, 433, 441, 1876, 1880, 1895, 1905, 1907	2be
SEQ ID No. 491	TGSGDYGTTNDIAVIWPK QGR	238-257 for the proteins of SEQ No. 353, 355, 356, 360, 361, 362, 367, 376, 377, 378, 379, 380, 381, 387, 398, 402, 403, 407, 408, 409, 410, 411, 413, 421, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1893, 1894, 1896, 1897, 1900, 1901; 236-255 for the protein of sequence SEQ ID No. 425	2be
SEQ ID No. 492	TGSGGYGTTNDIAVIWPK	238-255 for the proteins of SEQ No. 363, 370, 371, 389, 390, 393, 394, 399, 406, 412, 428, 437, 438, 440, 1875, 1879, 1883, 1884, 1885, 1887, 1890, 1909; 237-254 for the protein of sequence SEQ ID No. 1898; 237-254 for the protein of sequence SEQ ID No. 1899; 237-254 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 493	VMAAAVLK	77-85 for the proteins of SEQ No. 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 367, 368, 369, 370, 371, 372, 373, 374, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 389, 391, 392, 397, 400, 401, 402, 404, 405, 408, 409, 410, 411, 412, 415, 416, 417, 419, 420, 421, 422, 424, 425, 426, 428, 429, 430, 432, 433, 434, 435, 436, 437, 439, 440, 442, 443, 444, 1872, 1873, 1874, 1875, 1876, 1877, 1881, 1885, 1888, 1889, 1890, 1891, 1893, 1894, 1896, 1897, 1900, 1901, 1903, 1906, 1907, 1908, 1909; 76-84 for the protein of sequence SEQ ID No. 375; 76-84 for the protein of sequence SEQ ID No. 427; 76-84 for the protein of sequence SEQ ID No. 1878; 76-84 for the protein of sequence SEQ ID No. 1898; 76-84 for the protein of sequence SEQ ID No. 1899; 76-84 for the protein of sequence SEQ ID No. 1902; 76-84 for the protein of	2be

		sequence SEQ ID No. 1904	
SEQ ID No. 494	VMAVAAVLK	77-85 for the proteins of SEQ No. 365, 366, 387, 388, 390, 393, 394, 395, 396, 398, 399, 406, 407, 413, 414, 418, 423, 431, 438, 441, 1879, 1880, 1882, 1883, 1884, 1886, 1892, 1895, 1905	2be
SEQ ID No. 495	VTAFAR	151-156 for the proteins of SEQ No. 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 1872, 1873, 1874, 1875, 1876, 1877, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1900, 1901, 1903, 1905, 1906, 1907, 1908, 1909; 150-155 for the protein of sequence SEQ ID No. 375; 150-155 for the protein of sequence SEQ ID No. 427; 150-155 for the protein of sequence SEQ ID No. 1878; 150-155 for the protein of sequence SEQ ID No. 1898; 150-155 for the protein of sequence SEQ ID No. 1899; 150-155 for the protein of sequence SEQ ID No. 1902; 150-155 for the protein of sequence SEQ ID No. 1904	2be
SEQ ID No. 2008	AAGIR	219-223 for the protein of SEQ No. 425	2be
SEQ ID No. 2009	AGADVSLR	188-196 for the protein of SEQ No. 425	2be
SEQ ID No. 2010	AGLPASWVGDK	226-237 for the proteins of SEQ No. 354, 357, 358, 363, 364, 365, 370, 371, 372, 373, 374, 382, 385, 388, 389, 390, 391, 393, 394, 395, 396, 399, 400, 401, 404, 405, 406, 412, 417, 426, 428, 431, 433, 437, 438, 440, 441, 1875, 1876, 1879, 1880, 1883, 1884, 1885, 1887, 1890, 1895, 1905, 1907, 1909; 225-236 for the protein of sequence SEQ ID No. 1899; 225-236 for the protein of sequence SEQ ID No. 1902	2be
SEQ ID No. 2011	AGLPTSWTAGDK	226-237 for the proteins of SEQ No. 353, 359, 387	2be
SEQ ID No. 2012	AGLPTSWTVGDR	226-237 for the proteins of SEQ No. 1894	2be
SEQ ID No. 2013	AGLPTSWVGDK	225-236 for the proteins of SEQ No. 375, 427, 1878, 1904; 226-237 for the protein of sequence SEQ ID No. 352; 226-237 for the protein of sequence SEQ ID No. 366; 226-237 for the protein of sequence SEQ ID No. 368; 226-237 for the protein of sequence SEQ ID No. 383; 226-237 for the protein of sequence SEQ ID No. 384; 226-237 for the protein of sequence SEQ ID No. 414; 226-237 for the protein of sequence SEQ ID No. 418; 226-237 for the protein of sequence SEQ ID No. 420; 226-237 for the protein of sequence SEQ ID No. 443	2be
SEQ ID No. 2014	AGMPK	226-230 for the protein of SEQ No. 434	2be

SEQ ID No. 2015	AIGDDTFR	156-163 for the proteins of SEQ No. 375, 427, 1878, 1904	2be
SEQ ID No. 2016	AIGDNTFR	157-164 for the protein of SEQ No. 352	2be
SEQ ID No. 2017	AMAVAAVLK	77-85 for the proteins of SEQ No. 1887	2be
SEQ ID No. 2018	APLILVIYFTQPQPK	258-272 for the protein of SEQ No. 390	2be
SEQ ID No. 2019	APLILVTYFTQPEQK	257-271 for the proteins of SEQ No. 375, 427, 1878, 1904; 258-272 for the protein of sequence SEQ ID No. 352	2be
SEQ ID No. 2020	APLILVTYFTQPQPNAES R	258-276 for the proteins of SEQ No. 406, 1884	2be
SEQ ID No. 2021	APLVLVITYFTQPEPK	258-272 for the protein of SEQ No. 443	2be
SEQ ID No. 2022	APLVLVITYFTQPQQNAE NR	258-276 for the proteins of SEQ No. 1893	2be
SEQ ID No. 2023	APLVLVITYFTQPQQNAE R	258-275 for the proteins of SEQ No. 367, 398, 421, 1877, 1882, 1888	2be
SEQ ID No. 2024	APLVLVITYFTQSEPK	258-272 for the proteins of SEQ No. 366, 368, 383, 384, 414, 418, 420	2be
SEQ ID No. 2025	AQLVAWLK	208-215 for the protein of SEQ No. 409	2be
SEQ ID No. 2026	AQLVMWLK	208-215 for the proteins of SEQ No. 366, 368, 383, 384, 414, 418, 420	2be
SEQ ID No. 2027	ASDLVNYPNIAEK	102-114 for the proteins of SEQ No. 429, 430, 434	2be
SEQ ID No. 2028	CWVVGDK	231-237 for the protein of SEQ No. 429	2be
SEQ ID No. 2029	DFLAAAAK	278-285 for the proteins of SEQ No. 435, 1908	2be
SEQ ID No. 2030	DILASAAK	278-285 for the proteins of SEQ No. 358, 440, 441	2be
SEQ ID No. 2031	DLLSQR	92-97 for the protein of SEQ No. 443	2be
SEQ ID No. 2032	DNTQVLYR	57-64 for the proteins of SEQ No. 353, 355, 356, 359, 360, 361, 362, 367, 369, 376, 377, 378, 379, 380, 381, 387, 398, 402, 403, 407, 409, 410, 411, 413, 421, 423, 425, 436, 1872, 1873, 1874, 1877, 1882, 1886, 1888, 1889, 1891, 1892, 1893, 1894, 1896, 1897, 1900, 1901	2be
SEQ ID No. 2033	DTTTAR	182-187 for the protein of SEQ No. 425	2be
SEQ ID No. 2034	DTTTPlamaQALR	182-194 for the proteins of SEQ No. 366, 368, 383, 384, 414, 420	2be
SEQ ID No. 2035	DTTTPlamaQSLR	182-194 for the protein of SEQ No. 418	2be

SEQ ID No. 2036	DTTTPlamaQTLR	181-193 for the proteins of SEQ No. 375, 427, 1878, 1904; 182-194 for the protein of sequence SEQ ID No. 352; 182-194 for the protein of sequence SEQ ID No. 443	2be
SEQ ID No. 2037	DVLAAAAR	278-285 for the proteins of SEQ No. 366, 368, 383, 384, 414, 418, 420, 443	2be
SEQ ID No. 2038	EIGDETFR	157-164 for the protein of SEQ No. 356	2be
SEQ ID No. 2039	EQLVTWLK	208-215 for the proteins of SEQ No. 1891, 1892	2be
SEQ ID No. 2040	GLLSQR	92-97 for the proteins of SEQ No. 366, 368, 383, 384, 414, 418, 420	2be
SEQ ID No. 2041	GNTTGAAR	216-223 for the protein of SEQ No. 376	2be
SEQ ID No. 2042	GNTTGSASIQAGLPK	216-230 for the proteins of SEQ No. 442, 445	2be
SEQ ID No. 2043	HDVLASAAK	277-285 for the proteins of SEQ No. 412, 1885	2be
SEQ ID No. 2044	HDVLASAAR	277-285 for the proteins of SEQ No. 1894	2be
SEQ ID No. 2045	HLTLGSALGETQR	194-206 for the proteins of SEQ No. 375, 427, 1878, 1904	2be
SEQ ID No. 2046	LAELEQQSGGR	37-47 for the proteins of SEQ No. 354, 373, 374, 390	2be
SEQ ID No. 2047	LAGLER	37-42 for the protein of SEQ No. 357	2be
SEQ ID No. 2048	LDGTEPTLNTAIPGDPR	165-181 for the protein of SEQ No. 382	2be
SEQ ID No. 2049	LGVALIDTADNAQTLYR	47-63 for the proteins of SEQ No. 375, 427, 1878, 1904; 48-64 for the protein of sequence SEQ ID No. 352	2be
SEQ ID No. 2050	LGVALIDTADNTHVLYR	48-64 for the protein of SEQ No. 408	2be
SEQ ID No. 2051	LGVALIDTK	48-56 for the protein of SEQ No. 356	2be
SEQ ID No. 2052	LGVALINTADNSQILYLA DER	48-68 for the protein of SEQ No. 429	2be
SEQ ID No. 2053	LGVALINTADNSQILYVA DER	48-68 for the protein of SEQ No. 430	2be
SEQ ID No. 2054	LGVALINTADNSR	47-59 for the proteins of SEQ No. 1902	2be
SEQ ID No. 2055	LGVALINTADNTQTLYR	48-64 for the proteins of SEQ No. 366, 368, 383, 384, 414, 418, 420, 443	2be
SEQ ID No. 2056	LGVAQINTADNSQILYVA DER	48-68 for the protein of SEQ No. 434	2be

SEQ ID No. 2057	LGVPLIDTADNTQVLYR	48-64 for the proteins of SEQ No. 379, 380, 381	2be
SEQ ID No. 2058	LIAHLGGPGK	141-150 for the protein of SEQ No. 443	2be
SEQ ID No. 2059	LIAQLGGQGGVTAFAR	141-156 for the proteins of SEQ No. 1897	2be
SEQ ID No. 2060	LISHVGGPASVTAFAR	141-156 for the proteins of SEQ No. 395, 396, 426, 431, 438, 1880, 1905	2be
SEQ ID No. 2061	LLLNQR	92-97 for the protein of SEQ No. 392	2be
SEQ ID No. 2062	NLTGLNALGDTQR	195-207 for the proteins of SEQ No. 366, 368, 383, 384, 414, 418, 420, 443	2be
SEQ ID No. 2063	NLTLSALGETQR	195-207 for the protein of SEQ No. 352	2be
SEQ ID No. 2064	NVLSQK	91-96 for the proteins of SEQ No. 375, 427, 1878, 1904	2be
SEQ ID No. 2065	QLGDDTFR	157-164 for the protein of SEQ No. 404	2be
SEQ ID No. 2066	SDLVNYSPIAEK	103-114 for the protein of SEQ No. 370	2be
SEQ ID No. 2067	SESEPSLLNQR	87-97 for the proteins of SEQ No. 358, 440, 441	2be
SEQ ID No. 2068	SETQK	86-90 for the proteins of SEQ No. 375, 427, 1878, 1904; 87-91 for the protein of sequence SEQ ID No. 352; 87-91 for the protein of sequence SEQ ID No. 353; 87-91 for the protein of sequence SEQ ID No. 355; 87-91 for the protein of sequence SEQ ID No. 356; 87-91 for the protein of sequence SEQ ID No. 359; 87-91 for the protein of sequence SEQ ID No. 360; 87-91 for the protein of sequence SEQ ID No. 361; 87-91 for the protein of sequence SEQ ID No. 362; 87-91 for the protein of sequence SEQ ID No. 366; 87-91 for the protein of sequence SEQ ID No. 367; 87-91 for the protein of sequence SEQ ID No. 368; 87-91 for the protein of sequence SEQ ID No. 369; 87-91 for the protein of sequence SEQ ID No. 376; 87-91 for the protein of sequence SEQ ID No. 377; 87-91 for the protein of sequence SEQ ID No. 378; 87-91 for the protein of sequence SEQ ID No. 379; 87-91 for the protein of sequence SEQ ID No. 380; 87-91 for the protein of sequence SEQ ID No. 381; 87-91 for the protein of sequence SEQ ID No. 383; 87-91 for the protein of sequence SEQ ID No. 384; 87-91 for the protein of sequence SEQ ID No. 387; 87-91 for the protein of sequence SEQ ID No. 398; 87-91 for the protein of sequence SEQ ID No. 402; 87-91 for the protein of sequence SEQ ID No. 403; 87-91 for the protein of sequence SEQ ID No. 407; 87-91 for the protein of sequence SEQ ID No. 408; 87-91 for the protein of sequence SEQ ID No. 409; 87-91 for the protein of sequence SEQ ID No. 410; 87-91 for the protein of sequence SEQ ID No. 411; 87-91 for the	2be

		protein of sequence SEQ ID No. 413; 87-91 for the protein of sequence SEQ ID No. 414; 87-91 for the protein of sequence SEQ ID No. 418; 87-91 for the protein of sequence SEQ ID No. 420; 87-91 for the protein of sequence SEQ ID No. 421; 87-91 for the protein of sequence SEQ ID No. 423; 87-91 for the protein of sequence SEQ ID No. 425; 87-91 for the protein of sequence SEQ ID No. 428; 87-91 for the protein of sequence SEQ ID No. 436; 87-91 for the protein of sequence SEQ ID No. 443; 87-91 for the protein of sequence SEQ ID No. 1872; 87-91 for the protein of sequence SEQ ID No. 1873; 87-91 for the protein of sequence SEQ ID No. 1874; 87-91 for the protein of sequence SEQ ID No. 1877; 87-91 for the protein of sequence SEQ ID No. 1882; 87-91 for the protein of sequence SEQ ID No. 1886; 87-91 for the protein of sequence SEQ ID No. 1888; 87-91 for the protein of sequence SEQ ID No. 1889; 87-91 for the protein of sequence SEQ ID No. 1891; 87-91 for the protein of sequence SEQ ID No. 1892; 87-91 for the protein of sequence SEQ ID No. 1893; 87-91 for the protein of sequence SEQ ID No. 1894; 87-91 for the protein of sequence SEQ ID No. 1896; 87-91 for the protein of sequence SEQ ID No. 1897; 87-91 for the protein of sequence SEQ ID No. 1900; 87-91 for the protein of sequence SEQ ID No. 1901	
SEQ ID No. 2069	SLGDESFR	157-164 for the protein of SEQ No. 439	2be
SEQ ID No. 2070	SSDLINYNPIAEK	101-113 for the proteins of SEQ No. 375, 427, 1878, 1904; 102-114 for the protein of sequence SEQ ID No. 443	2be
SEQ ID No. 2071	SSDLINYNPITEK	102-114 for the protein of SEQ No. 352	2be
SEQ ID No. 2072	SWGVGDK	231-237 for the proteins of SEQ No. 351, 430, 434, 444	2be
SEQ ID No. 2073	TELTNTAIPGDPR	168-181 for the protein of SEQ No. 407	2be
SEQ ID No. 2074	TEPTLNSAIPGDPR	168-181 for the proteins of SEQ No. 429, 430, 434	2be
SEQ ID No. 2075	TEPTQNTAIPGDPR	168-181 for the proteins of SEQ No. 1889	2be
SEQ ID No. 2076	TEQTLNTAIPGDPR	168-181 for the protein of SEQ No. 391	2be
SEQ ID No. 2077	TESTLNTAIPGDPR	168-181 for the proteins of SEQ No. 361, 388, 400, 421, 1873, 1888	2be
SEQ ID No. 2078	TETTLNTAIPGDPR	168-181 for the proteins of SEQ No. 365, 385, 395, 415	2be
SEQ ID No. 2079	TGSCDYGTTNDIAVIWPK	238-255 for the protein of SEQ No. 373	2be
SEQ ID No. 2080	TGSCGYGTTNDIAVIWPK	238-255 for the protein of SEQ No. 417	2be

SEQ ID No. 2081	TGSGDYGTTNDIAVIWPE GR	237-256 for the proteins of SEQ No. 375, 427, 1878, 1904; 238-257 for the protein of sequence SEQ ID No. 352; 238-257 for the protein of sequence SEQ ID No. 368; 238-257 for the protein of sequence SEQ ID No. 383; 238-257 for the protein of sequence SEQ ID No. 414; 238-257 for the protein of sequence SEQ ID No. 418; 238-257 for the protein of sequence SEQ ID No. 443	2be
SEQ ID No. 2082	TGSGGYGTTNDIAVIWPE GR	238-257 for the proteins of SEQ No. 366, 384, 420	2be
SEQ ID No. 2083	TGSGGYGTTNDIAVIWP QGR	238-257 for the proteins of SEQ No. 359, 369, 423, 1889, 1891, 1892	2be
SEQ ID No. 2084	TIGDDTFR	157-164 for the proteins of SEQ No. 366, 368, 383, 384, 414, 418, 420	2be
SEQ ID No. 2085	TQLVTWLK	208-215 for the protein of SEQ No. 419	2be
SEQ ID No. 2086	VEIKPSDLINYNPIAEK	98-114 for the proteins of SEQ No. 366, 368, 383, 414, 418, 420	2be
SEQ ID No. 2087	VEIKPSDLVNYNPIAEK	98-114 for the protein of SEQ No. 384	2be
SEQ ID No. 2088	VIGDDTFR	157-164 for the protein of SEQ No. 443	2be
SEQ ID No. 2089	VLSQK	92-96 for the proteins of SEQ No. 375, 427, 1878, 1904; 93-97 for the protein of sequence SEQ ID No. 352	2be
SEQ ID No. 2090	VMAAAALLK	77-85 for the protein of SEQ No. 445	2be
SEQ ID No. 2091	VMAAAVLEQSETQK	77-91 for the protein of SEQ No. 403	2be
SEQ ID No. 2092	WAKPSGAVGDVAQR	201-214 for the protein of SEQ No. 425	2be

In the clinical interest column, the entry 2be indicates that all of the CTX-M peptides indicates the presence of a beta-lactamase with an extended spectrum (ESBL) capable of hydrolysing penicillins, first-generation cephalosporins such as cephaloridine and cefalotin, and at least one antibiotic from the oxymino-beta-lactam class such as cefotaxime, ceftazidime or monobactams such as aztreonam.

The detection of a mechanism of resistance to ESBL (extended-spectrum beta-lactamase) cephalosporins, induced by the CTX-M protein is characterised by the detection of at least one resistance-marking 2be peptide chosen from the sequences SEQ ID No. 446 to SEQ ID No. 478, SEQ ID No. 480 to SEQ ID No. 495 and SEQ ID No. 2008 to SEQ ID No. 2092.

The detection of a mechanism of resistance to cephalosporins induced by the expression of the SHV protein is characterised by the detection of at least one peptide belonging to the SHV protein and to its different sequence variants **SEQ ID No. 496** to **SEQ ID No. 613** and **SEQ ID No. 1909** to **SEQ ID No. 1919**.

5

SEQ ID No. 496:

KRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
10 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 497:

LRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRAD
15 ERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGMT
VGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALPG
DARDTTTPASMAATLRKLLTSQRLSASSQRQLLQWMVDDRVAGPLIRSVLPAGWFI
ADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEHW
QR

SEQ ID No. 498:

20 MRFIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
25 FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 499:

MRFIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
30 TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERMVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 500:

35 MRFIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
40 FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 501:

MRIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRAD
ERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGMT
45 VGELCAA ITMSDNSAANLLLATVGGPVGLTAFLRQIGDNVTRLDRWETELNEALPG
DARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGWFI
ADRTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEHW
QR

SEQ ID No. 502:

MRYARLCIISLLATLPLVVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWR
ADERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADG
MTVGELCAAITVSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEAL
5 PGDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAG
WFIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIE
HWQR

SEQ ID No. 503:

MRYFRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGASERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 504:

MRYFRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPVGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
20 FIADRTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 505:

MRYFRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGSVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
25 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIDDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 506:

MRYFRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGSVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
30 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAARKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
35 WQR

SEQ ID No. 507:

MRYFRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGSVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 508:

MRYFRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGSVGMIEMDLASGRTLTAWRA
45 DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGASERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 509:

MRYFRLCIISLLATLPLAVHASPPLEQIKLSESQLSGSVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 510:

MRYFRLCIISLLATLPLAVHASPPLEQIKLSESQLSGSVGMIEMDLASGRTLTAWRA
10 DGRFPMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 511:

MRYIRLCIISLLAALPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMISTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGMT
VGELCAAITMSDNSAANLLLAIVGGPAGLTAFLRQIGDNVTRLDRWETELNEALPG
DARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGWFI
20 ADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEHW
QR

SEQ ID No. 512:

MRYIRLCIISLLAALPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
25 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVEDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 513:

MRYIRLCIISLLAALPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITVSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQHIAGIGAALIEH
35 WQR

SEQ ID No. 514:

MRYIRLCIISLLAALPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITVSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 515:

MRYIRLCIISLLATLPLAVHASPPLDQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 516:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWHA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 517:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWHA
10 DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGKRGARGIVALLGPNNKAERIVVIYLRDTPASMAKRNQQIAGIGAALIEH
WQR

SEQ ID No. 518:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM ISTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGMT
VGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALPG
DARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGWFI
20 ADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEHW
QR

SEQ ID No. 519:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YLQQDLVDYSPVSEKHLADGM
25 TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 520:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHFADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLSAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
35 WQR

SEQ ID No. 521:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TIGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 522:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGEFCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEAFP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 523:

5 MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGEFCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAAGTLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 524:

10 MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAAKLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 525:

15 MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATFGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
20 FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 526:

25 MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGLAGLTAFLRQIGDNVTRLDRWETELNEALP
ADARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 527:

30 MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIDDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
35 WQR

SEQ ID No. 528:

40 MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIDDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 529:

45 MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDKVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 530:

MRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
5 LNEALPGDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSV
LPAGWFIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIG
AALIEHWQR

SEQ ID No. 531:

MRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPMMSTFKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEAFP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 532:

MRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEAFP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
20 FIADKTGASERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 533:

MRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
25 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARATTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 534:

MRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLNSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
30 FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 535:

MRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARLQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 536:

MRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPMMSTFKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 537:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRLQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASERGARGIVALLGPNNAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 538:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRLQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 539:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRLQLLQWMVDDGVAGPLIRSVLPAGW
20 FIADKTGAGERGARGIVALLGPNNAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 540:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
25 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRLQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAAERGARGIVALLGPNNAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 541:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
30 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRLQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPDNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
35 WQR

SEQ ID No. 542:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRLQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNHKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 543:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRLQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 544:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALRGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 545:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGKRGARGIVALLGPNNKAERIVVIYLRDSPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 546:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
15 FIADKTGAGKRGARGIVALLGPNNKAERTVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 547:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
25 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASERGARGIVALLGPNNKAERIVVIYLRDSPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 548:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
30 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
35 WQR

SEQ ID No. 549:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 550:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 551:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADRTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 552:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLSAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 553:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDGRVAGPLIRSVLPAGW
15 FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 554:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
25 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMTATLRKLLTSQRLSARSQRHLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 555:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMTATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
30 FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 556:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
40 GDARDTTTPASMTATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 557:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMTATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 558:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
5 GDARGTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 559:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARNTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 560:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALS
GDARDTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
20 FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 561:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
25 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETERNEALP
GDARDTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 562:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGENVTRLDRWETELNEALP
GDARDTTPASMAATLRKLLTNQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
30 FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 563:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPVGLTAFLRQIGDNVTRLDRWETELNEALP
40 GDARDTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 564:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHRYQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSVANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTLASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 565:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA VITMSDNSAANLLLATVGGPAGLTAFLRQIDDNVTRLDRWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 566:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCTAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 567:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKYLADGM
TVGELCAA AITMSDNSAANLLLATVGGPVGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
15 FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 568:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASRTLTAWRAD
ERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGMT
25 VGELCAA AITMGDNSAANLLLRTVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRNVLT SQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 569:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASRTLTAWRAD
ERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGMT
VGELCAA AITMSDNSAANLLLRTVGGPAGLTAFLRQIGDNVTRLDRWETELNEALPG
DARDTTTPASMAATLRNVLT SQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGWFI
30 ADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEHW
QR

SEQ ID No. 570:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASSRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA AITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 571:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWCA
45 DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA AITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 572:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMISTFKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGMT
VGELCAAITMSDNSAANLLLAIVGGPAGLTAFLRQIGDNVTRLDRWETELNEALPG
5 DARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRAGPLIRSVLPAGWFI
ADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEHW
QR

SEQ ID No. 573:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPMSTFKVALCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 574:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVLLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRAGPLIRSVLPAGW
20 FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 575:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLCGAMLARVDAGDKQLERKIHQRQQDLVDYSPVSEKHLADGM
25 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 576:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
30 DERFPMSTFKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLAIVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
35 WQR

SEQ ID No. 577:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIDDNVTRLDRWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 578:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPMSTFKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLISQRLSARSQRQLLQWMVDDRVRAGPLIRSVLPAGWF
IADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEHW
QR

SEQ ID No. 579:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDN SAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDARVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 580:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDN SAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKAGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 581:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDN SAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
20 FIADKTGA AERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 582:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
25 TVGELCAA ITMSDN SAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 583:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDN SAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
30 FIADKTGAGERGGRGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 584:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDN SAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 585:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDN SAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGASERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 586:

5 MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGGNIKAERIVVIYLRDTPASMAERNQQIAGIGAALIEHW
QR

SEQ ID No. 587:

10 MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPN NKAERIVVIYLRDTPASMAELDQQIAGIGAALIEHW
QR

SEQ ID No. 588:

15 MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
20 FIADKTGASKRGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 589:

25 MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGASRRGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 590:

30 MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADRTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
35 WQR

SEQ ID No. 591:

40 MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMTATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 592:

45 MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVLCGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA ITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEVLP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 593:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA AITMSDNSAANLLLATVGGPAGVTAFLRQIGDNVTRLD RWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 594:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA AITMSDNSAANLLLATVGGPTGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 595:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
TVGELCAA AITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
20 FIADKTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 596:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLADGM
25 TVGELCAA AITVSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 597:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
30 DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKHLTDGM
TVGELCAA AITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
35 WQR

SEQ ID No. 598:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQDLVDYSPVSEKYLADGM
TVGELCAA AITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 599:

MRYIRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPM MSTFKVVL CGAVLARVDAGDEQLERKIH YRQQHLVDYSPVSEKHLADGM
TVGELCAA AITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLD RWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDR VAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPN NKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 600:

MRYIRLCIISLLATLPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDKQLERKIHQRQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGGRGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 601:

MRYIRLCIISLLATLPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
10 DERFPMMSFTKVVLCGTVLARVDAGDEQLERKIHQRQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIDDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 602:

MRYIRLCIISLLATLPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DQRFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
20 FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 603:

MRYIRLCIISLLATLPLAVHASPPLEQIKQSESQLSGSVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQDLVDYSPVSEKHLADGM
25 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAAERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 604:

MRYIRLCIISLLATLPLAVHSSPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQDLVDYSPVSEKHLADGM
TVGELCAAITVSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
30 FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 605:

MRYIRLCIISLLATLPLTVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
40 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 606:

MRYIRLCIISLLATLSLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
45 DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 607:

5 MRYIRLCIISLLATMPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWR
ADERFPMSTFKVVLCGAVLARVDAGDEQLERKIHVRQQDLVDYSPVSEKHLADG
MTVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEAL
PGDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAG
WFIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIE
HWQR

SEQ ID No. 608:

10 MRYIRLCIISLLAVLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLCGAVLARVDAGDEQLERKIHVRQQDLVDYSPVSEKHLADGM
TVGELCAAITVSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 609:

15 MRYIRLNIISLLATLPLAVHASPPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLCGAVLARVDAGDEQLERKIHVRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
20 FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 610:

25 MRYIRRCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLCGAVLARVDAGDEQLERKIHVRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDMPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 611:

30 MRYIRRCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMSTFKVVLCGAVLARVDAGDEQLERKIHVRQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
35 WQR

SEQ ID No. 612:

40 MRYVRLCIISLLATLPLAVHASPPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWR
ADERFPMSTFKVVLCGAVLARVDAGDEQLERKIHVRQQDLVDYSPVSEKHLADG
MTVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEAL
PGDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAG
WFIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIE
HWQR

SEQ ID No. 613:

45 MRYVRLCIISLLATLPLAVHTSPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWR
ADERFPMSTFKVVLCGAVLARVDAGDEQLERKIHVRQQDLVDYSPVSEKHLADG
MTVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEAL
PGDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAG
WFIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIE
HWQR

SEQ ID No. 1909:

MRYIRLCIISLLAALPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAATVSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDREWETELNEALP
5 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQHIAGIGAALIEH
WQR

SEQ ID No. 1910:

ALPGDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPA
10 GWFIADKTGASERGARGIVALLGPNNKAERIVVIYLRDS

SEQ ID No. 1911:

MRYIRLCIISLLAALPLVVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAATVSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDREWETELNEALP
15 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQHIAGIGAALIEH
WQR

SEQ ID No. 1912:

MRYIRLCIISLLATLPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
20 DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAATMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDREWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAELDQQIAGIGAALIEHW
QR

SEQ ID No. 1913:

MRYIRLCIISLLATLPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELRAAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDREWETELNEALP
25 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQHIAGTGAAPIEH
WQR

SEQ ID No. 1914:

MRYIRLCIISLLATLPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
35 TVGELCAAATMSDNSAANLLLATVGGPAGLTAFLREIGDNVTRLDREWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQHIAGIGAALIEH
WQR

SEQ ID No. 1915:

MRYIRLCIISLLATLPLAVHASPPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAATMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDREWETELNEALP
40 GDARDTTTPASMTATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQHIAGIGAALIEH
WQR

SEQ ID No. 1916:

MRYIRLCIISLLATLPLAVHASPPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSFTKVVLCGAVLARVDAGDEQLERKIHQRQQDLVDYSPVSEKHLADGM
TVGELCAAATMSDNSAANLLLATVGGPAALTAFLRQIGDNVTRLDREWETELNEALP
50 GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVAGPLIRSVLPAGW

FIADKTGAGERGARGIVALLGPHNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 1917:

5 KRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHYSQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGAGERGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

10 **SEQ ID No. 1918:**

MRYIRLCIISLLATLPLAVHASPQPLEQIKLSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHYSQQDLVDYSPVSEKHLADGM
TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
15 FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAALIEH
WQR

SEQ ID No. 1919:

MRYIRLCIISLLATLPLAVHASPQPLEQIKQSESQLSGRVGMIEMDLASGRTLTAWRA
DERFPMMSTFKVVLGAVLARVDAGDEQLERKIHYSQQDLVDYSPVSEKHLADGM
20 TVGELCAAITMSDNSAANLLLATVGGPAGLTAFLRQIGDNVTRLDRWETELNEALP
GDARDTTTPASMAATLRKLLTSQRLSARSQRQLLQWMVDDRVRVAGPLIRSVLPAGW
FIADKTGASKRGARGIVALLGPNNKAERIVVIYLRDTPASMAERNQQIAGIGAA

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID**

No. 614 to SEQ ID No. 711 and SEQ ID No. 2093 to SEQ ID No. 2096 as defined

25 hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the SHV protein	Clinical interest
SEQ ID No. 614	AGAGER	231-236 for the protein of SEQ No. 580	SHV
SEQ ID No. 615	ATTPASMAATL R	175-187 for the protein of SEQ No. 533	2be
SEQ ID No. 616	CIISLLATLPLAVH ASPQPLEQIK	7-30 for the proteins of SEQ No. 496, 497, 498, 499, 500, 503, 504, 505, 506, 507, 508, 509, 510, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 610, 611, 612, 1913, 1914, 1915, 1917, 1918, 1919, 1920; 6-29 for the protein of sequence SEQ ID No. 501	SHV
SEQ ID No. 617	DMPASMAER	261-269 for the protein of SEQ No. 610	2b
SEQ ID No. 618	DSPASMAER	261-269 for the proteins of SEQ No. 545, 547	SHV
SEQ ID No. 619	DTLASMAER	261-269 for the protein of SEQ No. 564	SHV

SEQ ID No. 620	DTPASMAER	261-269 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 546, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 611, 612, 613, 1910, 1912, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 260-268 for the protein of sequence SEQ ID No. 501; 266-274 for the protein of sequence SEQ ID No. 530; 260-268 for the protein of sequence SEQ ID No. 568; 260-268 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 621	DTPASMAK	261-268 for the protein of SEQ No. 517	SHV
SEQ ID No. 622	DTTPASMAATL R	175-187 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 524, 525, 526, 527, 528, 529, 531, 532, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1917, 1918, 1919, 1920; 174-186 for the protein of sequence SEQ ID No. 501; 180-192 for the protein of sequence SEQ ID No. 530; 174-186 for the protein of sequence SEQ ID No. 568; 174-186 for the protein of sequence SEQ ID No. 569; 8-20 for the protein of sequence SEQ ID No. 1911	SHV
SEQ ID No. 623	DTTPASMAGTL R	175-187 for the protein of SEQ No. 523	2b
SEQ ID No. 624	DTTPASMTATL R	175-187 for the proteins of SEQ No. 554, 555, 556, 557, 591, 1916	SHV
SEQ ID No. 625	FPMISTFK	62-69 for the proteins of SEQ No. 511, 518, 572	2br
SEQ ID No. 626	FPMSTFK	62-69 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 512, 513, 514, 515, 516, 517, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 61-68 for the protein of sequence SEQ ID No. 501; 61-68 for the protein of sequence SEQ ID No. 568; 61-68 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 627	GIVALLGGNIK	240-250 for the protein of SEQ No. 586	2b
SEQ ID No. 628	GIVALLGPDNK	240-250 for the protein of SEQ No. 541	SHV
SEQ ID No. 629	GIVALLGPNHK	240-250 for the protein of SEQ No. 542	SHV

SEQ ID No. 630	GIVALLGPNNK	240-250 for the proteins of SEQ No. 496, 497, 498, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 543, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1918, 1919, 1920; 239-249 for the protein of sequence SEQ ID No. 501; 245-255 for the protein of sequence SEQ ID No. 530; 239-249 for the protein of sequence SEQ ID No. 569; 73-83 for the protein of sequence SEQ ID No. 1911	SHV
SEQ ID No. 631	GIVALLGPNNNAE R	240-253 for the protein of SEQ No. 499	2b
SEQ ID No. 632	GIVALR	240-245 for the protein of SEQ No. 544	SHV
SEQ ID No. 633	GPNNK	246-250 for the proteins of SEQ No. 496, 497, 498, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1918, 1919, 1920; 245-249 for the protein of sequence SEQ ID No. 501; 251-255 for the protein of sequence SEQ ID No. 530; 245-249 for the protein of sequence SEQ ID No. 568; 245-249 for the protein of sequence SEQ ID No. 569; 79-83 for the protein of sequence SEQ ID No. 1911	SHV
SEQ ID No. 634	GTTTPASMAATL R	175-187 for the protein of SEQ No. 558	2be
SEQ ID No. 635	HLADGMTVGELC AAAITMSDNSAAK	108-132 for the protein of SEQ No. 524	SHV
SEQ ID No. 636	HLLQWMVDDR	202-211 for the protein of SEQ No. 554	SHV
SEQ ID No. 637	IHYLQQDLVDYSP VSEK	91-107 for the protein of SEQ No. 519	SHV
SEQ ID No. 638	IVVIYLR	254-260 for the proteins of SEQ No. 496, 497, 498, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 253-	SHV

		259 for the protein of sequence SEQ ID No. 501; 259-265 for the protein of sequence SEQ ID No. 530; 253-259 for the protein of sequence SEQ ID No. 568; 253-259 for the protein of sequence SEQ ID No. 569; 87-93 for the protein of sequence SEQ ID No. 1911	
SEQ ID No. 639	LCIISLLAALPLAV HASPQPLEQIK	6-30 for the proteins of SEQ No. 511, 512, 513, 514, 1910	2b
SEQ ID No. 640	LCIISLLATLPLAV HASPQPLDQIK	6-30 for the protein of SEQ No. 515	2b
SEQ ID No. 641	LCIISLLATLPLAV HASPQPLEQIK	6-30 for the proteins of SEQ No. 496, 497, 498, 499, 500, 503, 504, 505, 506, 507, 508, 509, 510, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 612, 1913, 1914, 1915, 1917, 1918, 1919, 1920; 5-29 for the protein of sequence SEQ ID No. 501	SHV
SEQ ID No. 642	LCIISLLATLPLAV HSPQPLEQIK	6-30 for the protein of SEQ No. 604	SHV
SEQ ID No. 643	LCIISLLATLPLAV HTSPQPLEQIK	6-30 for the protein of SEQ No. 613	SHV
SEQ ID No. 644	LCIISLLATLPLTV HASPQPLEQIK	6-30 for the protein of SEQ No. 605	2b
SEQ ID No. 645	LCIISLLATLPLVV HASPQPLEQIK	6-30 for the protein of SEQ No. 502	2b
SEQ ID No. 646	LCIISLLATLSLAV HASPQPLEQIK	6-30 for the protein of SEQ No. 606	2be
SEQ ID No. 647	LCIISLLATMPLAV HASPQPLEQIK	6-30 for the protein of SEQ No. 607	SHV
SEQ ID No. 648	LCIISLLAVLPLAV HASPQPLEQIK	6-30 for the protein of SEQ No. 608	2b
SEQ ID No. 649	LLISQR	189-194 for the protein of SEQ No. 578	SHV

SEQ ID No. 650	LLLATVGGPAGLT AFLR	133-149 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 505, 506, 507, 508, 509, 510, 512, 513, 514, 515, 516, 517, 518, 519, 521, 522, 523, 524, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 564, 565, 566, 570, 571, 573, 574, 575, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1918, 1919, 1920	SHV
SEQ ID No. 651	LLNSQR	189-194 for the protein of SEQ No. 534	2be
SEQ ID No. 652	LLTNQR	189-194 for the protein of SEQ No. 562	SHV
SEQ ID No. 653	LLTSQR	189-194 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 531, 532, 533, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 188-193 for the protein of sequence SEQ ID No. 501; 194-199 for the protein of sequence SEQ ID No. 530; 22-27 for the protein of sequence SEQ ID No. 1911	SHV
SEQ ID No. 654	LNIISSLATLPLAV HASPQPLEQIK	6-30 for the protein of SEQ No. 609	2b
SEQ ID No. 655	LSASSQR	195-201 for the protein of SEQ No. 497	SHV
SEQ ID No. 656	LSESQLSGR	31-39 for the proteins of SEQ No. 496, 497, 498, 499, 500, 503, 504, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 604, 606, 609, 1917, 1918, 1919; 30-38 for the protein of sequence SEQ ID No. 501	SHV
SEQ ID No. 657	LSESQLSGSVGM IEMDLASGR	31-51 for the proteins of SEQ No. 505, 506, 507, 508, 509, 510	SHV
SEQ ID No. 658	MVVIYLR	254-260 for the protein of SEQ No. 499	2b
SEQ ID No. 659	NEALPGDAR	166-174 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 523, 524, 525, 527, 528, 529, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606,	2be

		607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 165-173 for the protein of sequence SEQ ID No. 501; 171-179 for the protein of sequence SEQ ID No. 530; 165-173 for the protein of sequence SEQ ID No. 568; 165-173 for the protein of sequence SEQ ID No. 569	
SEQ ID No. 660	NQHIAGIGAALIE HWQR	270-286 for the proteins of SEQ No. 513, 1910	SHV
SEQ ID No. 661	NQQIAGIGAALIE HWQR	270-286 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1912, 1915, 1916, 1917, 1918, 1919; 269-285 for the protein of sequence SEQ ID No. 501; 275-291 for the protein of sequence SEQ ID No. 530; 269-285 for the protein of sequence SEQ ID No. 568; 269-285 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 662	NQQIAGLGAALIE HWQR	270-286 for the protein of SEQ No. 550	SHV
SEQ ID No. 663	NTTTPASMAATL R	175-187 for the protein of SEQ No. 559	2be
SEQ ID No. 664	NVLTSQR	187-193 for the proteins of SEQ No. 568, 569	SHV
SEQ ID No. 665	QIDDNVTR	150-157 for the proteins of SEQ No. 505, 527, 528, 565, 577, 601	2be
SEQ ID No. 666	QIGDK	150-154 for the protein of SEQ No. 529	2b
SEQ ID No. 667	QIGDNVTR	150-157 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 563, 564, 566, 567, 570, 571, 572, 573, 574, 575, 576, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1916, 1917, 1918, 1919, 1920; 149-156 for the protein of sequence SEQ ID No. 501; 149-156 for the protein of sequence SEQ ID No. 568; 149-156 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 668	QIGENVTR	150-157 for the protein of SEQ No. 562	2b
SEQ ID No. 669	QLLQWMVDAR	202-211 for the protein of SEQ No. 579	SHV
SEQ ID No. 670	QLLQWMVDDGV AGPLIR	202-218 for the protein of SEQ No. 539	SHV
SEQ ID No. 671	QLLQWMVDDR	202-211 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 531, 532, 533, 534, 535, 536, 537, 538, 540,	SHV

		541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 201-210 for the protein of sequence SEQ ID No. 501; 207-216 for the protein of sequence SEQ ID No. 530; 201-210 for the protein of sequence SEQ ID No. 568; 201-210 for the protein of sequence SEQ ID No. 569; 35-44 for the protein of sequence SEQ ID No. 1911	
SEQ ID No. 672	QLLQWMVDGR	202-211 for the protein of SEQ No. 553	2b
SEQ ID No. 673	QLLQWMVEDR	202-211 for the protein of SEQ No. 512	SHV
SEQ ID No. 674	QQDLVDYSPVSE K	95-107 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 94-106 for the protein of sequence SEQ ID No. 501; 94-106 for the protein of sequence SEQ ID No. 568; 94-106 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 675	QQHLVDYSPVSE K	95-107 for the protein of SEQ No. 599	2b
SEQ ID No. 676	QSEQLSGR	31-39 for the proteins of SEQ No. 502, 511, 512, 513, 514, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 605, 607, 608, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1920	SHV
SEQ ID No. 677	QSEQLSGSVGM IEMDLASGR	31-51 for the protein of SEQ No. 603	2b
SEQ ID No. 678	SQLQLLQWMVD DR	199-211 for the proteins of SEQ No. 536, 537, 538	2be
SEQ ID No. 679	SVLPAGWFIADK	219-230 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 224-235 for the protein of sequence SEQ ID No. 530; 218-229 for the protein of sequence SEQ ID No. 568; 218-229 for the protein of	SHV

		sequence SEQ ID No. 569; 52-63 for the protein of sequence SEQ ID No. 1911	
SEQ ID No. 680	SVLPAGWFIADR	219-230 for the proteins of SEQ No. 504, 551, 590; 218-229 for the protein of sequence SEQ ID No. 501	SHV
SEQ ID No. 681	SVLSAGWFIADK	219-230 for the protein of SEQ No. 552	2b
SEQ ID No. 682	TGAAER	231-236 for the proteins of SEQ No. 540, 581, 603	SHV
SEQ ID No. 683	TGAAK	231-235 for the protein of SEQ No. 506	2be
SEQ ID No. 684	TGAGER	231-236 for the proteins of SEQ No. 496, 497, 498, 499, 502, 504, 507, 511, 512, 513, 514, 516, 518, 519, 520, 521, 524, 525, 526, 527, 531, 533, 535, 536, 539, 541, 542, 543, 544, 551, 552, 553, 554, 555, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 576, 577, 578, 579, 582, 583, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 604, 605, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1916, 1917, 1918; 230-235 for the protein of sequence SEQ ID No. 501; 236-241 for the protein of sequence SEQ ID No. 530	SHV
SEQ ID No. 685	TGAGK	231-235 for the proteins of SEQ No. 517, 545, 546, 556, 584, 606	SHV
SEQ ID No. 686	TGASER	64-69 for the proteins of SEQ No. 1911; 231-236 for the protein of sequence SEQ ID No. 503; 231-236 for the protein of sequence SEQ ID No. 508; 231-236 for the protein of sequence SEQ ID No. 510; 231-236 for the protein of sequence SEQ ID No. 522; 231-236 for the protein of sequence SEQ ID No. 532; 231-236 for the protein of sequence SEQ ID No. 537; 231-236 for the protein of sequence SEQ ID No. 547; 231-236 for the protein of sequence SEQ ID No. 548; 231-236 for the protein of sequence SEQ ID No. 585	2be
SEQ ID No. 687	TGASK	231-235 for the proteins of SEQ No. 500, 505, 509, 515, 523, 528, 529, 534, 538, 549, 550, 557, 574, 575, 586, 587, 588, 602, 1913, 1914, 1915, 1919, 1920; 230-234 for the protein of sequence SEQ ID No. 568; 230-234 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 688	TGASR	231-235 for the protein of SEQ No. 589	SHV
SEQ ID No. 689	TLTAWCADER	52-61 for the protein of SEQ No. 571	SHV
SEQ ID No. 690	TLTAWHADER	52-61 for the proteins of SEQ No. 516, 517	2be
SEQ ID No. 691	TLTAWR	52-57 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 51-56 for the protein of sequence SEQ ID No. 501; 51-56 for the protein of sequence SEQ ID No. 568; 51-56 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 692	TVGGPAGLTAFLR	137-149 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 505, 506, 507, 508, 509, 510, 512, 513, 514, 515,	SHV

		516, 517, 518, 519, 521, 522, 523, 524, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 564, 565, 566, 570, 571, 573, 574, 575, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1918, 1919, 1920; 136-148 for the protein of sequence SEQ ID No. 568; 136-148 for the protein of sequence SEQ ID No. 569	
SEQ ID No. 693	TVVIYLR	254-260 for the protein of SEQ No. 546	SHV
SEQ ID No. 694	VAGPLIR	212-218 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 211-217 for the protein of sequence SEQ ID No. 501; 217-223 for the protein of sequence SEQ ID No. 530; 211-217 for the protein of sequence SEQ ID No. 568; 211-217 for the protein of sequence SEQ ID No. 569; 45-51 for the protein of sequence SEQ ID No. 1911	SHV
SEQ ID No. 695	VALCGAVLAR	70-79 for the protein of SEQ No. 573	2b
SEQ ID No. 696	VDAGDEQLER	80-89 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 79-88 for the protein of sequence SEQ ID No. 501; 79-88 for the protein of sequence SEQ ID No. 568; 79-88 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 697	VDAGDK	80-85 for the proteins of SEQ No. 575, 600	SHV
SEQ ID No. 698	VGMIEMDLASGR	40-51 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 39-50 for the protein of sequence SEQ ID No. 501	SHV

SEQ ID No. 699	VGMIEMDLASR	40-50 for the proteins of SEQ No. 568, 569	SHV
SEQ ID No. 700	VGMIEMDLASSR	40-51 for the protein of SEQ No. 570	SHV
SEQ ID No. 701	VLLCGAVLAR	70-79 for the protein of SEQ No. 574	SHV
SEQ ID No. 702	VVLCGAMLAR	70-79 for the protein of SEQ No. 575	2be
SEQ ID No. 703	VVLCGAVLAR	70-79 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 570, 571, 572, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 69-78 for the protein of sequence SEQ ID No. 501; 69-78 for the protein of sequence SEQ ID No. 568; 69-78 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 704	VVLCGTVLAR	70-79 for the protein of SEQ No. 601	2b
SEQ ID No. 705	WETDR	161-165 for the protein of SEQ No. 530	2be
SEQ ID No. 706	WETELNEAFPGR	161-174 for the proteins of SEQ No. 522, 531, 532	SHV
SEQ ID No. 707	WETELNEALPADAR	161-174 for the protein of SEQ No. 526	2b
SEQ ID No. 708	WETELNEALPGDAR	161-174 for the proteins of SEQ No. 496, 497, 498, 499, 500, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 523, 524, 525, 527, 528, 529, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 562, 563, 564, 565, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 1910, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920; 160-173 for the protein of sequence SEQ ID No. 501; 166-179 for the protein of sequence SEQ ID No. 530; 160-173 for the protein of sequence SEQ ID No. 568; 160-173 for the protein of sequence SEQ ID No. 569	SHV
SEQ ID No. 709	WETELNEALSGDAR	161-174 for the protein of SEQ No. 560	2b
SEQ ID No. 710	WETELNEVLPGDAR	161-174 for the protein of SEQ No. 592	SHV
SEQ ID No. 711	WETER	161-165 for the protein of SEQ No. 561	SHV

SEQ ID No. 2093	EIGDNVTR	150-157 for the proteins of SEQ No. 1915	SHV
SEQ ID No. 2094	GIVALLGPHNK	240-250 for the proteins of SEQ No. 1917	SHV
SEQ ID No. 2095	HLADGMTVGELR	108-119 for the proteins of SEQ No. 1914	2be
SEQ ID No. 2096	IHYSQQDLVDYS PVSEK	91-107 for the proteins of SEQ No. 1918	SHV

In the clinical interest column, the entries 2b, 2br, 2be and 2ber correspond to the functional subgroups of the SHV beta-lactamases which the corresponding peptide makes it possible to detect. Thus, the detection of a 2be peptide will indicate the presence of a beta-lactamase with an extended spectrum (ESBL) capable of hydrolysing penicillins, first-generation cephalosporins such as cephaloridine and cefalotin, and at least one antibiotic from the oxyimino-beta-lactam class such as cefotaxime, ceftazidime or monobactams such as aztreonam.

The entry SHV indicates a common peptide between at least two of the subgroups 2b, 2br and 2be or 2ber. The corresponding peptide indicates the presence of an SHV beta-lactamase and the presence of a mechanism of resistance at least to penicillins and to first-generation cephalosporins.

The detection of a mechanism of resistance to ESBL (extended-spectrum beta-lactamase) cephalosporins, induced by the SHV protein, is characterised by the detection of at least one resistance-marking 2be peptide, chosen from the sequences SEQ ID No. 616, SEQ ID No. 617, SEQ ID No. 627, SEQ ID No. 629, SEQ ID No. 634, SEQ ID No. 647, SEQ ID No. 648, SEQ ID No. 653, SEQ ID No. 654, SEQ ID No. 656, SEQ ID No. 660, SEQ ID No. 661, SEQ ID No. 662, SEQ ID No. 663, SEQ ID No. 664, SEQ ID No. 665, SEQ ID No. 670, SEQ ID No. 673, SEQ ID No. 674, SEQ ID No. 675, SEQ ID No. 678, SEQ ID No. 682, SEQ ID No. 684, SEQ ID No. 685, SEQ ID No. 686, SEQ ID No. 687, SEQ ID No. 688, SEQ ID No. 697, SEQ ID No. 702, SEQ ID No. 703, SEQ ID No. 704, SEQ ID No. 707, SEQ ID No. 708, SEQ ID No. 709, SEQ ID No. 711, SEQ ID No. 2095.

The detection of a mechanism of resistance to cephalosporins induced by the expression of the FOX protein is characterised by the detection of at least one peptide belonging to the FOX protein and to its different sequence variants **SEQ ID No. 712** to **SEQ ID No. 718** and **SEQ ID No. 1920** to **SEQ ID No. 1922**.

5

SEQ ID No. 712:

MQQRRRAFALLTLGSLLLAPCTYASGEAPLTAAVDGIQPMMLKAYRIPGMAVAVLKDG
 KAHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYAAVKGGFELDDKVSQH
 APWLKGSALDGVMTMAELATYSAGGLPLQFPDEVDSNDKMRITYYRSWSPVYPAGT
 10 HRQYSNPSIGLFGHLAANSLGQPFQELMSQTLLPKLGLHHTYIQVPESAMVNYAYG
 YSKEDKPVRVTPGVLAEEAYGIKTGSADLLKFAEANMGYQGDAAVKSAIALTHTGFY
 SVGDMTQQLGWESYAYPVTEQTLLAGNAPAVSFQANPVTRFAVPKAMGEQRLYN
 KTGSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAILSQLA

SEQ ID No. 713:

15 MQQRRRAFALLTLGSLLLAPCTYASGEAPLTAAVDGIQPMMLKAYRIPGMAVAVLKDG
 KAHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYAAVKGGFELDDKVSQH
 APWLKGSALDGVMTMAELATYSAGGLPLQFPDEVDSNDKMRITYYRSWSPVYPAGT
 HRQYSNPSIGLFGHLAANSLGQPFQELMSQTLLPKLGLHHTYIQVPESAMVNYAYG
 YSKEDKPVRVTPGVLAEEAYGIKTGSADLLKFAEANMGYQGDAAVKSAIALTHTGFY
 20 SVGDMTQQLGWESYAYPVTEQTLLAGNAPAVSFQANPVTRFAVPKAMGEQRLYN
 KTGSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAILSQLA

SEQ ID No. 14:

MQQRRRAFALLTLGSLLLAPCTYARGEAPLTAAVDGIQPMMLKEYRIPGMAVAVLKDG
 KAHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYAAVKGGFELDDKVSQH
 25 APWLKGSALDGVMTMAELATYSAGGLPLQFPDEVDSNDKMRITYYRHWSVPVYPAGT
 HRQYSNPSIGLFGHLAANSLGQPFQELMSQTLLPKLGLHHTYIQVPESAIANYAYGY
 SKEDKPVRVTPGVLAEEAYGIKTGSADLLKFTEANMGYQGDAAALKTRIALTHTGFYS
 VGDMTQQLGWESYAYPLTEQALLAGNSPAVSFQANPVTRFAVPKAMGEQRLYNK
 GSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAILSQLA

SEQ ID No. 715:

30 MQQRRALALLTLGSLLLAPCTYASGEAPLTAAVDGIQPMMLKEYRIPGMAVAVLKDG
 KAHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYAAVKGGFELDDKVSQH
 APWLKGSALDGVMTMAELATYSAGGLPLQFPDEVDSNDKMQTYYSWSPVYPAGT
 HRQYSNPSIGLFGHLAANSLGQPFQELMSQTLLPKLGLHHTYIQVPESAMANYAYG
 35 YSKEDKPIRVTPGVLAEEAYGIKTGSADLLKFVEANMGYQGDAAALKSAIALTHTGFY
 SVGDMTQQLGWESYAYPVTEQALLAGNSPAVSFQANPVTRFAVPKAMGEQRLYN
 KTGSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAILSQLA

SEQ ID No. 716:

40 MQQRRRAFALLTLGSLLLAPCTYASGEAPLTATVDGIQPMMLKEYRIPGIAVAVLKDGK
 AHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYAAVKGGFVLDKVSQHA
 PWLKGSALDGVMTMAELATYSAGGLPLQFPDKVDSNDKMQTYYSWSPVYPAGTH
 RQYSNPSIGLFGHLAANSLGQPFQELMSQTLLPKLGLHHTYIQVPESAMANYAYGY
 SKEDKPIRVTPGVLAEEAYGIKTGSADLLKFAEANMGYQGDALVKSAIALTHTGFYS
 VGEMTQQLGWESYDYPVTEQVLLAGNSPAVSFQANPVTRFAVPKAMGEQRLYNK
 45 TGSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAILSQLA

SEQ ID No. 717:

MQQRRALALLMLGSLLLAPCTYASGEAPLTATVDGIQPMMLKAYRIPGMAVAVLKDG
 KAHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYAAVKGGFELDDKVSQH

APWLKGSAFDGVMTMAELATYSAGGLPLQFPDEVDSNDKMQTYRWSWSPVYPAGT
 HRQYSNPSIGLFGHLAANSLGQPFEQLMSQTLLPKLGLHHTYIQVPESAMANYAYG
 YSKEDKPIRATPGVLAAEAYGIKTGSADLLKFVEANMGYQGDAALKSAIALTHTGFH
 SVGEMTQQLGWESYDYPVTEQVLLAGNSPAVSFQANPVTRFAVPKAMGEQRLYN
 5 KTGSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAHLSQLAE

SEQ ID No. 718:

MQQRRRAFALLTLGSLLLAPCTYARGEAPLTAAVDGIIPMLKEYRIPGMAVAVLKDG
 KAHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYA AVKGGFELDDKVSQH
 APWLKGSAFDGVMTMAELATYSAGGLPLQFPDEVDSNDKMRTYYRHWSPVYPAGT
 10 HRQYSNPSIGLFGHLAANSLGQPFEQLMSQTLLPKLGLHHTYIQVPESA IANYAYGY
 SKEDKPV RATPGVLAAEAYGIKTGSADLLKFTEANMGYQGDAALKSAIALTHTGFYS
 VGDMTQQLGWESYAYPLTEQALLAGNSPAVSFQANPVTRFAVPKAMGEQRLYNKT
 GSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAHLSQLAE

SEQ ID No. 1920:

MQQRRRAFALLTLGSLLLAPCTYASGEAPLTATVDGIIQPMLKEYRIPGIAVAVLKDGK
 AHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYA AVKGGFVLDKVSQHA
 PWLKGSALDGVMTMAELATYSAGGLPLQFPDKVDSNDKMQTYRWSWSPVYPAGTH
 RQYSNPSIGLFGHLAANSLGQPFEQLMSQTLLPKLGLHHTYIQVPESAMANYAYGY
 SKEDKPIRVTPGVLAAEAYGIKTGSADLLKFAEANMGYQGDALVKSAIALTHTGFYS
 20 VGEMTQQLGWESYDYPVTEQVLLAGNSPAVSLQANPVTRFAVPKAMGEQRLYNKT
 GSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAHLSQLAE

SEQ ID No. 1921:

MQQRRRAFALLTLGSLLLAPCTYASGEAPLTVTVDGIIQPMLKAYRIPGMAVAVLKDG
 KAHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYA AVKGGFELDDKVSQH
 25 APWLKGSAFDGVMTMAELATYSAGGLPLQFP EEVDSNDKMRTYYRWSWSPVYPAGT
 HRQYANTSIGLFGYLAANSLGQSFEQLMSQTLLPKLGLHHTYIQVPESAMANYAYG
 YSKEEKPIRVTPGMLAAEAYGIKTGSADLLKFAEANMGYQGDAAVKSAIALTHTGFY
 SVGDMTQQLGWESYDYPVTEQVLLADNSPAVSFQANPVTRFAVPKAMGEQRLYN
 KTGSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAHLSQLAE

SEQ ID No. 1922:

MQQRRRAFALLTLGSLLLAPCTYASGEAPLTATVDGIIQPMLKEYRIPGIAVAVLKDGK
 AHYFNYGVANRESGQRVSEQTLFEIGSVSKTLTATLGAYA AVKGGFVLDKVSQHA
 PWLKGSALDGVMTMAELATYSAGGLPLQFPDKVDSNDKMQTYRWSWSPVYPAGTH
 RQYSNPSIGLFGHLAANSLGQPFEQLMSQTLLPKLGLHHTYIQVPESAMANYAYGY
 35 SKEDKPIRVTPGVLAAEAYGIKTGSADLLKFAEANMGYQGDALVKSAIALTHTGFYS
 VGEMTQQLGWESYDYPVTEQVLLAGNSPAVSFQANPVTRFAVPKAMGEQRLYNK
 TGSTGGFGAYVAFVPARGIAIVMLANRNYPIEARVKAHAHLSQLAE

40 said peptides being chosen, preferably, from the peptides of sequence **SEQ ID No. 719** to **SEQ ID No. 733** and **SEQ ID No. 2097** to **SEQ ID No. 2113** as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the FOX protein
SEQ ID No. 719	AHYFNYGVANR	59-69 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922

SEQ ID No. 720	AMGEQR	326-331 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 721	ESGQR	70-74 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 722	FAVPK	321-325 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 723	GGFELDDK	102-109 for the proteins of SEQ No. 712, 713, 714, 715, 717, 718, 1921
SEQ ID No. 724	GIAIVMLANR	353-362 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 725	IPGMAVAVLK	46-55 for the proteins of SEQ No. 712, 713, 714, 715, 717, 718, 1921
SEQ ID No. 726	NYPIEAR	363-369 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 727	SWSPVYPAGTHR	158-169 for the proteins of SEQ No. 712, 713, 715, 716, 717, 1920, 1921, 1922
SEQ ID No. 728	TGSADLLK	247-254 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 729	TGSTGGFGAYVAFVPAR	336-352 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 730	TLTATLGAYA AVK	89-101 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 731	VSEQTLFEIGSVSK	75-88 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 732	VSQHAPWLK	110-118 for the proteins of SEQ No. 712, 713, 714, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 733	VTPGVLA AEAYGIK	233-246 for the proteins of SEQ No. 712, 713, 714, 715, 716, 1920, 1922
SEQ ID No. 2097	AFALLTLGSLLLAPCTYAR	6-24 for the proteins of SEQ No. 714, 718
SEQ ID No. 2098	ATPGVLA AEAYGIK	233-246 for the proteins of SEQ No. 717, 718
SEQ ID No. 2099	EDKPVR	227-232 for the proteins of SEQ No. 712, 713, 714, 718
SEQ ID No. 2100	EEKPIR	227-232 for the proteins of SEQ No. 1921
SEQ ID No. 2101	FAEANMGYQGDA AVK	255-269 for the proteins of SEQ No. 712, 713, 1921
SEQ ID No. 2102	FAEANMGYQGDALVK	255-269 for the proteins of SEQ No. 716, 1920, 1922

SEQ ID No. 2103	FTEANMGYQGDAALK	255-269 for the proteins of SEQ No. 714, 718
SEQ ID No. 2104	FVEANMGYQGDAALK	255-269 for the proteins of SEQ No. 715, 717
SEQ ID No. 2105	GEAPLTAAVDGIQPMK	25-42 for the proteins of SEQ No. 712, 713, 714, 715, 718
SEQ ID No. 2106	GGFVLDDK	102-109 for the proteins of SEQ No. 716, 1920, 1922
SEQ ID No. 2107	HWSPVYPAGTHR	158-169 for the proteins of SEQ No. 714, 718
SEQ ID No. 2108	IPGIAVAVLK	46-55 for the proteins of SEQ No. 716, 1920, 1922
SEQ ID No. 2109	LMSQTLLPK	194-202 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 2110	MQTYR	152-157 for the proteins of SEQ No. 715, 716, 717, 1920, 1922
SEQ ID No. 2111	VDSNDK	146-151 for the proteins of SEQ No. 712, 713, 714, 715, 716, 717, 718, 1920, 1921, 1922
SEQ ID No. 2112	VSHHAPWLK	110-118 for the protein of SEQ No. 715
SEQ ID No. 2113	VTPGMLAAEAYGIK	233-246 for the proteins of SEQ No. 1921

The detection of a mechanism of resistance to cephalosporins induced by the
5 expression of the ACC protein is characterised by the detection of at least one
peptide belonging to the ACC protein and to its different sequence variants **SEQ ID
No. 736 to SEQ ID No. 739.**

SEQ ID No. 736:

MRKKMQNTLKLKSVITCLAATAQGAMAANIDESKIKDTV DGLIQPLMQKNNIPGMSV
10 AVTIRGRNYIYNYGLAAKQPQQPV TENTLFEVGSLSKTFAAILASYAQASGKLSLEQS
VSHYVPELRGSSFDHVSVLNVGTH TSGQLFMPEDIKNTTQLMTYLKAWKPADAAG
THRVYSNIGTG LLMIAAKSLGVS YEDAIEQTILPLLGMNQTYLKVPADQMENYAWG
YNKKDEPVHVNMEILGNEAYGIKTTSSDLLRYVQANMGQLKLDGNAKIQHALTATHT
GYFKSGEITQDLMWEQLPYPVSLPNLLTGNDMAMTKSVATPIVPLPPQENWINK
15 TGSTNGFGAYIAFVPAKKMGIVMLANKNYSIDQRTVAYKILSSLEVNK

SEQ ID No. 737:

MRKKMQNTLKM LSVITCLALTAQGAMASEMDQAKIKDTVDSL IQPLMQKNNIPGMS

VAVTLNGKNYIYNYGLASKQPQQPVTDNLTLEVGSLSKTFAATLASYAQVSGKLSLD
 KSISHYVPELRGSSFDHISVLNAGTHHTGLALFMPEEVKNTDQLMAYLKAWKPADPA
 GTHRVSNIQTGLLGMIQAQSMGMTYEDAIEKTLLPKLGMTHTYLNV PADQAENYA
 WGYNKKNEPIHVNMEVLGNEAYGIRTNASDLIRYVQANMGQLKLDGNSTLQKALTD
 5 THIGYFKSGKITQDLMWEQLPYPVSLPDLLTGNDMAMTKSVATPIVPPLPPQENVWI
 NKTGSTNGFGAYIAFVPAKKMGIVMLANKNYSIDQRT

SEQ ID No. 738:

MQNTLKLLSVITCLAATVQGALAANIDESKIKDTVDDLIQPLMQKNNIPGMSVAVTVN
 GKNYIYNYGLAAKQPQQPVTENTLFEVGSLSKTFAATLASYAQVSGKLSLDQSVSH
 10 YVPELRGSSFDHVSVLNVGHTHTSGLQLFMPEDIKNTTQLMAYLKAWKPADAAAGTHR
 VYSNIQTGLLGMIQAQSLGVSYEDAIEKTLLPQLGMHHSYLKVPADQMENYAWGYN
 KKDEPVHGNMEILGNEAYGIKTTSSDLLRYVQANMGQLKLDANAKMQQALTATHTG
 YFKSGEITQDLMWEQLPYPVSLPNLLTGNDMAMTKSVATPIVPPLPPQENVWINKT
 GSTNGFGAYIAFVPAKKMGIVMLANKNYSIDQRTVAYKILSSLEGNK

SEQ ID No. 739:

MQNTLKLLSVITCLAATVQGALAANIDESKIKDTVDDLIQPLMQKNNIPGMSVAVTVN
 GKNYIYNYGLAAKQPQQPVTENTLFEVGSLSKTFAATLASYAQVSGKLSLDQSVSH
 YVPELRGSSFDHVSVLNVGHTHTSGLQLFMPEDIKNTTQLMAYLKAWKPADAAAGTHR
 VYSNIQTGLLGMIQAQSLGVSYEDAIEKTLLPQLGMHHSYLKVPADQMENYAWGYN
 20 KKDEPVHVNMEILGNEAYGIKTTSSDLLRYVQANMGQLKLDANAKMQQALTATHTG
 YFKSGEITQDLMWEQLPYPVSLPNLLTGNDMAMTKSVATPIVPPLPPQENVWINKT
 GSTNGFGAYIAFVPAKKMGIVMLANKNYSIDQRTVAYKILSSLEGNK

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID**
 25 **No. 740 to SEQ ID No. 787** as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the ACC protein(s)
SEQ ID No. 740	ALTDTHIGYFK	279-289 for the protein of SEQ No. 737
SEQ ID No. 741	AWKPADAAGTHR	159-170 for the proteins of SEQ No. 738, 739; 163-174 for the protein of sequence SEQ ID No. 736
SEQ ID No. 742	AWKPADPAGTHR	163-174 for the protein of SEQ No. 737
SEQ ID No. 743	DEPVHGNMEILGNEAYGIK	229-247 for the protein of SEQ No. 738
SEQ ID No. 744	DEPVHVNMEILGNEAYGIK	229-247 for the protein of SEQ No. 739; 233- 251 for the protein of sequence SEQ ID No. 736
SEQ ID No. 745	DTVDDLIQPLMQK	33-45 for the proteins of SEQ No. 738, 739

SEQ ID No. 746	DTV DGLIQPLMQK	37-49 for the protein of SEQ No. 736
SEQ ID No. 747	DTV DSLIQPLMQK	37-49 for the protein of SEQ No. 737
SEQ ID No. 748	IQHALTATHTGYFK	276-289 for the protein of SEQ No. 736
SEQ ID No. 749	LDANAK	266-271 for the proteins of SEQ No. 738, 739
SEQ ID No. 750	LDGNAK	270-275 for the protein of SEQ No. 736
SEQ ID No. 751	LDGNSTLQK	270-278 for the protein of SEQ No. 737
SEQ ID No. 752	LGMTHTYLNV PADQAENYAWGYNK	208-231 for the protein of SEQ No. 737
SEQ ID No. 753	LLSVITCLAATAQGAMAANIDESK	11-34 for the protein of SEQ No. 736
SEQ ID No. 754	LLSVITCLAATVQGALAANIDESK	7-30 for the proteins of SEQ No. 738, 739
SEQ ID No. 755	LSLDK	110-114 for the protein of SEQ No. 737
SEQ ID No. 756	LSLDQSVSHYVPELR	106-120 for the proteins of SEQ No. 738, 739
SEQ ID No. 757	LSLEQSVSHYVPELR	110-124 for the protein of SEQ No. 736
SEQ ID No. 758	MGIVMLANK	356-364 for the proteins of SEQ No. 738, 739; 360-368 for the proteins of sequence SEQ ID No. 736, 737
SEQ ID No. 759	MLSVITCLALTAQGAMASEMDQAK	11-34 for the protein of SEQ No. 737

SEQ ID No. 760	MQNTLK	1-6 for the proteins of SEQ No. 738, 739; 5-10 for the proteins of sequence SEQ ID No. 736, 737
SEQ ID No. 761	MQQALTATHTGYFK	272-285 for the proteins of SEQ No. 738, 739
SEQ ID No. 762	NEPIHVNMEVLGNEAYGIR	233-251 for the protein of SEQ No. 737
SEQ ID No. 763	NNIPGMSVAVTIR	50-62 for the protein of SEQ No. 736
SEQ ID No. 764	NNIPGMSVAVTLNGK	50-64 for the protein of SEQ No. 737
SEQ ID No. 765	NNIPGMSVAVTVNGK	46-60 for the proteins of SEQ No. 738, 739
SEQ ID No. 766	NTDQLMAYLK	153-162 for the protein of SEQ No. 737
SEQ ID No. 767	NTTQLMAYLK	149-158 for the proteins of SEQ No. 738, 739
SEQ ID No. 768	NTTQLMTYLK	153-162 for the protein of SEQ No. 736
SEQ ID No. 769	NYIYNYGLAAK	61-71 for the proteins of SEQ No. 738, 739; 65-75 for the protein of sequence SEQ ID No. 736
SEQ ID No. 770	NYIYNYGLASK	65-75 for the protein of SEQ No. 737
SEQ ID No. 771	NYSIDQR	365-371 for the proteins of SEQ No. 738, 739; 369-375 for the protein of sequence SEQ ID No. 736, 737
SEQ ID No. 772	QPQQPVTDNLTLEVGSLSK	76-94 for the protein of SEQ No. 737
SEQ ID No. 773	QPQQPVTENTLFEVGSLSK	72-90 for the proteins of SEQ No. 738, 739; 76-94 for the protein of sequence SEQ ID No. 736

SEQ ID No. 774	SISHYVPELR	115-124 for the protein of SEQ No. 737
SEQ ID No. 775	SLGVSYEDAIEK	187-198 for the proteins of SEQ No. 738, 739
SEQ ID No. 776	SVATPIVPPLPPQENVWINK	318-337 for the proteins of SEQ No. 738, 739; 322-341 for the protein of sequence SEQ ID No. 736, 737
SEQ ID No. 777	TFAAILASYAQASGK	95-109 for the protein of SEQ No. 736
SEQ ID No. 778	TFAATLASYAQVSGK	91-105 for the proteins of SEQ No. 738, 739; 95-109 for the protein of sequence SEQ ID No. 737
SEQ ID No. 779	TGSTNGFGAYIAFVPAK	338-354 for the proteins of SEQ No. 738, 739; 342-358 for the protein of sequence SEQ ID No. 736, 737
SEQ ID No. 780	TLLPK	203-207 for the protein of SEQ No. 737
SEQ ID No. 781	TLLPQLGMHHSYLK	199-212 for the proteins of SEQ No. 738, 739
SEQ ID No. 782	TNASDLIR	252-259 for the protein of SEQ No. 737
SEQ ID No. 783	TTSSDLLR	248-255 for the proteins of SEQ No. 738, 739; 252-259 for the protein of sequence SEQ ID No. 736
SEQ ID No. 784	VPADQMENYAWGYNK	213-227 for the proteins of SEQ No. 738, 739; 217-231 for the protein of sequence SEQ ID No. 736
SEQ ID No. 785	VTVAYK	372-377 for the proteins of SEQ No. 738, 739; 376-381 for the protein of sequence SEQ ID No. 736
SEQ ID No. 786	VYSNIGTGLLGMIAAK	171-186 for the proteins of SEQ No. 738, 739; 175-190 for the protein of sequence SEQ ID No. 736
SEQ ID No. 787	YVQANMGQLK	256-265 for the proteins of SEQ No. 738, 739; 260-269 for the protein of sequence SEQ ID No. 736, 737

The detection of a mechanism of resistance to cephalosporins induced by the expression of the ACT protein is characterised by the detection of at least one peptide belonging to the ACT protein and to its different sequence variants **SEQ ID No. 788** to **SEQ ID No. 794**.

5

SEQ ID No. 788:

MMMTKSLCCALLLSTSCSVLATPMSEKQLAEVVERTVTPLMKAQAIPGMAVAVIYE
 GQPHYFTFGKADVAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEISLGDPTVKY
 WPELTGKQWQGIRMLDLATYTAGGLPLQVPDEVKDNASLLRFYQNWQPQWKPGT
 10 TRLYANASIGLFGALAVKPSGMSYEQAITTRVFKPLKLDHTWINVPKAEAAHYAWGY
 RDGKAVHVSPGMLDAEAYGVKTNVQDMASWVMVNMKPDQLDQNSLRKGLTLAQS
 RYWRVGAMYQQLGWEMLNWPVDAKTVEGSDNKVALAPLPAREVNPPAPPVNAS
 WVHKTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPARVEAAYRILSAL

SEQ ID No. 789:

MMMTKSLCCALLLSTSCSVLATPMSEKQLAEVVERTVTPLMKAQAIPGMAVAVIYE
 GQPHYFTFGKADVAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEISLGDPTVKY
 WPELTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDNASLLRFYQNWQPQWKPGT
 15 TRLYANASIGLFGALAVKPSGMSYEQAITTRVFKPLKLDHTWINVPKAEAAHYAWGY
 RDGKAHVSPGMLDAEAYGVKTNVQDMASWVMVNMKPDQLDQNSLRKGLTLAQS
 20 RYWRVGAMYQQLGWEMLNWPVDAKTVEGSDNKVALAPLPAREVNPPAPPVNAS
 WVHKTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPARVEAAYRILSAL

SEQ ID No. 790:

MMTKSLCCALLLSTSCSVLAAPMSEKQLAEVVERTVTPLMKAQAIPGMAVAVIYQG
 QPHYFTFGKADVAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEISLGDPTVKYW
 25 PELTGKQWQGIRMLDLATYTAGGLPLQVPDEVADNASLLRFYQNWQPQWKPGTT
 RLYANTSIGLFGALAVKPSGMSYEQAITTRVFKPLKLDHTWINVPKAEAAHYAWGYR
 DGKAVHVSPGMLDAEAYGVKTNVQDMASWVMVNMKPDQLDQNSLRQGIALAQS
 YWRVGAMYQQLGWEMLNWPVDAKTVEGSDNKVALAPLPAREVNPPAPPVNAS
 WVHKTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPARVEAAYRILSAL

SEQ ID No. 791:

MMTKSLCCALLLSTSCSVLAAPMSEKQLAEVVERTVTPLMKAQAIPGMAVAVIYQG
 QPHYFTFGKADVAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEISLGDPTVKYW
 PELTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDNASLLRFYQNWQPQWKPGTT
 30 LYANASIGLFGALAVKPSGMSYEQAITTRVFKPLKLDHTWINVPKAEAAHYAWGYR
 GKAVHVSPGMLDAEAYGVKTNVKDMANWVMVNMKPDQLDSSLKEGITLAQSRY
 WRVGAMYQQLGWEMLNWPVDAKTVEGSDNKVALAPLPAREVNPPAPPVNASW
 VHKTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPARVEAAYRILDALQ

SEQ ID No. 792:

MMRKSLLCCALLLGISCSALATPVSEKQLAEVVANTVTPLMKAQSVPGMAVAVIYQG
 40 KPHYFTFGKADIAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEISLDDPVTRYWP
 QLTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDNASLLRFYQNWQPQWKPGTT
 YANASIGLFGALAVKPSGMPYEQAMTTRVLKPLKLDHTWINVPKAEAAHYAWGYR
 GKAVRVSPGMLDAQAYGVKTNVQDMANWVMANMAPENVADASLKQGIALAQSRY
 WRIGSMYQQLGWEMLNWPVEANTVEGSDSKVALAPLPVAEVNPPAPPVKASWV
 45 HKTGSTGGFGSYVAFIPEKQIGIVMLANTSYPNPARVEAAYHILEALQ

SEQ ID No. 793:

MMKKSLLCCALLLGISCSALAAPVSEKQLAEVVANTVTPLMKAQSIPGMAVAVIYQGGK
 PHYFTFGKADIAASKPVTPTQLFELGSISKTFTGVLGGDAIARGEISLDDPVTRYWPQ

LTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDNAALLRFYQNWQPQWKPGTTRLY
 ANASIGLFGALAVKPSGMPFEQAMTTRVLKPLKLDHTWINVPKAEAAHYAWGYRDG
 KAVRVSPGMLDAQAYGMKTNVQDMANWVMANMAPENVADASLKQGISLAQSR
 5 WRIGSMYQGLGWEMLNWPVEANTVIEGSDSKVALAPLPVAEVPAPPVKASWVH
 KTGSTGGFGSYVAFIPEKQIGIVMLANKSYNPNARVEAAYPILDALQ

SEQ ID No. 794:

MMMTKSLCCALLSTSCSVLATPMSEKQLAEVVERTVTPLMKAQAIPGMAVAVIYE
 GQPHYFTFGKADVAANKPVTPTLFEFGSISKTFTGVLGGDAIARGEISLGDPTKY
 10 WPELTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDNASLLRFYQNWQPQWKPGT
 TRLYANASIGLFGALAVKPSGMSYEQAITTRVFKPLKLDHTWINVPKAEAAHYAWGY
 RDGKAVHVSPGMLDAEAYGVKTNVQDMASWVMVNMKPDLSLQDNLRLKGLTLAQS
 RYWRVGAMYQGLGWEMLNWPVDAKTVVEGSDNKVALAPLPAREVNPAPPVNAS
 WVKHTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPNARVEAAYRILSAL

- 15 said peptides being chosen, preferably, from the peptides of sequence **SEQ ID No. 795** to **SEQ ID No. 841** as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the ACT protein(s)
SEQ ID No. 795	ADIAANK	66-72 for the protein of SEQ No. 792
SEQ ID No. 796	ADIAASK	66-72 for the protein of SEQ No. 793
SEQ ID No. 797	ADVAANK	67-73 for the proteins of SEQ No. 788, 789, 794; 66-72 for the protein of sequence SEQ ID No. 790, 791
SEQ ID No. 798	AEEAHYAWGYR	215-225 for the proteins of SEQ No. 788, 789, 794; 214-224 for the proteins of sequence SEQ ID No. 790, 791, 792, 793
SEQ ID No. 799	AIHVSPGMLDAEAYGVK	229-245 for the protein of SEQ No. 789
SEQ ID No. 800	AQSIPGMAVAVIYQGK	42-57 for the protein of SEQ No. 793
SEQ ID No. 801	AQSVPGMAVAVIYQGK	42-57 for the protein of SEQ No. 792
SEQ ID No. 802	AVHVSPGMLDAEAYGVK	229-245 for the proteins of SEQ No. 788, 794; 228-244 for the proteins of sequence SEQ ID No. 790, 791

SEQ ID No. 803	DMANWVMVNMK	249-259 for the protein of SEQ No. 791
SEQ ID No. 804	DMANWVMVNMKPDSLQDSSLK	249-269 for the protein of SEQ No. 791
SEQ ID No. 805	DNASLLR	148-154 for the proteins of SEQ No. 788, 789, 794; 147-153 for the proteins of sequence SEQ ID No. 790, 791, 792
SEQ ID No. 806	EGITLAQSR	270-278 for the protein of SEQ No. 791
SEQ ID No. 807	EVNPPAPPVNASWVHK	321-336 for the proteins of SEQ No. 788, 789, 794; 320-335 for the proteins of sequence SEQ ID No. 790, 791
SEQ ID No. 808	FYQNWQPQWK	155-164 for the proteins of SEQ No. 788, 789, 794; 154-163 for the proteins of sequence SEQ ID No. 790, 791, 792, 793
SEQ ID No. 809	FYQNWQPQWKPGTTR	155-169 for the proteins of SEQ No. 788, 789, 794; 154-168 for the proteins of sequence SEQ ID No. 790, 791, 792, 793
SEQ ID No. 810	GEISLDDPVTR	101-111 for the proteins of SEQ No. 792, 793
SEQ ID No. 811	GEISLGDPVTK	102-112 for the proteins of SEQ No. 788, 789, 794; 101-111 for the proteins of sequence SEQ ID No. 790, 791
SEQ ID No. 812	GLTLAQSR	272-279 for the proteins of SEQ No. 788, 789, 794
SEQ ID No. 813	LDHTWINVPK	205-214 for the proteins of SEQ No. 788, 789, 794; 204-213 the proteins of sequence SEQ ID No. 791, 792, 793
SEQ ID No. 814	LYANASIGLFGALAVK	170-185 for the proteins of SEQ No. 788, 789, 794; 169-184 for the proteins of sequence SEQ ID No. 791, 792, 793
SEQ ID No. 815	LYANTSIGLFGALAVK	169-184 for the protein of SEQ No. 790
SEQ ID No. 816	MLDLATYTAGGLPLQVPDEVK	127-147 for the protein of SEQ No. 788

SEQ ID No. 817	QGIALAQSR	270-278 for the proteins of SEQ No. 790, 792
SEQ ID No. 818	QGISLAQSR	270-278 for the protein of SEQ No. 793
SEQ ID No. 819	QIGIVMLANK	353-362 for the protein of SEQ No. 793
SEQ ID No. 820	QIGIVMLANTSYNPAR	353-369 for the protein of SEQ No. 792
SEQ ID No. 821	QLAEVVANTVTPLMK	27-41 for the proteins of SEQ No. 792, 793
SEQ ID No. 822	QLAEVVER	28-35 for the proteins of SEQ No. 788, 789, 794; 27-34 for the proteins of sequence SEQ ID No. 790, 791
SEQ ID No. 823	QLGIVMLANK	354-363 for the proteins of SEQ No. 788, 789, 794; 353-362 for the proteins of sequence SEQ ID No. 790, 791
SEQ ID No. 824	SYNPAR	364-370 for the proteins of SEQ No. 788, 789, 794; 363-369 for the proteins of sequence SEQ ID No. 790, 791, 792, 793
SEQ ID No. 825	TFTGVLGGDAIAR	89-101 for the proteins of SEQ No. 788, 789, 794; 88-100 for the proteins of sequence SEQ ID No. 790, 791, 792, 793
SEQ ID No. 826	TGSTGGFGSYVAFIPEK	337-353 for the proteins of SEQ No. 788, 789, 794; 336-352 for the proteins of sequence SEQ ID No. 790, 791, 792, 793
SEQ ID No. 827	TNVQDMASWVMVNMK	246-260 for the proteins of SEQ No. 788, 789, 794; 245-259 for the protein of sequence SEQ ID No. 790
SEQ ID No. 828	TVTPLMK	36-42 for the proteins of SEQ No. 788, 789, 794; 35-41 for the proteins of sequence SEQ ID No. 790, 791, 792, 793
SEQ ID No. 829	TVVEGSDNK	303-311 for the proteins of SEQ No. 788, 789, 794; 302-310 for the proteins of sequence SEQ ID No. 790, 791
SEQ ID No. 830	VALAPLPAR	312-320 for the proteins of SEQ No. 788, 789, 794; 311-319 for the proteins of sequence SEQ ID No. 790, 791

SEQ ID No. 831	VALAPLPVAEVNPPAPPVK	311-329 for the proteins of SEQ No. 792, 793
SEQ ID No. 832	VEAAYR	371-376 for the proteins of SEQ No. 788, 789, 794; 370-375 for the proteins of sequence SEQ ID No. 790, 791
SEQ ID No. 833	VFKPLK	199-204 for the proteins of SEQ No. 788, 789, 794; 198-203 for the proteins of sequence SEQ ID No. 790, 791
SEQ ID No. 834	VGAMYQGLGWEMLNWPVDAK	283-302 for the proteins of SEQ No. 788, 789, 794; 282-301 for the proteins of sequence SEQ ID No. 790, 791
SEQ ID No. 835	VLKPLK	198-203 for the proteins of SEQ No. 792, 793
SEQ ID No. 836	VSPGMLDAQAYGMK	231-244 for the protein of SEQ No. 793
SEQ ID No. 837	VSPGMLDAQAYGVK	231-244 for the protein of SEQ No. 792
SEQ ID No. 838	YWPQLTGK	112-119 for the proteins of SEQ No. 792, 793
SEQ ID No. 839	ASWVHK	331-336 for the proteins of SEQ No. 788, 789, 794; 330-335 for the proteins of sequence SEQ ID No. 790, 791, 792, 793
SEQ ID No. 840	QWQGIR	121-126 for the proteins of SEQ No. 788, 789, 794; 120-125 for the proteins of sequence SEQ ID No. 790, 791, 792, 793
SEQ ID No. 841	YWPELTGK	113-120 for the proteins of SEQ No. 788, 789, 794; 112-119 for the proteins of sequence SEQ ID No. 790, 791

The detection of a mechanism of resistance to cephalosporins induced by the expression of the CARB protein is characterised by the detection of at least one peptide belonging to the CARB protein and to its different sequence variants **SEQ ID**

5 **No. 842 to SEQ ID No. 852.**

SEQ ID No. 842:

MLLYKMCDNQNYGVTYMKFLLAFSLLIPSVVFASSSKFQQVEQDVKAIEVSLSARIG
VSLDTQNGEYWDYNGNQRFPLTSTFKTIACAKLLYDAEQGKVNPNSTVEIKKADL
VTYSPVIEKQVGQAITLDDACFATMTTSDNTAANIILSAVGGPKGVTDFLRQIGDKET
10 RLDRIEPLDNEGKLGDLRDTTTPKAIASLTNKLFGSALSEMNQKKLESWMVNNQVT

GNLLRSVLPAGWNIADRSGAGGFGARSITAVVWSEHQAPIIVSIYLAQTQASMAERN
DAIVKIGHSIFDVYTSQSR

SEQ ID No. 843:

5 MLLYKMCDNQNYGVTYMKFLLAFSLLIPSVVFASSSKFQQVEQDVKAIEVSL SARIG
VSVLDTQNGEYWDYNGNQRFPLTSTFKTIACAKLLYDAEQGKVNPNSTVEIKKADL
VTYSPVIEKQVGQAITLDDACFATMTTSDNTAANIILSAVGGPKGVTDFLRQIGDKET
RLDRIEPLDNEGKLGDLRDTTTPKAIASLTNLKLLFGSALSEMNNQKKLESWMVNNQVT
GNLLRSVLPAGWNIADRSGAGGFGARSITAVVWSEHQAPIIVSIYLAQTQASMAERN
DAIVKIGHSIFDVYTSQSR

10 **SEQ ID No. 844:**

MKLLLVFSLLIPSMVFNSSKFQQVEQDAKVIEASLSAHIGISVLDTQTGEYWDYNG
NQRFPLTSTFKTIACAKLLYDAEQGEINPKSTIEIKKADLVTYSPVIEKQVGQAITLDDA
CFATMTTSDNAAANIILNALGGPESVTDFLRQIGDKETRLDRIEPELNEGKLGDLRDT
TTPNAIVNTLNELFGSTLSQDGGQKKLEYWMVNNQVTGNLLRSVLPAGWNIADRSG
15 AGGFGARSITAVVWSEAQSPIIVSIYLAQTEASIADRNDIAIVKIGRSIFEVYSSQSR

SEQ ID No. 845:

MKFLAFSLLIPSVVFASSSKFQQVEQDVKAIEVSL SARIGVSVLDTQNGEYWDYNG
NQRFPLTSTFKTIACAKLLYDAEQGKVNPNSTVEIKKADLVTYSPVIEKQVGQAITLD
DACFATMTTSDNTAANIILSAVGGPKGVTDFLRQIGDKETRLDRIEPLDNEGKLGDLR
20 DTTTPKAIASLTNLQLLFGSTLSEASQKKLESWMVNNQVTGNLLRSVLPVKWSIADRS
GAGGFGARSITAIWSEEKTIIVSIYLAQTEASMAERNDIAIVKIGRSIFEVYTSQSR

SEQ ID No. 846:

MNVKRHKASFFSVVITFLCLTSLNANATDSVLEAVTNAETELGARIGLAVHDLETGK
RWEHKSNERFPLSSTFKTLACANVLQRVDLGERIDRVVRFSESNLVTYSPVTEKH
25 VGKKGMSLAELCQATLSTSDNSAANFILQAIGGPKALT KFLRSIGDDTTRLDREWETE
LNEAVPGDKRDTTTPIAMVTTLEKLLIDETLSIKSRQQLESWLKGNEVGDALFRKGV
PSDWIVADRTGAGGYGSRAITAVMWPPNRKPIVAALYITETDASFEERNAVIAKIGE
QIAKTVLMENSRN

SEQ ID No. 847:

30 MKFLAFSLLIPSVVFASSSKFQQVEQDVKAIEVSL SARIGVSVLDTQNGEYWDYNG
NQRFPLTSTFKTIACAKLLYDAEQGKVNSNSTVEIKKADLVTYSPVIEKQVGQAITLD
DACFATMTTSDNTAANIILSAVGGPKGVTDFLRQIGDKETRLDRIEPLDNEGKLGDLR
DTTTPKAIASLTNLKFLFGSALSEMNNQKKLESWMVNNQVTGNLLRSVLPAGWNIADR
SGAGGFGARSITAVVWSEHQAPIIVSIYLAQTQASMAERNDIAIVKIGHSIFDVYTSQS
35 R

SEQ ID No. 848:

MKFLAFSLLIPSVVFASSSKFQQVEQDVKAIEVSL SARIGVSVLDTQNGEYWDYNG
NQRFPLTSTFKTIACAKLLYDAEQGKVNPNSTVEIKKADLVTYSPVIEKQVGQAITLD
DACFATMTTSDNTAANIILSAVGGPKGVTDFLRQIGDKETRLDRIEPLDNEGKLGDLR
40 DTTTPKAIASLTNLKFLFGSALSEMNNQKKLESWMVNNQVTGNLLRSVLPAGWNIADR
SGAGGFGARSITAVVWSEHQAPIIVSIYLAQTQASMEERNDIAIVKIGHSIFDVYTSQS
R

SEQ ID No. 849:

MKSLLV FALLMPSVVFASSSKFQSVEQEIKGIESSLSARIGVAILDTQNGESWDYNG
45 DQRFPLTSTFKTIACAKLLYDAEHGKVNLNSTVEIKKADLVTYSPVLEKQVGKPITLS
DACLATMTTSDNTAANIVINAVGDPKSITDFLRQIGDKETRLDRVEPELNEGKLGDLR
DTTTPNAITSTLNQLLFGSTLSEASQKKLESWMVNNQVTGNLLRSVLPVKWSIADRS
GAGGFGARSITAIWSEEKPIIVSIYLAQTEASMAERNDIAIVKIGRSIFEVYTSQSR

SEQ ID No. 850:

50 MDVRKHKASFFSVVITFLCLTSLNANATDSVLEAVTNAETELGARIGLAVHDLETGK

RWEHKSNERFPLSSTFKTLACANVLQRVDLGKERIDRVVRFSESNLVTYSPVTEKH
 VGKKGMSLAELCQATLSTSDNSAANFILQAIGGPKALTKFLRSIGDDTTRLDRWETE
 LNEAVPGDKRDTTTPIAMVTTLEKLLIDETLSIKSRQQLESWLKGNEVGDALFRKGV
 PSDWIVADRTGAGGYGSRAITAVMWPPNRKPIVAALYITETDASFEERNAVIKIGE
 QIAKTILMENS RN

SEQ ID No. 851:

MKSLLVFALLMPSSVVFASSSKFQSVQEIKGIESSLSARIGVAILDTQNGESWDYNG
 DQRFPLTSTFKTIACAKLLYDAEHGKVNLNSTVEVKKADLVTYSPVLEKQVGKPITLS
 DACFATMTTSDNTAANIVINAVGDPKSITDFLRQIGDKETRLDRVEPELNEGKLGDLR
 DTTTPNAITSTLNQLLFGSTLSEASQKKLESWMVNNQVTGNLLRSVLPVTWSIADRS
 GAGGFGARSITAIWSEEKKPIIVSIYLAQTEASMAERND AIVKIGRSIFEVYTSQSR

SEQ ID No. 852:

MKFLLVFSLIPSVVFASSSKFRQVEQDVKAIEVSLSARIGVSVLDTQNGEYWDYNG
 NQRFPLTSTFKTIACAKLLYDAEQGKVNPNSTVEIKKADLVTYSPVIEKQVGQAITLD
 DACFATMTTSDNTAANIILSAVGSGKGVTDFLRQIGDKETRLDRIEPLNEGKLGDLR
 DTTTPKAIAS TLNKFLFGSALSEMNNKKLESWMVNNQVTGNLLRSVLPAGWNIADR
 SGAGGFGARSITAVWSEHQAPIIVSIYLAQTQASMAERND AIVKIGRSIFDVYTSQS
 R

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID No. 853 to SEQ ID No. 921** as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the CARB protein(s)
SEQ ID No. 853	ADLVTYSPVIEK	95-106 for the proteins of SEQ No. 844, 845, 847, 848, 852; 111-122 for the protein of sequence SEQ ID No. 842; 111-122 for the protein of sequence SEQ ID No. 843
SEQ ID No. 854	ADLVTYSPVLEK	95-106 for the proteins of SEQ No. 849, 851
SEQ ID No. 855	AIAS TLNK	180-187 for the proteins of SEQ No. 847, 848, 852; 196-203 for the protein of sequence SEQ ID No. 842; 196-203 for the protein of sequence SEQ ID No. 843
SEQ ID No. 856	AIAS TLNQLLFGSTLSEASQK	180-200 for the protein of SEQ No. 845
SEQ ID No. 857	AIEVSLSAR	31-39 for the proteins of SEQ No. 845, 847, 848, 852; 47-55 for the protein of sequence SEQ ID No. 842; 47-55 for the protein of sequence SEQ ID No. 843
SEQ ID No. 858	AITAVMWPPNR	247-257 for the proteins of SEQ No. 846, 850
SEQ ID No. 859	DTTTPIAMVTTLEK	182-195 for the proteins of SEQ No. 846, 850

SEQ ID No. 860	DTTTPK	174-179 for the proteins of SEQ No. 845, 847, 848, 852; 190-195 for the protein of sequence SEQ ID No. 842; 190-195 for the protein of sequence SEQ ID No. 843
SEQ ID No. 861	FLFGSALSEMNK	188-199 for the protein of SEQ No. 852
SEQ ID No. 862	FLFGSALSEMNQK	188-200 for the proteins of SEQ No. 847, 848; 204-216 for the protein of sequence SEQ ID No. 842
SEQ ID No. 863	FLLAFSLLIPSVVFASSSK	3-21 for the proteins of SEQ No. 845, 847, 848; 19-37 for the protein of sequence SEQ ID No. 842; 19-37 for the protein of sequence SEQ ID No. 843
SEQ ID No. 864	FLLVFSLLIPSVVFASSSK	3-21 for the protein of SEQ No. 852
SEQ ID No. 865	FPLSSTFK	68-75 for the proteins of SEQ No. 846, 850
SEQ ID No. 866	FPLTSTFK	61-68 for the proteins of SEQ No. 844, 845, 847, 848, 849, 851, 852; 77-84 for the protein of sequence SEQ ID No. 842; 77-84 for the protein of sequence SEQ ID No. 843
SEQ ID No. 867	FQQVEQDAK	22-30 for the protein of SEQ No. 844
SEQ ID No. 868	FQQVEQDVK	22-30 for the proteins of SEQ No. 845, 847, 848; 38-46 for the protein of sequence SEQ ID No. 842; 38-46 for the protein of sequence SEQ ID No. 843
SEQ ID No. 869	FQSVEQEIK	22-30 for the proteins of SEQ No. 849, 851
SEQ ID No. 870	FSESNLVTYSPVTEK	99-113 for the proteins of SEQ No. 846, 850
SEQ ID No. 871	GISSLSAR	31-39 for the proteins of SEQ No. 849, 851
SEQ ID No. 872	GNEVGDALFR	216-225 for the proteins of SEQ No. 846, 850
SEQ ID No. 873	GVPSDWIVADR	227-237 for the proteins of SEQ No. 846, 850

SEQ ID No. 874	GVTDFLR	142-148 for the proteins of SEQ No. 845, 847, 848, 852; 158-164 for the protein of sequence SEQ ID No. 842; 158-164 for the protein of sequence SEQ ID No. 843
SEQ ID No. 875	IEPDLNEGK	160-168 for the proteins of SEQ No. 845, 847, 848, 852; 176-184 for the protein of sequence SEQ ID No. 842; 176-184 for the protein of sequence SEQ ID No. 843
SEQ ID No. 876	IEPELNEGK	160-168 for the protein of SEQ No. 844
SEQ ID No. 877	IGEQUIAK	283-289 for the proteins of SEQ No. 846, 850
SEQ ID No. 878	IGLAVHDLETGK	47-58 for the proteins of SEQ No. 846, 850
SEQ ID No. 879	IGVAILDTQNGESWDYNGDQR	40-60 for the proteins of SEQ No. 849, 851
SEQ ID No. 880	IGVSVLDTQNGEYWDYNGNQR	40-60 for the proteins of SEQ No. 845, 847, 848, 852; 56-76 for the protein of sequence SEQ ID No. 842; 56-76 for the protein of sequence SEQ ID No. 843
SEQ ID No. 881	KPIIVSIYLAQTEASMAER	250-268 for the proteins of SEQ No. 849, 851
SEQ ID No. 882	KPIVAALYITETDASFEER	258-276 for the proteins of SEQ No. 846, 850
SEQ ID No. 883	LESWMVNNQVTGNLLR	202-217 for the proteins of SEQ No. 845, 847, 848, 849, 851, 852; 218-233 for the protein of sequence SEQ ID No. 842; 218-233 for the protein of sequence SEQ ID No. 843
SEQ ID No. 884	LEYWMVNNQVTGNLLR	202-217 for the protein of SEQ No. 844
SEQ ID No. 885	LGDLR	169-173 for the proteins of SEQ No. 844, 845, 847, 848, 849, 851, 852; 185-189 for the protein of sequence SEQ ID No. 842; 185-189 for the protein of sequence SEQ ID No. 843
SEQ ID No. 886	LLFGSALSEMNQK	204-216 for the protein of SEQ No. 843
SEQ ID No. 887	LLIDETLSIK	196-205 for the proteins of SEQ No. 846, 850

SEQ ID No. 888	LLLVFSLIPSMVFANSSK	3-21 for the protein of SEQ No. 844
SEQ ID No. 889	LLYDAEHGK	75-83 for the proteins of SEQ No. 849, 851
SEQ ID No. 890	LLYDAEQGEINPK	75-87 for the protein of SEQ No. 844
SEQ ID No. 891	LLYDAEQGK	75-83 for the proteins of SEQ No. 845, 847, 848, 852; 91-99 for the protein of sequence SEQ ID No. 842; 91-99 for the protein of sequence SEQ ID No. 843
SEQ ID No. 892	MCDNQNYGVTYMK	6-18 for the proteins of SEQ No. 842, 843
SEQ ID No. 893	NAVIK	277-282 for the proteins of SEQ No. 846, 850
SEQ ID No. 894	NDAIVK	269-274 for the proteins of SEQ No. 844, 845, 847, 848, 849, 851, 852; 285-290 for the protein of sequence SEQ ID No. 842; 285-290 for the protein of sequence SEQ ID No. 843
SEQ ID No. 895	QIGDK	149-153 for the proteins of SEQ No. 844, 845, 847, 848, 849, 851, 852; 165-169 for the protein of sequence SEQ ID No. 842; 165-169 for the protein of sequence SEQ ID No. 843
SEQ ID No. 896	QQLESWLK	208-215 for the proteins of SEQ No. 846, 850
SEQ ID No. 897	QVEQDVK	24-30 for the proteins of SEQ No. 845, 847, 848, 852; 40-46 for the protein of sequence SEQ ID No. 842; 40-46 for the protein of sequence SEQ ID No. 843
SEQ ID No. 898	SGAGGFGAR	230-238 for the proteins of SEQ No. 844, 845, 847, 848, 849, 851, 852; 246-254 for the protein of sequence SEQ ID No. 842; 246-254 for the protein of sequence SEQ ID No. 843
SEQ ID No. 899	SIGDDTTR	157-164 for the proteins of SEQ No. 846, 850
SEQ ID No. 900	SITAIWSEEK	239-249 for the proteins of SEQ No. 845, 849, 851

SEQ ID No. 901	SITDFLR	142-148 for the proteins of SEQ No. 849, 851
SEQ ID No. 902	SLLVFALLMPSVVFASSSK	3-21 for the proteins of SEQ No. 849, 851
SEQ ID No. 903	STIEIK	88-93 for the protein of SEQ No. 844
SEQ ID No. 904	SVLPAGWNIADR	218-229 for the proteins of SEQ No. 847, 848, 852; 234-245 for the protein of sequence SEQ ID No. 842; 234-245 for the protein of sequence SEQ ID No. 843
SEQ ID No. 905	SVLPEGWNIADR	218-229 for the protein of SEQ No. 844
SEQ ID No. 906	SVLPVK	218-223 for the proteins of SEQ No. 845, 849
SEQ ID No. 907	SVLPVTWSIADR	218-229 for the protein of SEQ No. 851
SEQ ID No. 908	TGAGGYGSR	238-246 for the proteins of SEQ No. 846, 850
SEQ ID No. 909	TIACAK	69-74 for the proteins of SEQ No. 844, 845, 847, 848, 849, 851, 852; 85-90 for the protein of sequence SEQ ID No. 842; 85-90 for the protein of sequence SEQ ID No. 843
SEQ ID No. 910	TIIVSIYLAQTEASMAER	251-268 for the protein of SEQ No. 845
SEQ ID No. 911	TILMENS	290-297 for the protein of SEQ No. 850
SEQ ID No. 912	TLACANVLQR	76-85 for the proteins of SEQ No. 846, 850
SEQ ID No. 913	TVLMENS	290-297 for the protein of SEQ No. 846
SEQ ID No. 914	VDLGK	86-90 for the proteins of SEQ No. 846, 850

SEQ ID No. 915	VEPELNEGK	160-168 for the proteins of SEQ No. 849, 851
SEQ ID No. 916	VNLNSTVEIK	84-93 for the protein of SEQ No. 849
SEQ ID No. 917	VNLNSTVEVK	84-93 for the protein of SEQ No. 851
SEQ ID No. 918	VNPNSTVEIK	84-93 for the proteins of SEQ No. 845, 848, 852; 100-109 for the protein of sequence SEQ ID No. 842; 100-109 for the protein of sequence SEQ ID No. 843
SEQ ID No. 919	VNSNSTVEIK	84-93 for the protein of SEQ No. 847
SEQ ID No. 920	WETELNEAVPGDK	168-180 for the proteins of SEQ No. 846, 850
SEQ ID No. 921	WSIADR	224-229 for the proteins of SEQ No. 845, 849, 851

The detection of a mechanism of resistance to cephalosporins induced by the expression of the DHA protein is characterised by the detection of at least one peptide belonging to the DHA protein and to its different sequence variants **SEQ ID No. 922** to **SEQ ID No. 927**.

SEQ ID No. 922:

10 MKKSLSATLISALLAFSAPGFSAADNVAAVVDSTIKPLMAQQDIPGMAVAVSVKGKP
 YYFNYGFADVQAKQPVTENTLFELGSVSKTFTGVLGAVSVAKKEMMLNDPAEKYQ
 PELALPQWKGITLLDLATYTTGGLPLQVPDAVKNRALLHFYQQWQPSRKPGDMRL
 YANSSIGLFGALTANAAGMPYEQLLTARILAPLGLSHTFITVPESAQSQYAYGYKNKK
 PVRVSPGQLDAESYGVKSASKDMLRWAEMNMEPSRAGNADLEMAMYLQTRYK
 15 TAAINQGLGWEMYDWPQQKDMIINGVTNEVALQPHPVTDNQVQPYNRASWVHKT
 GATTGFGAYVAFIPEKQVAIVILANKNYPNTERVKAQAQILSALE

SEQ ID No. 923:

10 MKKSLSATLISALLAFSAPGFSAADNVAAVVDSTIKPLMAQQDIPGMAVAVSVKGKP
 YYFNYGFADIAKQPVTENTLFELGSVSKTFTGVLGAVSVAKKEMALNDPAEKYQ
 ELALPQWKGITLLDLATYTAGGLPLQVPDAVKSADLLNFYQQWQPSRKPGDMRL
 20 ANSSIGLFGALTANAAGMPYEQLLTARILAPLGLSHTFITVPDSAQSQYAYGYKNKKP
 VRVSPGQLDAESYGVKSASKDMLRWAEMNIEPSRAGNADLEMAMYLQTRYKTA

AINQGLGWEMYDWPQQKDMIINGVTNEVALQPHPVTDNQVQPYNRASWVHKTGA
TTGFGAYVAFIPEKQVAIVILANKNYPNTERVKAAQAILSAL

SEQ ID No. 924:

5 MKKSLSATLISALLAFSAPGFSAADNVAAVVDSTIKPLMAQQDIPGMAVAVSVKGGP
YYFNNGFADIAKQPVNTLFLGSGVSKTFTGVLGAVSVAKKEMALNDPAKYQP
ELALPQWKGITLLDLATYTAGGLPLQVPDAVKSRADLLNFYQQWQPSRKPGDMRLY
ANSSIGLFGALTANAAGMPYEQLLTARILAPLGLSHTFITVPESAQSQYAYGYKNKKP
VRVSPGQLDAESYGVKSASKDMLRWAEMNMEPSRAGNADLEMAMYLQTRYKYT
10 AAINQGLGWEMYDWPQQKDMIINGVTNEVALQPHPVTDNQVQPYNRASWVHKTG
ATTGSGAYVAFIPEKQVAIVILANKNYPNTERVKAAQAILSAL

SEQ ID No. 925:

15 MKKSLSATLISALLAFSAPGFSAADNVAAVVDSTIKPLMAQQDIPGMAVAVSVKGGP
YYFNNGFADIAKQPVNTLFLGSGVSKTFTGVLGAVSVAKKEMALNDPAKYQP
ELALPQWKGITLLDLATYTAGGLPLQVPDAVKSRADLLNFYQQWQPSRKPGDMRLY
ANSSIGLFGALTANAAGMPYEQLLTARILAPLGLSHTFITVPESAQSQYAYGYKNKKP
VRVSPGQLDAESYGVKSTSKDMLRWAEMNMEPSRAGNADLEMAMYLQTRYKYT
AAINQGLGWEMYDWPQQKDMIINGVTNEVALQPHPVTDNQVQPYNRASWVHKTG
ATTGFGAYVAFIPEKQVAIVILANKNYPNTERVKAAQAILSAL

SEQ ID No. 926:

20 MKKSLSATLISALLAFSAPGFSAADNVAAVVDSTIKPLMAQQDIPGMAVAVSVKGRP
YYFNNGFADVQAKQPVNTLFLGSGVSKTFTGVLGAVSVAKKEMALNDPAKYQP
ELALPQWKGITLLDLATYTAGGLPLQVPDAVKSRADLLHFYQQWQPSRKPGDMRLY
ANSSIGLFGALTANAAGMPYEQLLTARILAPLGLSHTFITVPESAQSQYAYGYKNKKP
VRVSPGQLDAESYGVKSASKDMLRWAEMNMEPSRAGNADLEMAMYLQTRYKYT
25 AAINQGLGWEMYDWPQQKDMIINGVTNEVALQPHPVTDNQVQPYNRASWVHKTG
ATTGFGAYVAFIPEKQVAIVILANKNYPNTERVKAAQAILSAL

SEQ ID No. 927:

30 MKKSLSATLISALLAFSAPGFSAADNVAAVVDSTIKPLMAQQDIPGMAVAVSVKGGP
YYFNNGFADIAKQPVNTLFLGSGVSKTFTGVLGAVSVAKKEMALNDPAKYQP
ELALPQWKGITLLDLATYTAGGLPLQVPDAVKSRADLLNFYQQWQPSRKPGDMRLY
ANSSIGLFGALTANAAGMPYEQLLTARILAPLGLSHTFITVPESAQSQYAYGYKNKKP
VRVSPGQLDAESYGVKSASKDMLRWAEMNMEPSRAGNADLEMAMYLQTRYKYT
AAINQGLGWEMYDWPQQKDMIINGVTNEVALQPHPVTDNQVQPYNRASWVHKTG
ATTGFGAYVAFIPEKQVAIVILANKNYPNTERVKAAQAILSAL

35

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID No. 928** to **SEQ ID No. 948** as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the DHA protein(s)
SEQ ID No. 928	ADLLHFYQQWQPSR	148-161 for the protein of SEQ No. 926
SEQ ID No. 929	ADLLNFYQQWQPSR	148-161 for the proteins of SEQ No. 923, 924, 925, 927

SEQ ID No. 930	AELLHFYQQWQPSR	148-161 for the protein of SEQ No. 922
SEQ ID No. 931	AGNADLEMAMYLQTR	262-277 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927
SEQ ID No. 932	EMALNDPAAK	101-110 for the proteins of SEQ No. 923, 924, 925, 926, 927
SEQ ID No. 933	EMMLNDPAEK	101-110 for the protein of SEQ No. 922
SEQ ID No. 934	GKPYYFNYGFADIAK	55-70 for the proteins of SEQ No. 923, 924, 925, 927
SEQ ID No. 935	GKPYYFNYGFADVQAK	55-70 for the protein of SEQ No. 922
SEQ ID No. 936	KPGDMR	162-167 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927
SEQ ID No. 937	NYPNTER	361-367 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927
SEQ ID No. 938	QPVTEITL FELGSVSK	71-86 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927
SEQ ID No. 939	QVAIVILANK	351-360 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927
SEQ ID No. 940	TAAINQGLGWEMYDWPQQK	281-299 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927
SEQ ID No. 941	TFTGVLGAVSVAK	87-99 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927
SEQ ID No. 942	TGATTGFGAYVAFIPEK	334-350 for the proteins of SEQ No. 922, 923, 925, 926, 927
SEQ ID No. 943	TGATTGSGAYVAFIPEK	334-350 for the protein of SEQ No. 924

SEQ ID No. 944	VSPGQLDAESYGVK	230-243 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927
SEQ ID No. 945	WAEMNIEPSR	252-261 for the protein of SEQ No. 923
SEQ ID No. 946	WAEMNMEPSR	252-261 for the proteins of SEQ No. 922, 924, 925, 926, 927
SEQ ID No. 947	YQPELALPQWK	111-121 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927
SEQ ID No. 948	ASWVHK	328-333 for the proteins of SEQ No. 922, 923, 924, 925, 926, 927

The detection of a mechanism of resistance to cephalosporins induced by the expression of the MIR protein is characterised by the detection of at least one peptide belonging to the MIR protein and to its different sequence variants **SEQ ID No. 949 to SEQ ID No. 953**.

SEQ ID No. 949:

MMTKSLSCALLLSVASSAFAAPMSEKQLAEVVERTVTPLMNAQAIPGMAVAVIYQG
QPHYFTFGKADVAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEIALGDPVAKYW
PELTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDASLLRFYQNWQPQWKPGTTR
LYANASIGLFGALAVKPSGMSYEQAMTTRVFKPLKLDHTWINVPKAEAAHFAWGYR
EGKAVHVSPGMLDAEAYGVKTNVKDMASWLIANMKPDSLQAPSLKQGIALAQSR
YWRVGAMYQGLGWEMLNWPVDAKTVVGGSDNKVALAPLPVAEVNPPAPPVKASW
VHKTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPNARVEAAYRILDALQ

SEQ ID No. 950:

MMTKSLSCALLLSVASAFAAPMSETQLAEVVERTVTPLMNAQAIPGMAVAVIYQG
QPHYFTFGKADVAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEIALGDPVAKYW
PELTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDASLLRFYQNWQPQWKPGTTR
LYANASIGLFGALAVKPSGMSYEQAMTTRVFKPLKLDHTWINVPKAEAAHYAWGYR
EGKAVHVSPGMLDAEAYGVKTNVKDMASWVIANMKPDSLQAPSLKQGIALAQSR
YWRVGAMYQGLGWEMLNWPVDAKTVVGGSDNKVALAPLPVAEVNPPAPPVKASW
VHKTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPNARVEAAYHILDALQ

SEQ ID No. 951:

MMTKSLSCALLLSVASAFAAPMSEKQLAEVVERTVTPLMNAQAIPGMAVAVIYQG
QPHYFTFGKADVAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEIALGDPVAKYW
PELTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDASLLRFYQNWQPQWKPGTTR
LYANASIGLFGALAVKPSGMSYEQAMTTRVFKPLKLDHTWINVPKAEAAHYAWGYR
EGKAVHVSPGMLDAEAYGVKTNVKDMASWLIANMKPDSLHAPSLKQGIALAQSR
YWRVGAMYQGLGWEMLNWPVDAKTVVGGSDNKVALAPLPVAEVNPPAPPVKASW
VHKTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPNARVEAAYRILDALQ

SEQ ID No. 952:

MMTKSLSCALLLSVASAAFAAPMFEEKQLAEVVERTVTPLMNAQAIPGMAVAVIYQG
 QPHYFTFGKADVAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEIALGDPVAKYW
 PELTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDASLLRFYQNWQPQWKPGTTR
 5 LYANASIGLFGALAVKPSGMSYEQAMTTRVFKPLKLDHTWINVPKAEAAHYAWGYR
 EGKAVHVSPGMLDAEAYGVKTNVKDMASWLIANMKPDSLHAPSLKQGIALAQSR
 WRVGAMYQGLGWEMLNWPVDAKTVVGGSDNKVALAPLPVAEVNPPAPPVKASW
 VHKTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPNARVEAAYRILDALQ

SEQ ID No. 953:

MMTKSLSCALLLSVASSAFAAPMSEKQLAEVVERTVTPLMNAQAIPGMAVAVIYQG
 QPHYFTFGKADVAANKPVTPTQLFELGSISKTFTGVLGGDAIARGEIALGDPVAKYW
 PELTGKQWQGIRMLDLATYTAGGLPLQVPDEVTDASLLRFYQNWQPQWKPGTTR
 10 LYANASIGLFGALAVKPSGMSYEQAMTTRVFKPLKLDHTWINVPKAEAAHYAWGYR
 EGKAVHVSPGMLDAEAYGVKTNVKDMASWLIANMKPDSLQAPSLKQGIALAQSR
 15 WRVGAMYQGLGWEMLNWPVDAKTVVGGSDNKVALAPLPVAEVNPPAPPVKASW
 VHKTGSTGGFGSYVAFIPEKQLGIVMLANKSYNPNARVEAAYRILDALQ

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID No. 954** to **SEQ ID No. 981** as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the MIR protein(s)
SEQ ID No. 954	AEEAHFAWGYR	214-224 for the protein of SEQ No. 949
SEQ ID No. 955	DMASWLIANMK	249-259 for the proteins of SEQ No. 949, 951, 952, 953
SEQ ID No. 956	DMASWLIANMKPDSLHAPSLK	249-269 for the proteins of SEQ No. 951, 952
SEQ ID No. 957	DMASWLIANMKPDSLQAPSLK	249-269 for the proteins of SEQ No. 949, 953
SEQ ID No. 958	DMASWVIANMK	249-259 for the protein of SEQ No. 950
SEQ ID No. 959	DMASWVIANMKPDSLQAPSLK	249-269 for the protein of SEQ No. 950
SEQ ID No. 960	GEIALGDPVAK	101-111 for the proteins of SEQ No. 949, 950, 951, 952, 953

SEQ ID No. 961	TVVGGSDNK	302-310 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 962	ADVAANK	66-72 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 963	AEEAHYAWGYR	214-224 for the proteins of SEQ No. 950, 951, 952, 953
SEQ ID No. 964	AVHVSPGMLDAEAYGVK	228-244 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 965	FYQNWQPQWK	154-163 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 966	FYQNWQPQWKPGTTR	154-168 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 967	LDHTWINVPK	204-213 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 968	LYANASIGLFGALAVK	169-184 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 969	QGIALAQSR	270-278 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 970	QLAEVVER	27-34 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 971	QLGIVMLANK	353-362 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 972	SYPNPAR	363-369 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 973	TFTGVLGGDAIAR	88-100 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 974	TGSTGGFGSYVAFIPEK	336-352 for the proteins of SEQ No. 949, 950, 951, 952, 953

SEQ ID No. 975	VALAPLPVAEVNPPAPPVK	311-329 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 976	VEAAYR	370-375 for the proteins of SEQ No. 949, 951, 952, 953
SEQ ID No. 977	VFKPLK	198-203 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 978	VGAMYQGLGWEMLNWPVDAK	282-301 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 979	ASWVHK	330-335 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 980	QWQGIR	120-125 for the proteins of SEQ No. 949, 950, 951, 952, 953
SEQ ID No. 981	YWPELTGK	112-119 for the proteins of SEQ No. 949, 950, 951, 952, 953

The detection of a mechanism of resistance to cephalosporins induced by the expression of the MOX protein is characterised by the detection of at least one peptide belonging to the MOX protein and to its different sequence variants **SEQ ID No. 982 to SEQ ID No. 988.**

SEQ ID No. 982:

5 MQQRQSILWGAVATLMWAGLAHAGETSPVDPLRPVVDASIQPLLKEHRIPGMAVAV
 LKDGKAHYFNYGVADRERAVGVSEQTLFEIGSVSKPLTATLGAYAVVKGAMQLDDK
 10 ASRHAPWLKGSAFDSITMGELATYSAGGLPLQFPFEEVDSLEKMQAYYRQWTPAYS
 PGSHRQYSNPSIGLFGHLAASSLKQPFAQLMEQTLLPGLGLHHTYVNVPKQAMASY
 AYGYSKEDKPIRVSPGMLADEAYGIKTSSADLLRFVKANISGVDDKALQQAISLTHK
 GHYSVGGMTQGLGWERYAYPVSEQTLLAGNSAKVILEANPTAAPRESGSQMLFNK
 TGSTSGFGAYVAFVPAKGIGIVMLANRNYPIPARVKAAHAILTQLAR

SEQ ID No. 983:

15 MQQRQSILWGALATLMWAGLAHAGDTSVDPLRPVVDASIRPLLKEHRIPGMAVAV
 LKDGKAHYFNYGVADRERAVGVSEQTLFEIGSVSKPLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSAFDSITMGELATYSAGGLPLQFPFEEVDSLEKMQAYYRQWTPAYS
 PGSHRQYSNPSIGLFGHLAASSMKQPFAQLMEQTLLPGLGLHHTYVNVPKQAMAS
 20 YAYGYSKEDKPIRVSPGMLADEAYGIKTSSADLLRFVKANISGVDDKALQQAISLTHK
 GHYSVGGMTQGLGWESYAYPVSEQTLLAGNSAEVILEANPTAAPRESGNLMLFNK
 TGSTSGFGAYVAFVPAKGIGIVMLANRNYPIPARVKAAHAILTQLAR

SEQ ID No. 984:

MQQRQSILWGALATLMWAGLAHAGDKAATDPLRPVVDASIRPLLKEHRIPGMAVAV
 LKDGKAHYFNYGVADRERAVGVSEQTLFEIGSVSKTLTATLGAYAVVQGGFELDDK
 ASLFAPWLKGSAFDNITMGELATYSAGGLPLQFPFEEVDSLEKMQAYYRQWTPAYS
 5 RGSHRQYANPSIGLFGYLAASSMKQPFDRLEQTMPLPGLGLYHTYLNVPPEQPMGH
 YAYGYWKEDKPFRTVTPAMLAEEPYGIKTSSADLLRFVKANISGVDNAAMQQAIDLTH
 QGQYAVGEMTQGLGWERYYPVSEQTLLAGNSPAMIYNANPAAPAPAAAGHPVLF
 KKTGSTNGFGAYVAFVPAKGIGVVMLANRNYPNEGTLKAGHAILTQLAR

SEQ ID No. 985:

10 MQQRQSILWGVLPPTLMWAGLAHAGDRAATDPLRPVVDASIRPLLKEHRIPGMAVAV
 LKDGKAHYFNYGVADRERAVGVSEQTLFEIGSVSKTLTATLGAYAVVQGSFELDDK
 ASLFAPWLKGSVFDNITMGELATYSAGGLPLQFPFEEVDSLEKMQAYYRQWTPAYS
 PGSHRQYANPSIGLFGYLAASSMKQPFDRLEQTMPLPGLGLYHTYLNVPPEQAMGHY
 AYGYSKEDKPIRVTPGMLADEAYGIKTSSADLLRFVKANISGVDNAAMQQAIDLTHQ
 15 GQYAVGEMTQGLGWERYAYPVSEQTLLAGNSAAMIYNANPAAPAPAAARGHPVLFN
 KTGSTNGFGAYVAFVPAKGIGIVMLANRNSPIEGTLKAGHAILTQLAR

SEQ ID No. 986:

MQQRQSILWGALATLMWAGLVHAGDKAATDPLRPVVDASIRPLLKEHRIPGMAVAV
 LKDGKAHYFNYGVADRERAVGVSEQTLFEIGSVSKTLTATLGAYAVVQGSFELDDK
 20 ASLFAPWLKGSVFDNITMGELATYSAGGLPLQFPFEEVDSLEKMQAYYRQWTPAYS
 PGSHRQYANPSIGLFGYLAASSMKQPFDRLEQTMPLPGLGLYHTYLTVPPEQAMGH
 YAYGYSKEDKPIRVTPGMLADEAYGIKTSSADLLRFVKANIGGVDNAAMQQAIDLTH
 QGQYAVGEMTQGLGWERYAYPVSEQTLLAGNSPAMIYNAIPAVPAPAAAGHPVLF
 NKTGSTNGFGAYVAFVPAKGIGIVMLANRNSPIEARIKAAHAILTQLAR

SEQ ID No. 987:

25 MQQRQSILWGAVATLMWAGLAHAGEASPDPLRPVVDASIQPLLKEHRIPGMAVAV
 LKDGKAHYFNYGVANRESGASVSEQTLFEIGSVSKTLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSVFDSTMGELATYSAGGLPLQFPFEEVDSSEKMRAYYRQWAPVYS
 PGSHRQYSNPSIGLFGHLAASSLKQPFQAQLMEQTLLPGLGMHHTYVNVPKQAMAS
 30 YAYGYSKEDKPIRVNPGMLADEAYGIKTSSADLLAFVKANIGGVDDKALQQAISLTH
 KGHYSVGGMTQGLGWESYAYPVTEQTLLAGNSAKVILEANPTAAPRESGSQVLFN
 KTGSSNGFGAYVAFVPARGIGIVMLANRNYPPIPARVKAAHAILAQLAG

SEQ ID No. 988:

35 MQQRQSILWGALATLMWAGLAHAGETSPVDPLRPVVDASIRPLLKEHRIPGMAVAV
 LKDGKAHYFNYGVADRERAVGVSEQTLFEIGSVSKPLTATLGAYAVVKGAMQLDDK
 ASRHAPWLKGSAFDSITMGELATYSAGGLPLQFPFEEVDSLEKMQAYYRQWTPAYS
 PGSHRQYSNPSIGLFGHLAASSMKQPFQAQLMEQTLLPGLGLHHTYVNVPKQAMAS
 YAYGYSKEDKPIRVSPGMLADEAYGIKTSSADLLRFVKANISGVHDKALQQAISLTHK
 40 GHYSVGGMTQGLGWESYAYPVSEQTLLAGNSAKVILEANPTAAPRESGSQMLFNK
 TGSTSGFGAYVAFVPAKGIGIVMLANRNYPPIPARVKAAHAILTQLAR

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID No. 989 to SEQ ID No. 1037** as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the MOX protein(s)
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SEQ ID No. 989	AATDPLR	27-33 for the proteins of SEQ No. 984, 985, 986
SEQ ID No. 990	AHYFNYGVADR	62-72 for the proteins of SEQ No. 982, 983, 984, 985, 986, 988
SEQ ID No. 991	ANISGVDDK	261-269 for the proteins of SEQ No. 982, 983
SEQ ID No. 992	ANISGVHDK	261-269 for the protein of SEQ No. 988
SEQ ID No. 993	ASLFAPWLK	113-121 for the proteins of SEQ No. 984, 985, 986
SEQ ID No. 994	AVGVSEQTLFEIGSVSK	75-91 for the proteins of SEQ No. 982, 983, 984, 985, 986, 988
SEQ ID No. 995	EDKPFR	230-235 for the protein of SEQ No. 984
SEQ ID No. 996	ESGNLMLFNK	326-335 for the protein of SEQ No. 983
SEQ ID No. 997	ESGSQMLFNK	326-335 for the proteins of SEQ No. 982, 988
SEQ ID No. 998	GHPVLFNK	329-336 for the proteins of SEQ No. 985, 986
SEQ ID No. 999	GHYSVGGMTQGLGWER	281-296 for the protein of SEQ No. 982
SEQ ID No. 1000	GIGVVMLANR	354-363 for the protein of SEQ No. 984
SEQ ID No. 1001	MQAYYR	155-160 for the proteins of SEQ No. 982, 983, 984, 985, 986, 988
SEQ ID No. 1002	NSPIEAR	364-370 for the protein of SEQ No. 986

SEQ ID No. 1003	NSPIEGTLK	364-372 for the protein of SEQ No. 985
SEQ ID No. 1004	NYPNEGTK	364-372 for the protein of SEQ No. 984
SEQ ID No. 1005	QPFDR	192-196 for the proteins of SEQ No. 984, 985, 986
SEQ ID No. 1006	QWTPAYSPGSHR	161-172 for the proteins of SEQ No. 982, 983, 985, 986, 988
SEQ ID No. 1007	QWTPAYSR	161-168 for the protein of SEQ No. 984
SEQ ID No. 1008	QYANPSIGLFGYLAASSMK	173-191 for the proteins of SEQ No. 984, 985, 986
SEQ ID No. 1009	QYSNPSIGLFGHLAASSMK	173-191 for the proteins of SEQ No. 983, 988
SEQ ID No. 1010	TGSSNGFGAYVAFVPAK	336-352 for the protein of SEQ No. 987
SEQ ID No. 1011	TGSTNGFGAYVAFVPAK	337-353 for the proteins of SEQ No. 984, 985, 986
SEQ ID No. 1012	TGSTSGFGAYVAFVPAK	336-352 for the proteins of SEQ No. 982, 983, 988
SEQ ID No. 1013	TLTATLGAYAVVQGGFELDDK	92-112 for the protein of SEQ No. 984
SEQ ID No. 1014	TLTATLGAYAVVQGSFELDDK	92-112 for the proteins of SEQ No. 985, 986
SEQ ID No. 1015	VSPGMLADEAYGIK	236-249 for the proteins of SEQ No. 982, 983, 988
SEQ ID No. 1016	VTPAMLAEOPYGIK	236-249 for the protein of SEQ No. 984

SEQ ID No. 1017	VTPGMLADEAYGIK	236-249 for the proteins of SEQ No. 985, 986
SEQ ID No. 1018	YAYPVSEQTLLAGNSAK	297-313 for the proteins of SEQ No. 982, 988
SEQ ID No. 1019	ALQQAISLTHK	270-280 for the proteins of SEQ No. 982, 983, 987, 988
SEQ ID No. 1020	ANIGGVDDK	261-269 for the protein of SEQ No. 987
SEQ ID No. 1021	EDKPIR	230-235 for the proteins of SEQ No. 982, 983, 985, 986, 987, 988
SEQ ID No. 1022	ESGASVSEQTLFEIGSVSK	73-91 for the protein of SEQ No. 987
SEQ ID No. 1023	ESGSQVLFNK	326-335 for the protein of SEQ No. 987
SEQ ID No. 1024	GAMQLDDK	105-112 for the proteins of SEQ No. 982, 983, 987, 988
SEQ ID No. 1025	GIGIVMLANR	353-362 for the proteins of SEQ No. 982, 983, 987, 988; 354-363 for the proteins of sequence SEQ ID No. 985, 986
SEQ ID No. 1026	HAPWLK	116-121 for the proteins of SEQ No. 982, 983, 987, 988
SEQ ID No. 1027	NYPIPAR	363-369 for the proteins of SEQ No. 982, 983, 987, 988
SEQ ID No. 1028	QAMASYAYGYSK	218-229 for the proteins of SEQ No. 982, 983, 987, 988
SEQ ID No. 1029	QWAPVYSPGSHR	161-172 for the protein of SEQ No. 987
SEQ ID No. 1030	QYSNPSIGLFGHLAASSLK	173-191 for the proteins of SEQ No. 982, 987

SEQ ID No. 1031	TLTATLGAYAVVK	92-104 for the protein of SEQ No. 987
SEQ ID No. 1032	TSSADLLAFVK	250-260 for the protein of SEQ No. 987
SEQ ID No. 1033	TSSADLLR	250-257 for the proteins of SEQ No. 982, 983, 984, 985, 986, 988
SEQ ID No. 1034	VILEANPTAAPR	314-325 for the proteins of SEQ No. 982, 983, 987, 988
SEQ ID No. 1035	VNPGMLADEAYGIK	236-249 for the protein of SEQ No. 987
SEQ ID No. 1036	AHYFNYGVANR	62-72 for the protein of SEQ No. 987
SEQ ID No. 1037	IPGMAVAVLK	49-58 for the proteins of SEQ No. 982, 983, 984, 985, 986, 987, 988

The detection of a mechanism of resistance to cephalosporins induced by the expression of the PER protein is characterised by the detection of at least one peptide belonging to the PER protein and to its different sequence variants **SEQ ID**

5 **No. 1038 to SEQ ID No. 1044.**

SEQ ID No. 1038:

MNVIIKAVVTASTLLMVSFSSFETSAQSPLLKEQIESIVIGKKATVGVAWGPDDLEPL
LINPFEKFPMQSVFKLHLAMLVLHQVDQGKLDLNQTVIVNRAKVLQNTWAPIMKAYQ
GDEFSPVQQLQYSVSLSDNVACDLLFELVGGPAALHDYIQSMGIKETAVVANE
10 QMHADDQVQYQNWTS MKGAAEILKKFEQKTQLSETSQALLWKWMVETTTGPERL
KGLLPAGTVVAHKTGTSGIKAGKTAATNDLGIILLPDGRPLLAVFVKDSAESSRTNE
AIIAQVAQTAYQFELKKLSALSPN

SEQ ID No. 1039:

MNVIIKAVVTASTLLMVSFSSFETSAQSPLLKEQIESIVIGKKATVGVAWGPDDLEPL
15 LINPFEKFPMQSVFKLHLAMLVLHQVDQGKLDLNQTVIVNRAKVLQNTWAPIMKAYQ
GDEFSPVQQLQYSVSHDNDNVACDLLFELVGGPAALHDYIQSMGIKETAVVANE
QMHADDQVQYQNWTS MKGAAEILKKFEQKTQLSETSQALLWKWMVETTTGPERL
KGLLPAGTVVAHKTGTSGIKAGKTAATNDLGIILLPDGRPLLAVFVKDSAESSRTNE
AIIAQVAQTAYQFELKKLSALSPN

20 **SEQ ID No. 1040:**

MNVIIKAVVTASTLLMVSFSSFETSAQSPLLKGQIESIVIGKKATVGVAWGPDDLEP
LLINPFEKFPMQSVFKLHLAMLVLHQVDQGKLDLNQTVIVNRAKVLQNTWAPIMKAY
QGDEFSPVQQLQYSVSHSDNVACDLLFELVGGPAALHDYIQSMGIKETAVVANE

AQMHADDQVQYQNWTSMKGAAEILKKFEQKTQLSETSQALLWKWMVETTTGPER
LKGLLPAGTVVAHKTGTSGIKAGKTAATNDLGIILLPDGRPLLAVFVKDSAESSRTN
EAIIAQVAQTAYQFELKKLSALSPN

SEQ ID No. 1041:

5 MNVIAKGVFTTTALLMLSLSSWVVSQAQSPLLKEQIETIVTGKKATVGVAVWGPDDLE
PLLVPFEKFPMQSVFKMHLAMLVLHQVDQGKLDLNKTAVNRAAVLQNTWSPMM
KDHQGDEFTVTVQQLQYSVSHSDNVACDLLFELVGGPAALHAYIQSLGIKETEVVA
NEAQMHADDQVQYQNWTSMKAAAQLLRKFEQKKQLSETSQALLWKWMVETTTGPER
10 QRLKGLLPAGTVVAHKTGTSGVRAGKTAATNDIGVIMLPDGRPLLAVFVKDSAESA
RTNEAIIAQVAQAAYQFELKKLSAVSPD

SEQ ID No. 1042:

MNVIIKAVVTASTLLMVSFSSFETSAQSPLLKEQIESIVIGKKATVGVAVWGPDDLEPL
LINPFEKFPMQSVFKLHLAMLVLHQVDQGKLDLNQTVIVNRAKVLQNTWAPIMKAYQ
GDQFSVPVQQLQYSVSHSDNVACDLLFELVGGPAALHDYIQSMGIKETAVVANE
15 QMHADDQVQYQNWTSMKGAAEILKKFEQKTQLSETSQALLWKWMVETTTGPERL
KGLLPAGTVVAHKTGTSGVRAGKTAATNDLGIILLPDGRPLLAVFVKDSAESSRTN
EAIIAQVAQAAYQFELKKLSALSPN

SEQ ID No. 1043:

MNVITKCVFTASALLMLGLSSFVVSQAQSPLLKEQIETIVTGKKATVGVAVWGPDDLE
20 PLLNPFEKFPMQSVFKLHLAMLVLHQVDQGKLDLNQSVTVNRAAVLQNTWSPMM
KDHQGDEFTVAVQQLQYSVSHSDNVACDLLFELVGGPAALHAYIQSLGVKEAAV
ANEAQMHADDQVQYQNWTSMKAAAQVLQKFEQKKQLSETSQALLWKWMVETTT
GPQRLKGLLPAGTIVAHKTGTSGVRAGKTAATNDAGVIMLPDGRPLLAVFVKDSA
ESERTNEAIIAQVAQAAYQFELKKLSAVSPD

SEQ ID No. 1044:

25 MNVIIKAVVTASTLLMVSFSSFETSAQSPLLKEQIESIVIGKKATVGVAVWGPDDLEPL
LINPFEKFPMQSVFKLHLAMLVLHQVDQGKLDLNQTVIVNRAKVLQNTWAPIMKAYQ
GDEFSPVPVQQLQYSVSHSDNVACDLLFELVGGPAALHDYIQSMGIKETAVVANE
QMHADDQVQYQNWTSMKGAAEILKKFEQKTQLSETSQALLWKWMVETTTGPERL
30 KGLLPAGTVVAHKTGTSGIKAGKTAATNDLGIILLPDGRPLLAVFVKDSAESSRTNE
AIIAQVAQTAYQFELKKLSALSPN

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID**

No. 1045 to **SEQ ID No. 1077** as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the PER protein(s)
SEQ ID No. 1045	AAAQLLR	190-196 for the proteins of SEQ No. 1041
SEQ ID No. 1046	AAAQVLQK	190-197 for the proteins of SEQ No. 1043
SEQ ID No. 1047	AAVLQNTWSPMMK	101-113 for the proteins of SEQ No. 1041, 1043

SEQ ID No. 1048	DSAESAR	275-281 for the proteins of SEQ No. 1041
SEQ ID No. 1049	DSAESER	275-281 for the proteins of SEQ No. 1043
SEQ ID No. 1050	DSAESSR	275-281 for the proteins of SEQ No. 1038, 1039, 1040, 1042, 1044
SEQ ID No. 1051	EQIESIVIGK	33-42 for the proteins of SEQ No. 1038, 1039, 1042, 1044
SEQ ID No. 1052	EQIETIVTGK	33-42 for the proteins of SEQ No. 1041, 1043
SEQ ID No. 1053	ETEVVANE AQMHADDQVQYK	164-183 for the proteins of SEQ No. 1041
SEQ ID No. 1054	FPMQSVFK	67-74 for the proteins of SEQ No. 1038, 1039, 1040, 1041, 1042, 1043, 1044
SEQ ID No. 1055	GAAEILK	190-196 for the proteins of SEQ No. 1038, 1039, 1040, 1042, 1044
SEQ ID No. 1056	GLLPAGTIVAHK	228-239 for the proteins of SEQ No. 1043
SEQ ID No. 1057	GLLPAGTVVAHK	228-239 for the proteins of SEQ No. 1038, 1039, 1040, 1041, 1042, 1044
SEQ ID No. 1058	GQIESIVIGK	33-42 for the proteins of SEQ No. 1040
SEQ ID No. 1059	LDLNK	90-94 for the proteins of SEQ No. 1041
SEQ ID No. 1060	LDLNQSVTVNR	90-100 for the proteins of SEQ No. 1043
SEQ ID No. 1061	LDLNQTVIVNR	90-100 for the proteins of SEQ No. 1038, 1039, 1040, 1042, 1044

SEQ ID No. 1062	LHLAMLVLHQVDQGK	75-89 for the proteins of SEQ No. 1038, 1039, 1040, 1042, 1043, 1044
SEQ ID No. 1063	MHLAMLVLHQVDQGK	75-89 for the proteins of SEQ No. 1041
SEQ ID No. 1064	NWTSMK	184-189 for the proteins of SEQ No. 1038, 1039, 1040, 1041, 1042, 1043, 1044
SEQ ID No. 1065	QLSETSQALLWK	203-214 for the proteins of SEQ No. 1038, 1039, 1040, 1041, 1042, 1043, 1044
SEQ ID No. 1066	TAATNDAGVIMLPDGR	250-265 for the proteins of SEQ No. 1043
SEQ ID No. 1067	TAATNDIGVIMLPDGR	250-265 for the proteins of SEQ No. 1041
SEQ ID No. 1068	TAATNDLGIILLPDGR	250-265 for the proteins of SEQ No. 1038, 1039, 1040, 1042, 1044
SEQ ID No. 1069	TGTSGIK	240-246 for the proteins of SEQ No. 1038, 1039, 1040, 1044
SEQ ID No. 1070	TGTSGVR	240-246 for the proteins of SEQ No. 1041, 1042, 1043
SEQ ID No. 1071	TNEAIIAQVAQAAYQFELK	282-300 for the proteins of SEQ No. 1041, 1042, 1043
SEQ ID No. 1072	TNEAIIAQVAQTAYQFELK	282-300 for the proteins of SEQ No. 1038, 1039, 1040, 1044
SEQ ID No. 1073	TQLSETSQALLWK	202-214 for the proteins of SEQ No. 1038, 1039, 1040, 1042, 1044
SEQ ID No. 1074	TVAVNR	95-100 for the proteins of SEQ No. 1041
SEQ ID No. 1075	VLQNTWAPIMK	103-113 for the proteins of SEQ No. 1038, 1039, 1040, 1042, 1044

SEQ ID No. 1076	WMVETTTGPER	215-225 for the proteins of SEQ No. 1038, 1039, 1040, 1042, 1044
SEQ ID No. 1077	WMVETTTGPQR	215-225 for the proteins of SEQ No. 1041, 1043

The detection of a mechanism of resistance to cephalosporins induced by the expression of the PER protein indicates an ESBL resistance. It is preferably detected with the aid of **SEQ ID No. 1045 to SEQ ID No. 1065** and **SEQ ID No. 1069 to SEQ ID No. 1077**.

The detection of a mechanism of resistance to cephalosporins induced by the expression of the VEB protein is characterised by the detection of at least one peptide belonging to the VEB protein and to its different sequence variants **SEQ ID No. 1078 to SEQ ID No. 1084**.

SEQ ID No. 1078:

MKIVKRILLVLLSLFFTVYSNAQTDNLTLEIENVLKAKNARIGVAIFNSNEKDTLKIINND
FHFPMSQVMKFPALAVLSEIDKGNLSFEQKIEITPQDLLPKTWSPIKEEFPPNGTTTLTI
EQILNYTVSESDNIGCDILLKLIGGTDSVQKFLNANHFTDISIKANEEQMHKDWNTQY
QNWATPTAMNKLLIDTYNNKNQLLSKKSDFIWKIMRETTTGSNRLKGQLPKNTIVA
HKTGTSGINNGIAAATNDVGVITLPNGQLIFISVFVAESKETSEINEKIISDIKITWNY
LNK

SEQ ID No. 1079:

MKIVKRILLVLLSLFFTVYSNAQADNLTLEIENVLKAKNARIGVAIFNSNEKDTLKIINND
FHFPMSQVMKFPALAVLSEIDKGNLSFEQKIEITPQDLLPKTWSPIKEEFPPNGTTTLTI
EQILNYTVSESDNIGCDILLKLIGGTDSVQKFLNANHFTDISIKANEEQMHKDWNTQY
QNWATPTAMNKLLIDTYNNKNQLLSKKSDFIWKIMRETTTGSNRLKGQLPKNTIVA
HKTGTSGINNGIAAATNDVGVITLPNGQLIFISVFVAESKETSEINEKIISDIKITWNY
LNK

SEQ ID No. 1080:

MKIVKRILLVLLSLFFTVVYSNAQTDNLTLEIENVLKAKNARIGVAIFNSNEKDTFKINN
DFHFPMSQVMKFPALAVLSEIDKGNLSFEQKIEITPQDLLPKTWSPIKEEFPPNGTTTLTI
IEQILNYTVSESDNIGCDILLKLIGGTDSVQKFLNANHFTDISIKANEEQMHKDWNTQY
QNWATPTAMNKLLIDTYNNKNQLLSKKSDFIWKIMRETTTGSNRLKGQLPKNTIVA
HKTGTSGINNGIAAATNDVGVITLPNGQLIFISVFVAESKETSEINEKIISDIKITWNY
LNK

SEQ ID No. 1081:

MKIVKRILLVLLSLFFTVYSNAQADNLTLEIENVLKAKNARIGVAIFNSNEKDTLKIINND
FHFPMSQVMKFPALAVLSEIDKGNLSFEQKIEITPQDLLPKMWSPIKEEFPPNGTTTLTI
EQILNYTVSESDNIGCDILLKLIGGTDSVQKFLNANHFTDISIKANEEQMHKDWNTQY
QNWATPTAMNKLLIDTYNNKNQLLSKKSDFIWKIMRETTTGSNRLKGQLPKNTIVA
HKTGTSGINNGIAAATNDVGVITLPNGQLIFISVFVAESKETSEINEKIISDIKITWNY
LNK

SEQ ID No. 1082:

MKIVKRILLVLLSLFFTVVEYSNAQTDNLTALKIENVLKAKNARIGVAIFNSNEKDTLKINN
 DFHFPMQSVMKFPIALAVLSEIDKGNLSFEQKIEITPDLLPKMWSPIKEEFPNGTTL
 TIEQILNYTVSESDNIGCDILLKLIGGTDSVQKFLNANHFTDISIKANEEQMHKDWNTQ
 5 YQNWATPTAMNKLLIDTYNNKNQLLSKKSDFIWKIMRETTTGSNRLKGQLPKNTIV
 AHKTGTSGINNGIAAATNDVGIVITLPNGQLIFISVFVAESKETSEINEKIISDIAKITWNY
 YLNK

SEQ ID No. 1083:

MKIVKRILLVLLSLFFTVVYSNAQADNLTALKIENVLKAKNARIGVAIFNSNEKDTLKINN
 10 DFHFPMQSVMKFPIALAVLSEIDKGNLSFEQKIEITPDLLPKMWSPIKEEFPNGTTL
 TIEQILNYTVSESDNIGCDILLKLIGGTDSVQKFLNANHFTDISIKANEEQMHKDWNTQ
 YQNWATPTAMNKLLIDTYNNKNQLLSKKSDFIWKIMRETTTGSNRLKGQLPKNTIV
 AHKTGTSGINNGIAAATNDVGIVITLPNGQLIFISVFVAESKETSEINEKIISDIAKITWNY
 YLNK

SEQ ID No. 1084:

MKIVKRILLVLLSLFFTVVEYSNAQTDNLTALKIENVLKAKNARIGVAIFNSNEKDTLKINN
 DFHFPMQSVMKFPIALAVLSEIDKGNLSFEQKIEITPDLLPKTWSPIKEEFPNGTTLT
 IEQILNYTVSESDNIGCDILLKLIGGTDSVQKFLNANHFTDISIKANEEQMHKDWNTQY
 QNWATPTAMNKLLIDTYNNKNQLLSKKSDFIWKIMRETTTGSNRLKGQLPKNTIVA
 20 HKTGTSGINNGITAATNDVGIVITLPNGQLIFISVFVAESKETSEINEKIISDIAKITWNY
 LNK

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID**

No. 1085 to SEQ ID No. 1104 as defined hereafter:

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Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the VEB protein(s)
SEQ ID No. 1085	ANEEQMHK	165-172 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1086	DWNTQYQNWATPTAMNK	173-189 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1087	ETSEINEK	276-283 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1088	ETTTGSNR	216-223 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1089	FLNANHFTDISIK	152-164 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084

SEQ ID No. 1090	FPIALAVLSEIDK	72-84 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1091	GNLSFEQK	85-92 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1092	GQLPK	226-230 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1093	IEITPQDLLPK	93-103 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1094	IENVLK	32-37 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1095	IGVAIFNSNEK	43-53 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1096	IISDIK	284-290 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1097	INNDFHFPMQSVMK	58-71 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1098	LIGGTDSVQK	142-151 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1099	LLIDTYNNK	190-198 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1100	MWSPIK	104-109 for the proteins of SEQ No. 1081, 1082, 1083
SEQ ID No. 1101	NQLLSK	199-204 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1102	NTIVAHK	231-237 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084
SEQ ID No. 1103	SYDFIWK	206-212 for the proteins of SEQ No. 1078, 1079, 1080, 1081, 1082, 1083, 1084

SEQ ID No. 1104	TWSPK	104-109 for the proteins of SEQ No. 1078, 1079, 1080, 1084
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The detection of a mechanism of resistance to cephalosporins induced by the expression of the VEB protein indicates an ESBL resistance.

- 5 The detection of a mechanism of resistance to cephalosporins or to carbapenems induced by the expression of the OXA protein is characterised by the detection of at least one peptide belonging to the OXA protein and to its different sequence variants

SEQ ID No. 1105 to SEQ ID No. 1266:

SEQ. ID. No. 1105:

10 MSRLLLSGLLATGLLCAVPASAASGCFLYADGNGQTLSSSEGDCSSQLPPASTFKIPL
ALMGYDSGFLVNEEHPALPYKPSYDGWLPWRETTPRRWETYSVWVFSQQITE
WLGMERFQQYVDRFDYGNRDLSGNPGKHDGLTQAWLSSSLAISPEEQARFLGKM
VSGKLPVSAQTLQYTANILKVSEVEGWQIHGKTGMGYPKKLDGSLNRDQQIGWV
GWASKPGKQLIFVHTVVQKPGKQFASIKAKEEVLAALPAQLKKL

SEQ ID No. 1106:

15 IACLSSTALAGSITENTSWNKEFSAEAVNGVFVLCSSSKSCATNDLARASKEYLPA
STFKIPNAIIGLETGVKNEHQVFKWDGKPRAMKQWERDLTLRGAIQVSAVPVFQOI
AREVGEVRMQKYLKKFSYGNQNISSGIDKFWLEDQLRISAVNQVEFLESYLNKLSA
SKENQLIVKEALVTEAAPEYLVHSGTGFSGVGTESNPGVAWWVGWVEKETEVYFF
20 AFNMDIDNESKLPLRKSIPTKIMESEGIIGG

SEQ ID No. 1107:

MKKILLHMLVFVSATLPISSVASDEVETLKCTIADAITGNTLYETGECARRVSPCSS
FKLPLAIMGFDGILQSPKSPTWELKPEYNPSPRDRYKQVYPALWQSDSVWVFSQ
QLTSRLGVDRFTEYVKKFEYGNQDVSGDSGKHNGLTQSWLMSSLTISPKEIQIFLL
25 RFVAHKLPVSEAAAYDMAYATIPQYQAAEGWAVHKGSGSGWLRDNNNGKINESRPQ
GWFGWAEKNGRQVVFARLEIGKEKSDIPGGSKAREDILVELPVLGMGNK

SEQ ID No. 1108:

MAIRIFAILFSIFSLATFAHAQEGTLERSDWRKFFSEFQAKGTIVVADERQADRAMLV
FDPVRSKKRYSPASTFKIPHTLFALDAGAVRDEFQIFRWDGVNRGFAGHNQDQDLR
30 SAMRNSTVWVYELFAKEIGDDKARRYLLKIDYGNAGPSTSNGDYWIEGSLAISAE
QIAFLRKLYRNELPFRVEHQRLVKDLMIVEAGRNWILRAKTGWEGRMGWWVGWVE
WPTGSVFFALNIDTPNRMDDLKREAIVRILRSIEALPPNPAVNSDAAR

SEQ ID No. 1109:

MQRSLMSGKRHFIFAVSFVISTVCLTFSPANAAQKLSCTLVIDEASGDLLHREGSC
35 DKAFAPMSTFKLPLAIMGYDADILLDATTPRWYKPEFNQYKSQQKPTDPTIWLKDS
IWYQSQELTRRLGESRFSDYVQRFDYGNKDVSGDPGKHNGLTAWLASSLKISPEE
QVRFLRRFLRGELPVSEDALEMTKAVVPHFEAGDWDVQGKTGTGSLSDAKGGKAP
IGWFIGWATRDRRVVFARLTVGARKGEQPAGPAARDEFNLTPALSEN

SEQ ID No. 1110:

40 MKTFAAYVIIACLSSTALAGSITENTSWNKEFSAEAVNGVFVLCSSSKSCATNDLAR
ASKEYLPASTFKIPNAIIGLETGVKNEHQVFKWDGKPRAMKQWERDLTLRGAIQVS
AVPVFQIAREVGEVRMQKYLKKFSYGNQNISSGIDKFWLEGQLRISAVNQVEFLE

SLYLNKLSASKENQLIVKEALVTEAAPEYLVHSKTGFSGVGTESNPGVAWWVGWVE
KETEYFFAFNMDIDNESKLPLRKSIPTKIMESEGIIGG

SEQ ID No. 1111:

5 IACLSSTALAGSITENTSWNKEFSAEAVNGVFLCKSSSKSCATNDLARASKEYLPA
STFKIPNAIIGLETGVKNEHQVFKWDGKPRAMKQWERDLTLRGAIQVSAVPVFQQIT
REVGEVRMQKYLKKFSYGNQNISGGIDKFWLEDQLRISAVNQVEFLESYLNKLSAS
KENQLIVKEALVTEAAPEYLVHSKTGFSGVGTESNPGVAWWVGWVEKETEYFFA
FNMDIDNESKLPLRKSIPTKIMESEGIIGG

SEQ ID No. 1112:

10 IACLSSTALAGSITENTSWNKEFSAEAVNGVFLCKSSSKSCATNDLARASKEYLPA
STFKIPSAIIGLETGVKNEHQVFKWDGKPRAMKQWERDLTLRGAIQVSAVPVFQQIA
REVGEVRMQKYLKKFSYGNQNISGGIDKFWLEGQLRISAVNQVEFLESYLNKLSAS
KENQLIVKEALVTEAAPEYLVHSKTGFSGVGTESNPGVAWWVGWVEKETEYFFA
FNMDIDNESKLPLRKSIPTKIMESEGIIGG

SEQ ID No. 1113:

15 MIIRFLALLFSAVVLVSLGHAQEKTHESSNWGKYFSDFNAKGTIVVVDERTNGNSTS
VYNESRAQQRYSPASTFKIPHTLFALDAGAVRDEFHVFRWDGAKRSFAGHNQDQN
LRSAMRNSTVWVYQLFAKEIGENKARSYLEKLNIGNADPSTKSGDYWIDGNLAISA
NEQISILKKLYRNELPFRVEHQRLVKDLMIVEAKRDWILRAKTGWDGQMGWWVGW
20 VEWPTGPVFFALNIDTPNRMEDLHKREAIARAILQSVNALPPN

SEQ ID No. 1114:

MAIRIFAILFSTFVFGTFAHAQEGMRERSDWRKFFSEFQAKGTIVVADERQTDRVILV
FDQVRSEKRYSPASTFKIPHTLFALDAGAARDEFQVFRWDGIKRSFAAHNQDQDLR
SAMRNSTVWIYELFAKEIGEDKARRYLKQIDYGNADPSTSNGDYWIDGNLAAAEQ
25 IAFLRKLYHNELPFRVEHQRLVKDLMIVEAGRNLWILRAKTGWEGRIGWWVGWVEW
PTGPVFFALNIDTPNRMDDLKREAIVRILRSIEALPPNPAVNDAAR

SEQ ID No. 1115:

MKTFAAYVITACLSSTALASSITENTSWNKEFSAEAVNGVFLCKSSSKSCATNNLA
RASKEYLPASTFKIPSAIIGLETGVKNEHQVFKWDGKPRAMKQWERDLSLRGAIQV
30 SAVPVFQQIAREVGEVRMQKYLKKFSYGNQNISGGIDKFWLEGQLRISAVNQVEFL
ESLFLNKLASKENQLIVKEALVTEAAPEYLVHSKTGFSGVGTESNPGVAWWVGWV
EKGTEYFFAFNMDIDNENKLPLRKSIPTKIMASEGIIGG

SEQ ID No. 1116:

35 MKTFAAYVITACLSSTALASSITENTSWNKEFSAEAVNGVFLCKSSSKSCATNNLA
RASKEYLPASTFKIPNAIIGLETGVKNEHQVFKWDGKPRAMKQWERDLSLRGAIQV
SAVPVFQQIAREVGEVRMQKYLKKFSYGNQNISGGIDKFWLEDQLRISAVNQVEFLE
SLFLNKLASKENQLIVKEALVTEAAPEYLVHSKTGFSGVGTESNPGVAWWVGWVE
KGTEYFFAFNMDIDNENKLPLRKSIPTKIMASEGIIGG

SEQ ID No. 1117:

40 MKTFAAYVITACLSSTALASSITENTSWNKEFSAEAVNGVFLCKSSSKSCATNNLA
RASKEYLPASTFKIPNAIIGLETGVKNEHQVFKWDGKPRAMKQWERDLSLRGAIQV
SAVPVFQQIAREVGEVRMQKYLKKFSYGNQNISGGIDKFGLEGQLRISAVNQVEFLE
SLFLNKLASKENQLIVKEALVTEAAPEYLVHSKTGFSGVGTESNPGVAWWVGWVE
KGTEYFFAFNMDIDNENKLPLRKSIPTKIMASEGIIGG

SEQ ID No. 1118:

45 MKNTIHINFAIFLIANIYSSASASTDISTVASPLFEGTEGCFLLYDASTNAEIAQFNKA
KCATQMAPDSTFKIALSLMAFDAEIIDQKTIFKWDKTPKGM EIWNSNHTPKTWMQFS
VWVVSQEITQKIGLNKIKNYLKDFDYGNQDFSGDKERNNGLTEAWLESSLKISPEEQ
IQFLRKIINHNLVPKNSAIENTIENMYLQDLNSTKLYGKTGAGFTANRTLQNGWFEG
50 FIISKSGHKYVFSALTGNLGSNLTSSIAKKNAILNL

SEQ ID No. 1119:

ANIIYSSASASTDISTVASPLFEGTEGCFLLYDVSTNAEIAQFNKAKCATQMAPDSTF
 KIALSLMAFDAEIIDQKTIFKWDKTPKGM EIWNSNHTPKTWMQFSVWVVSQEITQKI
 GLNKIKNYLKDFDYGNQDFSGDKERNNGLTEAWLESSLKISPEEQIQFLRKIINHNL
 5 VKNSAIENTIENMYLQDLENSTKLYGKTGAGFTANRTLQNGWFEGFIISKSGHKYVF
 VSALTGNLGSNLTSSIKAKKNAITIL

SEQ ID No. 1120:

IFSLATFAHAQEGTLERSDWRKFFSEFQAKGTIVVADERQADRAMLVFDPVRSKKR
 YSPASTFKIPHTLFALDAGAVRDEFQIFRWDGVNRGFAGHNQDQDLRSAMRNSTV
 10 WVYELFAKEIGDDKARRYLLKIDYGNAYPSTSNGDYWIEGSLAISAEQIAFLRKLYR
 NELPFRVEHQRLVKDLMIVEAGRWNILRAKTGWEGRMGWVVGWVEWPTGSVFFA
 LNIDTPNRMDDLFRKREIVRAIL

SEQ ID No. 1121:

MIIRFLALLFSAVVLVSLGHAQDKTHESSNWGKYFSDFNAKGTIVVVDERTNGNSTS
 15 VYNESRAQQRYSPASTFKIPHTLFALDAGAVRDEFHVFRWDGAKRSFAGHNQDQD
 LRSAMRNSTVWVYQLFAKEIGENKARSYLEKLNYGNADPSTKSGDYWIDGNLAISA
 NEQISILKKLYRNELPFRVEHQRLVKDLMIVEAKRDWILRAKTGWWDGQMGWVVGW
 VEWPTGPVFFALNIDTPNRMEDLHKREIARAILQSVNALPPN

SEQ ID No. 1122:

MKKFILPIFSISILVSLSACSSIKTKSEDNFHISSQQHEKAISYFDEAQTQGVIIKEGK
 20 NLSTYGNALARANKEYVPASTFKMLNALIGLENHKATTNEIFKWDGKKRTYPMWEK
 DMTLGEAMALSAVPVYQELARRTGLELMQKEVKRVNFGNTNIGTQVDNFWLVGGL
 KITPVQEVNFADDLAHNRLPFKLETQEEVEKMMLLIKEVNGSKIYAKSGWGMGVTPQV
 GWLTGWVEQANGKKIPFSLNLEMKEGMSGIRNEITYKLENLGI

SEQ ID No. 1123:

MKKFILPIFSISILVSLSACSSIKTKSEDNFHISSQQHEKAISYFDEAQTQGVIIKEGK
 25 NLSTYGNALARANKEYVPASTFKMLNALIGLENHKATTNEIFKWDGKKRTYPMWEK
 DMTLGEAMALSAVPVYQELARRTGLELMQKEVKRVNFGNTNIGTQVDNFWLVGGL
 KITPVQEVNFADDLAHNRLPFKLETQEEVKMMLLIKEVNGSKIYAKSGWGMGVTPQV
 30 GWLTGWVEQANGKKIPFSLNLEMKEGMSGIRNEITYKSLENLGI

SEQ ID No. 1124:

MNKYFTCYVVASLFLSGCTVQHNLINEPSQIVQGHNQVIHQYFDEKNTSGVLVIQT
 DKKINLYGNALS RANTEYVPASTFKMLNALIGLENQKADINEIFKWKGEKRSFTAW
 KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVGGL
 35 KVTPIQEVEFVSQLAHTQLPFSEKVQANVKMMLLLEESNGYKIFGKTGWAMDIKPQV
 GWLTGWVEQPDGKIVAFALKMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1125:

MAIRIFAILFSIFSLATFAHAQEGTLERSDWRKFFSEFQAKGTIVVADERQADRAMLV
 FDPVRSKKRYSPASTFKIPHTLFALDAGAVRDEFQIFRWDGVNRGFAGHNQDQDLR
 40 SAMRNSTVWVYELFAKEIGDDKARRYLLKIDYGNADPSTSNGDYCIEGSLAISAEQ
 IAFLRKLYRNELPFRVEHQRLVKDLMIVEAGRWNILRAKTGWEGRMGWVVGWVE
 WPTGSVFFALNIDTPNRMDDLFRKREIVRAIL

SEQ ID No. 1126:

MKTFAAYVITACLSSTALASSITENTSWNKEFSAEAVNGVFVLCKSSSKSCATNNLA
 45 RASKEYLPASTFKIPNAIIGLETGVIKNEHQVFKWDGKPRAMKQWERDLSLRGAIQV
 SAVPVFQQIAREVGEVRMQKYLKKFSYGNQNISGGIDKFWLEGQLRISAVNQVEFL
 ESLFLNKL SASKENQLIVKEALVTEAAPEYLVHSGTGFSGVGTESNPGVAWWVGWV
 EKGTEVYFFAFNMDIDNENKLPLRKSIPTKIMASEGIIGG

SEQ ID No. 1127:

50 MAIRFLTILLSTFFLTSFVHAQEHVRLERSDWKKFFSDLRAEGAIVISDERQAEHALLVF

GQERAAKRYSPASTFKLPHTLFALDADAVRDEFQVFRWDGVKRSFAGHNQDQDLR
SAMRNSAVWVYELFAKEIGKDKARHYLKQIDYGNADPSTIKGDYWIDGNLEISAHEQ
ISFLRKLYRNQLPFQVEHQRLVKDLMITEAGRNWILRAKTGWEGRFGWWVGWVE
WPTGPVFFALNIDTPNRTDDLKREAIARAILRSIDALPPN

5 **SEQ ID No. 1128:**

MAIRIFAILFSIFSLATFAHAQEGTLERSDWRKFFSEFQAKGTIVVADERQADRAMLV
FDPVRSKKRYSPASTFKIPHTLFALDAGAVRDEFQIFRWDGVNRRGFAGHNQDQDLR
SAMRNSTVWVYELFAKEIGDDKARRYLLKIDYGNADPSTSNGDYWIEGSAISAQE
IAFLRKLYRNELPFRVEHQRLVKDLMIVEAGRNWILRAKTGWEGRMGWVVGWVE
10 WPTGSVFFALNIDTPNRMDDLKREAIVRAILRSIEALPPNPAVNDAAR

SEQ ID No. 1129:

MKKFILPIFSISILVSLSACSSIKTKSEDNFHISSQQHEKAIKSYFDEAQTQGVIIKEGK
NLSTYGNALARANKEYVPASTFKMLNALIGLENHKATTNEIFKWDGKKRTYPMWEK
DMTLGEAMALSAVPVYQELARRTGLELMQKEVKRVNFGNTNIGTQVDNFWLVGPL
15 KITPVQEVNFADDLAHNRLPFKLETQEEVKKMLLIKEVNGSKIYAKSGWGMGVTPQV
GWLTGWVEQANGKKIPFSLNLEMKEGMSGIRNEITYKSLENLGI

SEQ ID No. 1130:

MAIRFLTILLSTFFLTSTFVHAQEHVLERSDWWKFFSDDLRAEGAIVISDERQAEHALLV
GQERAAKRYSPASTFKLPHTLFALDADAVRDEFQVFRWDGVKRSFAGHNQDQDLR
20 SAMRNSAVWVYELFAKEIGEDKARRYLLKIDYGNADPSTIKGDYWIDGNLEISAHEQ
ISFLRKLYRNQLPFQVEHQRLVKDLMITEAGRNWILRAKTGWEGRFGWWVGWVE
WPTGPVFFALNIDTPNRTDDLKREAIARAILRSIDALPPN

SEQ ID No. 1131:

MAIRFFTILLSTFFLTSTFVYAQEHVVIRSDWWKFFSDDLQAEGAIVIADERQAKHTLSVF
25 DQERAAKRYSPASTFKIPHTLFALDADAVRDEFQVFRWDGVNRSFAGHNQDQDLR
SAMRNSTVWVYELFAKDGEDKARRYLLKIDYGNVDPSTIKGDYWIDGNLKISAHEQ
ILFLRKLYRNQLPFKVEHQRLVKDLMITEAGRSWILRAKTGWEGRFGWWVGWIEW
PTGPVFFALNIDTPNRTDDLKREAIARAILRSIDALPPN

SEQ ID No. 1132:

MNKYFTCYVVASLFLSGCTVQHNLINETPSQIVQGHNQVIHQYFDEKNTSGVLVIQT
30 DKKINLYGNALSRANTEYVPASTFKMLNALIGLENQKTDINEIFKWKGKRSFTAW
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVERIGFGNAEIGQQVDNFWLVGPL
KVTPIQEVFVSQLAHTQLPFSEKVQANVKNMLLLEESNGYKIFGKTGWAAMDIKPO
VGWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

35 **SEQ ID No. 1133:**

MAIQIFAILFSTFVLATFAHAQDGTLLERSDWWGKFFSDFQAKGTIVVADERQADHAILV
FDQARSMKRYSPASTFKIPHTLFALDAGAVRDEFQIFRWDGVKRSFAGHNKDQDLR
SAMRNSTVWVYELFAKEIGDGKARRYLLKQIGYGNADPSTSHGDYWIEGSLAISAQE
QIAFLRKLYQNDLPFRVEHQRLVKDLMIVEAGRNWILRAKTGWEGSMGWVVGWV
40 EWPTGPVFFALNIDTPNRMDDLKREAIARAILLSIEALPPNPAVHSDAAR

SEQ ID No. 1134:

MKNTIHINFAIFLIANIYSSASASTDISTVASQLFEGTEGCFLLYDASTNAEIAQFNKA
KCAAQMAPDSTFKIALSLMAFDAEIIDQKTIFKWDKIPKGMIEWNSNHTPKTWMQFS
VWVVSQEITQKIGLNKIKNYLKDFDYGNQDFSGDKERNNGLTEAWLESSLKISPEEQ
45 IQFLRKIINHNLPRVNSAIENTIDNMYLQDLENSTKLYGKTGAGFTANRTLQNGWFEG
FIISKSGHKYVVSALTGSLGSNLTSSIAKKNAITILNTLNL

SEQ ID No. 1135:

MLLFMFSIISFGNENQFMKEIFERKGLNGTFVVYDLKNDKIDYYNLDRANERFYPASS
FKIFNTLIGLENGIVKNVDEMFFFFYDGSKVFLDSWAKDSNLRYAIKVSQVPAYKKLAR
50 ELGKERMQEGLNKLNYGNKEIGSEIDKFWLEGPLKISAMEQVKLLNLLSQSKLPFKL

ENQEQVKDITILEKKDDFILHGKTGWATDNIVVPIGWVFGWIETSDNIYSFAINLDISD
SKFLPKREEIVREYFKNINVIK

SEQ ID No. 1136:

5 MRVLALSAVFLVASIIGMPAVAKEWQENKSWNAHFTEHKSQGVVVLWNENKQQGF
TNNLKRANQAFLPASTFKIPNSLIALDLGVVKDEHQVFKWDGQTRDIATWNRDHNLI
TAMKYSVVPVYQEFARQIGEARMSKMLHAFDYGNEDISGNVDSFWLDGGIRISATE
QISFLRKLYHNKLHVSESRQIVKQAMLTEANGDYIIRAKTGYSTRIEPKIGWWVGW
VELDDNWVFFAMNMDMPTSDGLGLRQAITKEVLKQEKIIP

SEQ ID No. 1137:

10 MLSRYSKTLAFAVVACTLAISTATAHAELVVRNDLKRVDAGVSGTFVLMDITADR
TYVVDPARAARSIHPASTFKIPNSLIAFDTGAVRDDQEVLPYGGKPPQYEQWEHDM
ALPEAIRLSAVPIYQEVARRVGFERMQAYVDAFDYGNRQLGSAIDQFWLRGPLEISA
FEEARFTSRMALKQLPVKPRTWDMVQRMILLIEQQGDAALYAKTGVALEYQPEIGW
WAGWVERAGHVYAFAFNIDMPREGDMAKRIPLGKQLMRALEVWPAP

SEQ ID No. 1138:

15 MRPLLFSALLLLSGHTQASEWNDSQAVDKLFGAAGVKGTFLYDVQRQRYVGHDR
ERAETRFVPASTYKVANSLIGLSTGAVRSADDEVLPYGGKPPQRFKAWEHDMSLRDAI
KASNVPVYQELARRIGLERMRANVSRLGYGNAEIGQVVDNFWLVGPLKISAMEQTR
FLLRLAQGELPFPAPVQSTVRAMTLLSESGPGWELHGKTGWCFDCTPELGWWVGW
20 VKRNERLYGFALNIDMPGGEADIGKRVELGKASLKALGILP

SEQ ID No. 1139:

MNKGHLHRKRLSKRLLLPMLLCLLAQQTQAVAAEQTKVSDVCSEVTAEGWQEVRRW
DKLFESAGVKGSLLLWDQKRSGLSNNLSRAAEGFIPASTFKLPSSLIALETGAVRD
ETSRFSWDGKVVREIAVWNRDQSFRTAMKYSVVPVYQQAREIGPKVMAAMVRQLE
25 YGNQDIGGQADSFWLDGQLRITAFQQVDFLRQLHDNKLPSERSQRIVKQMMMLTE
ASTDYIIRAKTGYGVRRTPAIGWWVGWLELDDNTVYFAVNLDLASASQLPLRQQLV
KQVLKQEQLLP

SEQ ID No. 1140:

30 MNTIISRRWRAGLWRRRLVGAVVLPATLAATPAAYAADVPAALGRITERADWGKLF
AAEGVKGTIVVLDARTQTYQAYDAARAEKRMSASTYKIFNSLLALD SGALDNERAII
PWDGKPRRIKNWNAAMDRLTAFRVSCLPCYQVVS HKIGRRYAQAKLNEVGYGNRT
IGGAPDAYWVDDSLQISAREQVDFVQRLARGTLPFSARSQDIVRQMSIVEATPDYVL
HGKTGWVFDKKPDIGWWVGWIERDGNITSVAINIDMLSEADAPKRARIVKAVLKDLK
LI

SEQ ID No. 1141:

35 MKTFAAYVITACLSSTALASSITENTFWNKEFSAEAVNGVFVLCKSSSKSCATNNLA
RASKEYLPASTFKIPNAIIGLETGVKNEHQIFKWDGKPRAMKQWERDLSLRGAIQVS
AVPVFQQIAREVGEVRMQKYLKKFSYGNQONISGGIDKFWLEGQLRISAVNQVEFLE
SLFLNKL SASKENQLIVKEALVTEAAPEYLVHSKTGFSGVGTESNPGVAWWVGWVE
40 KGAEVYFFAFNMDIDNENKLPLRKS IPTKIMASEGIIGG

SEQ ID No. 1142:

MRVLALSAVLVVASIVGMPAMANEWQEKPSWNTHFSEHKAQGVIVLWNENKQQGF
TNNLKRANQAFLPASTFKIPNSLIALDLGVVKDEHQVFKWDGQTRDIAAWNDRDHLI
TAMKYSVVPVYQEFARQIGQARMSKMLHAFDYGNEDISGNLDSFWLDGGIRISATE
45 QVAFLRKLYHNKLHVSESRQIVKQAMLTEANSDYIIRAKTGYSTRIEPQIGWWVGW
VELDDNWVFFAMNMDMPTADGLGLRQAITKEVLKQEKIIP

SEQ ID No. 1143:

MKKITLFLLLNLVFGQDKILNNWFKEYNTSGTFVFDGKTWASNDFS RAMETFSPA
STFKIFNALIALDSGVIKTKKEIFYHYRGEKVFLSSWAQDMNLSSAIKYSNVLAFKEVA
50 RRIKIKTMQEYLNKLHYGNAKISKIDTFWLDNSLKISAKEQAILLFRLSQNSLPFSQEA

MNSVKEMIYLNKMNENLELFGKTGFNDGQKIAWIVGVYVKDENKYKAFALNLDIDKF
EDLYKREKILEKYLDELVKVKVNDG

SEQ ID No. 1144:

5 MSKKNFILIFIVILISCKNTEKISNETTLIDNIFTNSNAEGTLVIYNLNDCKYIIHNKERAE
QRFYPASTFKIYNSLIGLNEKAVKDVDEVFYKLMKSFLESWAKDSNLRYAIKNSQV
PAYKELARRIGIKMKENIEKLDFGNKSIGDSVDTFWLEGPLEISAMEQVKLLTKLAQ
NELQYPIEQKAISDITITRANLHITLHGKTGLADSKNMTTEPIGWFGVWLEENDNIYV
FALNIDNINSDDLAKRINIVKESLKALNLLK

SEQ ID No. 1145:

10 MNKYFTCYVVASLFLSGCTVQHNLINETPSQIVQGHNQVIHQYFDEKNTSGVLVIQT
DKKINLYGNALSRANTEYPASTFKMLNALIGLENQKTDINEIFKWKGKERSFTawe
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVGPL
KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMLLLEESNGYKIFGKTGWAMDIKPQV
GWLTGWVEQPDGKIVAFALKMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1146:

15 MNIQALLLITSAIFISACSPYIVTANPNYSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
NMTLGDAMKASAIPVYQDLARRIGLELMSNEVKRIGYGNADIGTQVDNFWLVGPLKI
TPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
20 GWLTGWVVQPQGNIVAFSLNLEMKKGISSSVRKEITYRGLEQLGIL

SEQ ID No. 1147:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDEKGEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
25 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1148:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKRLFPEWEK
30 DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1149:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKRLFPEWEK
35 DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1150:

40 MNIKALLLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
NMTLGDAMKASAIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQEVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1151:

45 MNIKALLLITSAIFISACSPYIVTANPNHSASKSDDKAEKIKNLFNEAHTTGVLVIHQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGEKRLFPEWEK
NMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
50 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1152:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDKKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWNGQKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQHEVQSMLFIEEKNGNKIYAKSGWGWVDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1153:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKTTTTEVFKWDGQKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1154:

MNIKALLLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTAVFKWDGQKRLFPEWEK
NMTLGDAMKASAIIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGTPSSVRKEITYKSLEQLGIL

SEQ ID No. 1155:

MNIKALLLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
NMTLGDAMKASAIIPVYQDLPRRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1156:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEKLIL

SEQ ID No. 1157:

MNIKTLLITSTIFISACSPYIVTANPNHSTSKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASIEYVPASTFKMLNALIGLEHHKATTTEIFKWDGQKRLFPEWEK
MTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLKIT
PQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVDPQVG
WLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1158:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLAGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1159:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAMKASALPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPL
KITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQ
VGWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1160:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDDKAEEKIKNLFNEAHTTGVLVIHQGQ

TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGGEKRLFPEWEK
NMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGSVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

5 **SEQ ID No. 1161:**

MNIKTLLITSTIFISACSPYIVTANPNHSTSKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASIEYVPASTFKMLNALIGLEHHKATTTEIFKWDGQKRLFPEWEKD
MTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLKIT
PQQEAQFAYKLANKTLPFSLKAQDEVQSMLFIEEKNGNKIYAKSGWGWVDVDPQVG
10 WLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1162:

MNIKALLITSAIFISACSPYIVTANPNHSASKSDKKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
15 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1163:

MNIKTLLITSAIFISACSHYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
20 NMTLGDAMKASAIIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFTYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1164:

MNIKALLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
25 TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
NMTLGDAMKASAIIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1165:

30 MNIKALLITSTIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALISLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

35 **SEQ ID No. 1166:**

MNIQALLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
40 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPHGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1167:

MNIKALFLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
45 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1168:

MKLLKILSLVCLISISIGACAEHMSRAKTSTIPQVNNSIIDQNVQALFNEISADAVFVTY
DGQNIKKYGTSLDRAKTAYIPASTFKIANALIGLENHKATSTEIFKWDGKPRFFKAWD
50 KDFTLGEAMQASTVPVYQELARRIGPSLMQSELQRIGYGNMQMGTEVDQFWLKGP

LTITPIQEVKFVYDLAQQQLPFKPEVQQQVKEMLYVERRGENRLYAKSGWGMAVD
PQVGWYVGFVEKADGQVVAFALNMQMKAGDDIALRKQLSLDVLDKLGVFHYL

SEQ ID No. 1169:

5 MNIKALLITSTIFISACSPYIVTANPNHSTSKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEIFKWDGQKRLFPEWEK
DMTLGDAMKASAIPIVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANKTLPFSLKVQDEVQSMLFIEEKNGNKIYAKSGWGWDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1170:

10 MNIKTLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEVHTTGVLVIRQQG
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAMKASAIPIVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANKTLPFSPKVQDEVQSMLFIEEMNGNKIYAKSGWGWDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1171:

15 MKLLKILSLVCLISISIGACAEHSMRAKTSTIPQVNNSIIDQNVQALFNEISGDAVFVTY
DGQNIKKYGTHLDRAKTAYIPASTFKIANALIGLENHKATSTEIFKWDGKPRFFKAWD
KDFTLGEAMQASTVPVYQELARRIGPSLMQSELQRIGYGNMQIGTEVDQFWLKGPL
TITPIQEVKFVYDLAQQQLPFKPEVQQQVKEMLYVERRGENRLYAKSGWGMAVDP
20 QVGWYVGFVEKADGQVVAFALNMQMKAGDDIALRKQLSLDVLDKLGVFHYL

SEQ ID No. 1172:

MKKFILPIFSISILVLSACSSIKTKSEDNFHISSQQHEKAISYFDEAQTQGVIIKEGK
NLSTYGNALARANKEYVPASTFKMLNALIGLENHKATTNEIFKWDGKKRTYPMWEK
DMTLGEAMALSAPVYQELARRTGLELMQKEVKRVNFGNTNIGTQVDNFWLVGPKL
25 KITPVQEVNFADDLAHNRLPFLKETQEEVKKMLLIKEVNGSKIYAKSGWGMDVTPQV
GWLTGWVEQANGKKIPFSLNLEMKEGMSGIRNEITYKSLENLGII

SEQ ID No. 1173:

MAIRIFAILFSIFSLATFAHAQEGTLERSDWRKFFSEFQAKGTIVVADERQADRAMLV
FDPVRSKKRYSPASTFKIPHTLFALDAGAVRDEFQIFRWDGVNRGFAGHNQDQDLR
30 SAMRNSTVWVYELFAKEIGDDKARRYLLKIDYGNADPSTSNNGDYWIESSLAISAE
QIAFLRKLYRNELPFRVEHQRLVKDLMIVEAGRNWILRAKTGWEGRMGWVVGWVE
WPTGSVFFALNIDTPNRMDDLKREAIVRILRSIEALPPNPAVNSDAAR

SEQ ID No. 1174:

MNIKALLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
35 TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
NMTLGDAMKASAIPIVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1175:

40 MNIKALLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAILVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPKL
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1176:

45 MNIKALLITSAIFISACSPYIVTANPNHSASKSDKKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWNGQKRLFPEWEK
DMTLGDAMKASAIPIVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWDVDPQV
50 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1177:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDDKAEEKIKNLFNEAHTTGVLVIHQGG
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGGEKRLFPWEK
NMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
5 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1178:

MNIKALLLITSAIFISACSPYIVTTNPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPWEK
10 DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1179:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPWEK
15 DMTLGDAMKASAIQVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1180:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDDKAEEKIKNLFNEAHTTGVLVIHQGG
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGGEKRLFPWEK
20 NMTLGDAMKASALPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPL
KITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQ
VGWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1181:

MNIKTLLLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPWEK
25 DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEMNGNKIYAKSGWGWVDVDPQV
30 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1182:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDDKAEEKIKNLFNEAHTTGVLVIHQGG
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGGEKRLFPWEK
NMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
35 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFPLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1183:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPWEK
40 DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGGDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1184:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPWEK
45 DMTLGDAMKASAILVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLKI
TPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1185:

50 MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ

TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRFLPEWEK
DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVNPQV
GWLTDGWWVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

5 **SEQ ID No. 1186:**

MNIKALLITS AIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKTTTTEVFKWDGQKRLFPWEK
DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVDPQV
10 GWLTDGWWVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1187:

MSKKNFILIFIVILISCKNTEKISNETTLIDNIFTNSNAEGTLVIYNLNDDKYIIHNKERAE
QRFYPASTFKIYNSLIGLNEKAVKDVDEVFYKYNGEKVFLESWAKDSNLRYAIKNSQ
VPAYKELARRIGLKKMKENIEKLDGNGSIGDSVDTFWLEGPLEISAMEQVKLLTKLA
15 QNELPYPIEQKAVSDITILEQTYNYTLHGKTGLADSKNMTTEPIGWFWVGWLEENDNI
YVFALNIDNINSDDLAKRINIVKESLKALNLLK

SEQ ID No. 1188:

MSKKNFILIFIVILTSCKNTEKISNETTLIDNIFTNSNAEGTLVIYNLNDDKYIIHNKERA
EQRFYPASTFKIYNSLIGLNEKAVKDVDEVFYKYNGEKVFLESWAKDSNLRYAIKNS
20 QVPAYKELARRIGLKKMKENIEKLDGNGSIGDSVDTFWLEGPLEISAMEQIKLLTKL
AQNELPYPIEQKAVSDITILEQTYNYTLHGKTGLADSKNMTTEPIGWFWVGWLEENDN
IYVFALNIDNINSDDLAKRINIVKESLKALNLLK

SEQ ID No. 1189:

LLITS AIFISACSPYIVSANPNHSASKSDDKAEEKIKNLFNEAHTTGVLVIQQGQTQQSY
25 GNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPWEK NMTLG
DAMKASAIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLKITPQQ
EAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVDPQVGWLT
GWVVPQGNIVAFSLNLEMKKGIPSSVRKEITYKSL

SEQ ID No. 1190:

LLITS AIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQTQQSY
30 GNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPWEK NMTLG
DAMKASAIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLKITPQQ
EAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVNPQVGWLT
EWWVVPQGNIVAFSLNLEMKKGIPSSVRKEITYKSL

35 **SEQ ID No. 1191:**

MTVRRRLSCALGAALSLSALGGGPVQAAVLCTVVADAADGRILFQQGTQQACAERYT
PASTFKLAIALMGADAGILQGPHEPVWNYQPAYPDWGGDAWRQPTD PARWIKYSV
VWYSQLTAKALGQDRFQRYTSAFGYGNADVSGEPGKHNGTDGAWIISSLRISPLEQ
LAFLRKL VNRQLPVKAAAYELAENLFEAGQADGWRLYGKTGTGSPGSNGVYTAAN
40 AYGWFWVGWARKDGRQLVYARLLQDERATRPNAGLRARDELVRDWPAMAGAWRP

SEQ ID No. 1192:

MNIKALLITS AIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNVLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPWEK
NMTLG DAMKASAIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLK
45 ITPQQEAQFAYKLANKTLPFSQEVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVNPQV
GWLTDGWWVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1193:

MKTFAAYVIIACLSSTALAGSITENTSWNKEFSAEAVNGVFLCKSSSKSCATNDLAR
ASKEYLPASTFKIPSAIIGLETGVIKNEHQVFKWDGKPRAMKQWERDLTLRGAIQVS
50 AVPVFQQIAREVGEVRMQYLLKFSYGNQNISSGIDKFWLEDQLRISAVNQVEFLES

LYLNKLSASKENQLIVKEALVTEAAPEYLVHSKTGFSGVGTESNPGVAWWVGWVEK
ETEYVFFAFNMDIDNESKLPLRKSIPTKIMESEGIIGG

SEQ ID No. 1194:

5 MNIKTLLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1195:

10 MNIKALLLITSAIFISACSPYIVTTNPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNTDIGTQVDNFWLVGPLKI
TPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1196:

15 MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAVPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPL
KITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWDVNPQ
20 QVGWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1197:

MNIKTLLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEVHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
25 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEMTYKSLEQLGIL

SEQ ID No. 1198:

MNKYFTCYVVASLFFSGCTVQHNLINETQSQIVQGHNQVIHQYFDEKNTSGVLVIQT
DKKINLYGNALS RANTEYVPASTFKMLNALIGLENQKTDINEIFKWKG EKRSFTTWE
30 KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVERIDFGNAEIGQQVDNFWLIGPLK
VTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEENNGYKIFGKTGWAMDIKPQV
GWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1199:

MNKYFTCYVVASLFLSGCTVQHNLINETPSQIVQGHNQVIHQYFDEKNTSGVLVIQT
35 DKKINLYGNALS RANTEYVPASTFKMLNALIGLENQKTDINEIFKWKG EKRSFTAWE
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVGPL
KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAAMDIPQ
VGWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1200:

40 MKTFAAYVITACLSSTALASSITENTSWNKEFSAEAVNGVFLCKSSSKSCATNNLA
RASKEYLPASTFKIPNAIIGLETGVKNEHQVFKWDGKPRAMKQWERDLSLRGAIQV
SAVPVFQQIAREVGEVRMQKYLKKFSYGNQNISGGIDKFLLEGQLRISAVNQVEFLE
SLFLNKLSASKENQLIVKEALVTEAAPEYLVHSKTGFSGVGTESNPGVAWWVGWVE
KGTEVYFFAFNMDIDNENKLPLRKSIPTKIMASEGIIGG

SEQ ID No. 1201:

45 MAIRIFAILFSIFSLATFAHAQEGTLERSDWRKFFSEFQAKGTIVVADERQADRAMLV
FDPVRSKKRYSPASTFKIPHTLFALDAGAVRDEFQIFRWDGVNRRGFAGHNQDQDLR
SAMRNSTVWVYELFAKEIGDDKARRYLLKKIDYGDADPSTSNGDYWIEGSLAISAE
QIAFLRKLYRNELPFRVEHQRLVKDLMIVEAGRNWILRAKTGWEGRMGWVVGWVE
50 WPTGSVFFALNIDTPNRMDDLKREAIVRILRSIEALPPNPAVNDAAR

SEQ ID No. 1202:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDKKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKASTTEVFKWNGQKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPKL
5 ITPQQEAQFAYKLANCTLFPFSQKVQDEVQSMLFIEEKNGNKKIYAKSGWGWWDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1203:

MNIKALLLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
10 NMTLGDAMKASAIIPVYQDLARRIGLELMSNEVKHVGYNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANCTLFPSPKVQDEVQSMLFIEEKNGNKKIYAKSGWGWWDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1204:

MNIKALLLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
15 NMTLGDAMKASAIIPVYQDLARRIGLELMSNEVKHVGYNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANCTLFPFSQKVQDEVQSMLFIEEKNGNKKIYAKSGWGWWDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1205:

MKKFILPILSISTLLSVSACSSIQTKFEDTFHTSNQQHEKAIKSYFDEAQTQGVIIKKG
KNISTYGNLTRAHTEYVPASTFKMLNALIGLENHKATTTEIFKWDGKKRSYPMWEK
DMTLGDAMALSAVPVYQELARRTGDLMQKEVKRVGFGNMNIGTQVDNFWLVGPKL
KITPIQEVNFADDFANNRLPFKLETQEEVKMLLIKEFNGSKIYAKSGWGMVDTPQV
20 GWLTGWVEKSNGEKVAFSLNIEMKQGMPSIRNEITYKSLENLGII

SEQ ID No. 1206:

MNIKALLLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
NMTLGDAMKASAIIPVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANCTLFPFSQEVQDEVQSILFIEEKNGNKKIYAKSGWGWWDVNPQV
30 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1207:

MKKFILPISILVLSACSSIKTKSEDNFHISSQQHEKAIKSYFDEAQTQGVIIKEGK
NLSTYGNALARANKEYVPASTFKMLNALIGLENHKATTNEIFKWDGKKRTYPMWEK
DMTLGEAMALSAVPVYQELARRTGLELMQKEVKRVNFGNTNIGTQVDNFWLVGPKL
KITPVQEVNFADDLAHLNRLPFKLETQEEVKMLLIKEVNGSKIYAKSGWGMGVTSQV
35 GWLTGWVEQANGKKIPFSLNLEMKEGMSGIRNEITYKSLENLGII

SEQ ID No. 1208:

MRVLALSAVFLVASIIGMPAVAKEWQENKSWNAHFTEHKSQGVVVLWNENKQQGF
TNNLKRANQAFLPASTFKIPNSLIALDLGVVKDEHQVFKWDGQTRDIATWNRDHNLI
40 TAMKYSVVPVYQEFARQIGEARMSKMLHAFDYGNEDISGNVDSFWLDGGIRISATE
QISFLRKLYHNKLHVSERSQRIVKQAMLTEANGDYIIRAKTGYSARIEPKIGWWVGW
VELDDNVWFFAMNMDMPTSDGLGLRQAITKEVLKQEKIIP

SEQ ID No. 1209:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
45 DMTLGDAMKASAVPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPKL
KITPQQEAQFAYKLANCTLFPFSQKVQDEVQSMLFIEEKNGNKKIYAKSGWGLDVNPQ
VGWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1210:

50 MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ

TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAVPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPL
KITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGLDVNLQ
VGWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

5 **SEQ ID No. 1211:**

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
10 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEKLGIL

SEQ ID No. 1212:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIRNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
15 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1213:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDSKKRLFPEWEK
20 DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1214:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRLFPEWEK
25 DMTLGDAMKASAIIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDGVQSMLFIEEKNGNKIYAKSGWGWVDVNPQ
VGWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1215:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDSKKRLFPEWEK
30 DMTLGDAMKASAILVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLKI
TPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

35 **SEQ ID No. 1216:**

MKLLKILSLVCLSIGACAEHSMSRAKTSTIPQVNNNSIIDQNVQALFNEISADAVFVTY
DGQNIKKYGTHLDRAKTAYIPASTFKIANALIGLENHKATSTEIFKWDGKPRFLKAWD
KDFTLGEAMQASTVPVYQELARRIGPSLMQSELQRIGYGNMQIGTEVDQFWLKGPL
TITPIQEVKFVYDLAQGQLPFKPEVQQQVKEMLYVERRGENRLYAKSGWGMAVDP
40 QVGWYVGFVEKADGQVAFALNMQMKAGDDIALRKQLSLDVLDKLGVFHYL

SEQ ID No. 1217:

MNKYFTCYVVASLFLSGCTVQHNLINEPQSIVQGHNQVIHQYFDEKNTSGVLVIQT
DKKINLYGNALSRANTEYVPASTFKMLNALIGLENQKTDINEIFKWKGKRSFTAWE
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVGPL
45 KVTPIQEVFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAMDVKPQ
VGWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1218:

MNKYFTCYVVASLFLSGCTVQHNLINEPQSIVQGHNQVIHQYFDEKNTSGALVIQT
DKKINLYGNALSRANTEYVPASTFKMLNALIGLENQKTDINEIFKWKGKRSFTAWE
50 KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVGPL

KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAMDIKPQV
GWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1219:

5 MNKYFTCYVVASLFLSGCTVQHNLINETPSQIVQGHNQVIHQYFDEKNTSGVLVIQT
DKKINLYGNALSRANTEYVPASTFKMLNALIGLENQKTDINEIFKWKGEKRSFTAW
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVG
KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAMDIKPQV
GWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELMMKSLKQLNII

SEQ ID No. 1220:

10 MNKYFTCYVVASLFLSGCTVQHNLINETPSQIVQGHNQVIHQYFDEKNTSGVLVIQT
DKKINLYGNALSRANTEYVPASTFKMLNALIGLENQKTDINEIFKWKGEKRSFTAW
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVG
KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAMDIKPQV
GWLAWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1221:

15 MNKYFTCYVVASLFLSGCTVQHNLINETPSQIVQGHNQVIHQYFDERNTSGVLVIQT
DKKINLYGNALSRANTEYVPASTFKMLNALIGLENQKTDINEIFKWKGEKRSFTAW
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVG
KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAMDIKPQV
20 GWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1222:

25 MNKYFTCYVVASLFLSGCTVQHNLINETPSQIVQGHNQVIHQYFDEKNTSGVLVIQT
DKKINLYGNALSRANTEYVPASTFKMLNALIGLENQKTDINEIFKWKGEKRSFTAW
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVG
KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAMDIKPQV
GWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1223:

30 MNKYFTCYVVASLFLSGCTVQHNLINETPSQIVQGHNQVIHQYFDEKNTSGVLVIQT
DKKINLYGNALSRANTEYVPASTFKMLNALIGLENQKTDINEIFKWKGEKRSFTAW
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVG
KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAMDIKPQV
GWLTGWVEQPDGKIVAFALNMEMRSEMPASTRNELLMKSLKQLNII

SEQ ID No. 1224:

35 MKKFILPISISILLSACSSIQTKFEDTFHISNQKHEKAISYFDEAQTQGVIIIKEGKN
ISSYGNNLVRAHTEYVPASTFKMLNALIGLENHKATTNEIFKWDGKKRSYPMWEKD
MTLGEAMALSAPVYQDLARRIGLNLQMKEVKRVGFGNMNIGTQVDNFWLIGPLKI
TPIQEVNFADDLANNRLPFKLETQEEVKKMLLIKEVNGSKIYAKSGWGMVDVSPQVG
WLTGWVEKSNGEKVSFSLNIEMKQGMMSGIRNEITYKSLENLGII

SEQ ID No. 1225:

40 MNIKALLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAMKASAIYVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVG
ITPQQEAQFAYKLANKTLPFSPKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1226:

45 MNIKALLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAIKASAIYVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVG
TPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVDPQV
50 GWLTGWVVQPQGNIVAFSLNLEMKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1227:

MKILIFLPLLSCLGLTACSLPVSSLPSSQISSTQAIASLFDQAQSSGVLVIQRDQQVQVY
GNDLNRANTEYVPASTFKMLNALIGLQHKGATTNEIFKWDGKKRSFTAWEKDMTLG
QAMQASAVPVYQELARRIGLELMQQEVQRIQFGNQQIGQQVDNFWLVGPLKVTPK
5 QEVQFVSALAREQLAFDPQVQQQVKAMFLQERKAYRLYVKSQGWGMDVEPQVGW
LTGWVETPQAEIVAFSLNMQMONGIDPAIRLEILQQALAEGLYPKAEG

SEQ ID No. 1228:

MHKHMSKLFIAFLAFLLSVPAAAEDQTLAELFAQQGIDGTIVISSLHNGKTFIHNDPRA
KQRFSTASTFKILNTLISLEEKASGKDDVLKWDGHIYDFPDWNRDQTLESFAKVSCV
10 WCYQALARQVGAEKYRNYLRKSVYGELEPFEETTFWLDGSLQISAIEQVNFLKKV
HLRTLPPFSASSYETLRQIMLIEQTPAFTLRKTGWATRVKPOVGWYVGHVETPTDV
WFFATNIEVRDEKDLPLRQKLTRKALQAKGIIE

SEQ ID No. 1229:

MKTFAAYVITACLSSTALASSITENTSWNKEFSAEAVNGVFLCKSSSKSCATNNLA
15 RASKEYLPASTFKIPNAIIGLETGVIKNEHQVFKWDGKPRAMKQWERDLSLRGAIQV
SAVPVFQQIAREVGEVRMOKYLKKFSYGNQNISSGGTDKFWLEDQLRISAVNQVEFL
ESLFLNKLKLSASKENQLIVKEALVTEAAPEYLVHSGTGFSGVGTESNPGVAWWVGWV
EKGTEVYFFAFNMDIDNENKLPLRKSIPTKIMASEGIIGG

SEQ ID No. 1230:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
20 TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRFPWEK
DMTLGDAMKASAILVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLKI
TPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGGLDVPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1231:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
25 TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRFPWEK
DMTLGDAMKASAIQVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQV
30 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1232:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRFPWEK
DMTLGDAMKASAMPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPL
35 KITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQ
VGWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1233:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEVHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRFPWEK
40 NMTLGDAMKASAIQVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPLK
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWVDVNPQ
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1234:

MRVLALSAVFLVASIIGMPAVAKEWQENKSWNAHFTEHKSQGVVVLWNENKQQGF
45 TNNLKRANQAFLPASTFKIPNSLIALDLGVVKDEHQVFKWDGQTRDIATWNRDHNLI
TAMKYSVVPVYQEFARQIGEARMSKMLHAFDYGNEIDISGNVDSFWLDGGIRISATE
QISFLRKLYHNKLHVSERSQRIVKQAMLTEANGDYIIRAKTGYDTKIGWWWVGWVELD
DNVWFFAMNMDMPTSDGLGLRQAITEVLKQEKIIP

SEQ ID No. 1235:

50 MSKKNFILIFIVILISCKNTEKTSNETTLIDNIFTNSNAEGTLVIYNLNDKYYIHNKERA

EQRFYPASTFKIYNLSLIGLNEKAVKDVDEVFYKYNGEKFVLESWAKDSNLRYAIKNS
 QVPAYKELARRIGLEKMKENIEKLDFGNKNIGDSVDTFWLEGPLEISAMEQVKLLTKL
 AQNELPYPIEQKAVSDITILEQTDNYTLHGKTGLADSENMTTEPIGWLVGWLEENNN
 IYVFALNIDNINSDDLAKRINIVKESLKALNLLK

5 **SEQ ID No. 1236:**

MNIKALFLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
 TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRFLPEWEK
 DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKKIYAKSGWGWWDVNPQV
 10 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1237:

MNIKALFLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
 TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRFLPEWEK
 DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
 15 ITPQQEAQFAYKLANKTLPSSQKVQDEVQSMLFIEEKNGNKKMYAKSGWGWWDVNPQ
 VGWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1238:

MNIKALFLITSAIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQQGQ
 TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRFLPEWEK
 20 DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
 ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKKIYAKSGWGWWDVNPQV
 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEIAYKSLEQLGIL

SEQ ID No. 1239:

MAIRIFAILFSIFSLATFAHAQEGTLERSDWRKFFSEFQAKGTIVVADERQADRAMLV
 25 FDPVRSKKRYSPASTFKIPHTLFALDAGAVRDEFQIFRWDGVNRGFAGHNQDQDLR
 SAMRNSTVWVYELFAKEIGDDKARRYLKIDYGNADPSTSNAGDCWIEGSLAISAE
 QIAFLRKLYRNELPFRVEHQRLVKDLMIVEAGRNWILRAKTGWEGRMGWVVGWVE
 WPTGSVFFALNIDTPNRMDDLKREAIVRILRSIEALPPNPAVNDAAR

SEQ ID No. 1240:

MNIKTLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEVHTTGVLVIQQGQ
 30 TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLPEWEK
 DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWVVGPLK
 ITPQQEAQFAYKLANKTLPFSPKVQDEVQSMLFIEEKNGNKKIYAKSGWGWWDVDPQV
 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

35 **SEQ ID No. 1241:**

MNIKTLLITSAIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEVHTTGVLVIQQGQ
 TQQSYGNDLARASTEYVPASTFKMLNALIGLEYHKATTTEVFKWDGQKRLPEWEK
 DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPLK
 40 ITPQQEAQFAYKLANKTLPFSPKVQDEVQSMLFIEEKNGNKKIYAKSGWGWWDVNPQV
 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1242:

MAIRFLTILLSTFFLTFSVHAQEHVVVRSDWKKFFSDLQAEGAIVIADERQAEHALLV
 FGQERAAKRYSPASTFKLPHTLFALDAGAVRDEFQVFRWDGVKRSFAGHNQDQDL
 RSAMRNSAVWVYELFAKEIGEDNARRYLKQIDYGNADPSTIKGNYWIDGNLEISAHE
 45 QISFLRKLYRNQLPFQVEHQRLVKYLMITEAGRNWILRAKTGWEGRFGWWIGWVE
 WPTGPVFFALNIDTPNRTDDLKREAIARAILRSIDALPPN

SEQ ID No. 1243:

MRVLALSAVFLVASIIGMPAVAKEWQENKSWNAHFTEHKSQGVVVLWNNENKQQGF
 TNNLKRANQAFLPASTFKIPNSLIALDLGVVKDEHQVFKWDGQTRDIAAWNDRDHLI
 50 TAMKYSVVPVYQEFARQIGEARMSKMLHAFDYGNEDISGNVDSFWLDGGIRISATQ

QIAFLRKLYHNKLHVSERSQRIVKQAMLTEANGDYIIRAKTGYSTRIEPKIGWWVGW
VELDDNVWFFAMNMDMPTSDGLGLRQAITKEVLKQEKIIP

SEQ ID No. 1244:

5 MNKYFTCYVVASLFLSGCTVQHNLINEPTSQIVQGHNQVIHQYFDEKNTSGVLVIQT
DKKINLYGNALSRANTEYPASTFKMLNALIGLENQKTDINEIFKWKGEKRSFTAW
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVG
KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAMDIKSQV
GWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1245:

10 MNIKALLITSIFISACSPYIVTANPNHSASKSDVKAEEKIKNLFNEAHTTGVLVIQGGQ
TQQSYGNDLARASTEYPASTFKMLNALIGLEHHKATTTEVFKWDGKKRFPPEWEK
DMTLGDAMKASAVISYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVG
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMFLFIEEKNGNKIYAKSGWGWVDVNPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1246:

15 MAIRIFAILFSIFSLATFAHAQEGTLERSDWRKFFSEFQAKGTIVVADERQADRAMLV
FDPVRSKKRYSPASTFKIPHTLFALDAGAVRDEFQIFRWDGVNRGFAGHNQDQDLR
SAMRNSTVWVYELFAKEIGDDKARRYLLKIDYGNADPSTSNNGDYWIEGSLAISAE
QIAFLRKLYRNELPFRVEHQRLVKDLMIVEAGRNWILRAKTGWEGRMGWWVGWVE
20 WPTGSVFFALNIDTPNRMDDLKREAIVRILRSIEALPPNPAVNSDAAR

SEQ ID No. 1247:

MKTIAAYLVLVFYASTALSESISENLAWNKEFSSESVHGVFVLCKSSSNSCTTNNA
RASTAYIPASTFKIPNALIGLETGAIKDERQVFKWDGKPRAMKQWEKDLKLRGAIQV
SAVPVFQQIAREVGEIRMQKYLNLFSYGNANIGGGIDKFWLEGQLRISAFNQVKFLE
25 SLYLNNLPASKANQLIVKEAIVTEATPEYIVHSGTGYSGVGTESSPGVAWWVGWVE
KGTEVYFFAFNMDIDNESKLPSRKSISTKIMASEGIIIGG

SEQ ID No. 1248:

MKTFAAYVITACLSSTALASSITENTFWNKEFSAEAVNGVFVLCKSSSKLACATNNLA
RASKEYLPASTFKIPNAIIGLETGVIKNEHQIFKWDGKPRAMKQWERDLSLRGAIQVS
30 AVPVFQQIAREVGEVRMQKYLKKFSYGNQNISGGIDKFWLEGQLRISAVNQVEFLE
SLFLNKLASKENQLIVKEALVTEAPEYLVHSGTGFSGVGTESNPGVAWWVGWVEK
GAEVYFFAFNMDIDNENKLPLRKSIPTKIMASEGIIIGG

SEQ ID No. 1249:

MAIRIFAILFSTFVFGTFAHAQEGMRERSDWRKFFSEFQAKGTIVVADERQTDRVILV
35 FDQVRSEKRYSPASTFKIPHTLFALDAGAARDEFQVFRWDGIKRSFAAHNQDQDLR
SAMRNSTVWIYELFAKEIGEDKARRYLLKQIDYGNADPSTSNNGDYWIDGNLAAAEQ
IAFLRKLYHNELPFRVEHQRLVKDLMIVEAGRNWILRAKTGWEGRMGWWVGWVE
WPTGPVFFALNIDTPNRMDDLKREAIVRILRSIEALPPNPAVNSDAAR

SEQ ID No. 1250:

40 MKTFAAYVIIACLSSTALAGSITENTSWNKEFSAEAVNGVFVLCKSSSKSCATNDLAR
ASKEYLPASTFKIPNAIIGLETGVIKNEHQVFKWDGKPRAMKQWERDLTLRGAIQVS
AVPVFQQIAREVGEVRMQKYLKKFSYGSQNISGGIDKFWLEDQLRISAVNQVEFLES
LYLNKLASKENQLIVKEALVTEAAPEYLVHSGTGFSGVGTESNPGVAWWVGWVEK
ETEYVYFFAFNMDIDNESKLPLRKSIPTKIMESEGIIIGG

SEQ ID No. 1251:

45 MNKYFTCYVVASLFLSGCTVQHNLINEPTSQIVQGHNQVIHQYFDEKNTSGVLVIQT
DKKINLYGNALSRANTEYPASTFKMLNALIGLENQKTDINEIFKWKGEKRSFTAW
KDMTLGEAMKLSAVPVYQELARRIGLDLMQKEVKRIGFGNAEIGQQVDNFWLVG
KVTPIQEVEFVSQLAHTQLPFSEKVQANVKNMMLLEESNGYKIFGKTGWAMDIKPQV
50 GWLTGWVEQPDGKIVAFALNMEMRSEMPASIRNELLMKSLKQLNII

SEQ ID No. 1252:

MKKLSVLLWLTIFYCGTIWAQSTCFLVQENQTVLKHEGKDCNKRFAPESTFKIALSL
MGFDSGILKDTLNPEWPYKKEYELYNVWKYPHNPRTWIRDSVWYSQVLTQQLG
MTRFKNYVDFAHYGNQDISGDKGQNNGLTHSWLSSSLAISPSEQIQFLQKIVNKKLS
5 VNPKAFTMTKDILYIQLAGGWKLYGKTGNRQLTKDKSQKLSLQHGWFIEWIEKD
GRVITFTKHIADSKKHVTFASFRAKNETLNQLFYLINELEK

SEQ ID No. 1253:

MNIKTLLITSIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEVHTTGVLVIQGGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
10 DMTLGDAMKASAIPVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANKTLPFSPKVQDEVQSMLEFIEEKNGNKIYAKSGWGWVDVPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1254:

MKFRHALSSAFVLLGCIAASAHAKTICTAIADAGTGKLLVQDGDGCGRRASPASTFKIA
15 ISLMGYDAGFLRNEHDPVLPYRDSYIAWGGEAWKQPTDPTRWLKYSVWWYSQQV
AHHLGAQRFAQYAKAFGYGNADVSGDPGQNNGLDRAWIGSSLQISPLEQLEFLGK
MLNRKLPVSPTAVDMTERIVESTTLADGTVVHGKTGVSYPPLADGTRDWARGSGW
FVGWIVRGNQTLVFARLTQDERKQPVSAIRTREAFRLDLPRLAAR

SEQ ID No. 1255:

MKFRHALSSAFVLLGCIAASAHAKTICTAIADAGTGKLLVQDGDGCGRRASPASTFKIA
20 ISLMGYDAGFLRNEHDPVLPYRDSYIAWGGEAWKQPTDPTRWLKYPVWWYSQQV
AHHLGAQRFAQYAKAFGYGNADVSGDPGQNNGLDRAWIGSSLQISPLEQLEFLGK
MLNRKLPVSPTAVDMTERIVESTTLADGTVVHGKTGVSYPPLADGTRDWARGSGW
FVGWIVRGKQTLVFARLTQDERKQPVSAIRTREAFRLDLPRLAAR

SEQ ID No. 1256:

MRGKHTVILGAALSALFAGAAGQMLECTLVADAASGQELYRKGACDKAFAPMSTF
KVPLAVMGYDAGILVDAHNPRWDYKPEFNGYKFQKTTDPTIWEKDSIVWYSQQLT
RKMGGKRFAYVAGFGYGNQDISGEPGKSNGLTHSWLGSSLKISPEGQVRFVRDL
LSAKLPASKDAQQMTVSILPHFAAGDWAVQGKTGTGSFIDARGAKAPLGWFIGWAT
30 HEERRVVFARMTAGGKKGEQPAGPAARDAFLKALPDIAKRF

SEQ ID No. 1257:

MKFRHALSSAFVLLGCIAASAHAKTICTAIADAGTGKLLVQDGDGCGRRASPASTFKIA
ISLMGYDAGFLRNEHDPVLPYRDSYIAWGGEAWKQPTDPTRWLKYSVWWYSQQV
AHHLGAQRFAQYAKAFGYGNADVSGDPGQNNGLDRAWIGSSLQISPLEQLEFLGK
35 MLDRKLPVSPTAVDMTERIVESTTLADGTVVHGKTGVSYPPLADGTRDWARGSGW
FVGWIVRGKQTLVFARLTQDERKQPVSAIRTREAFRLDLPRLAAR

SEQ ID No. 1258:

MKFRHALSSAFVLLGCIAASAHAKTICTAIADAGTGKLLVQDGDGCGRRASPASTFKIA
ISLMGYDAGFLRNEHDPVLPYRDSYIAWGGEAWKQPTDPTRWLKYSVWWYSQQV
40 AHHLGAQRFAQYAKAFGYGNADVSGDPGQNNGLDRAWIGSSLQISPLEQLEFLGK
MLNRKLPVSPTAVDMTERIVESTTLADGTVVHGKTGVSYPPLADGTRDWARGSGW
FVGWIVRGKQTLVFARLTQDERKQPVSAIRTREAFRLDLPRLAAR

SEQ ID No. 1259:

MKTFAAYVIIACLSSTALAGSITENTSWNKEFSAEAVNGVFVLCKSSSKSCATNDLAR
45 ASKEYLPVSTFKIPSAIIGLETGVINEHQVFKWDGKPRAMKQWERDLTRGAIQVS
AVPVFQQIAREVGEVRMQKYLKKFSYGNQNISGGIDKFWLEGQLRISAVNQVEFLE
SLYLNKLSASKENQLIVKEALVTEAAPEYLHVKSTGFSGVGTESNPGVAWWVGWVE
KETEVYFFAFNMIDIDNESKLPLRKSIPTKIMESEGIIGG

SEQ ID No. 1260:

50 MNIKALLITSIFISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQGGQ

TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGKKRRLFPEWEK
DMTLGDAMKASAIKVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

5 **SEQ ID No. 1261:**

MNIKALLLITSAIFISACSPYIVSANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
NMTLGDAMKASAIKVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVNPQV
10 GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

SEQ ID No. 1262:

MKTFAYVITACLSSTALASSITENTFWNKEFSAEAVNGVFLCKSSSKSCATNNLA
RASKEYLPASTFKIPNAIIGLETGVIKNEHQVFKWDGKPRAMKQWERDLRLGAIQV
SAVPVFQQIAREVGEVRMOKYLKFSYGNQNISSGIDKFWLEGQLRISAVNQVEFL
15 ESLFLNKLKLSASKENQLIVKEALVTEAAPEYLVHSGTGFSGVGTESNPGVAWWVGWV
EKGTEVYFFAFNMDIDNENKLPLRKSIPTKIMASEGIIGG

SEQ ID No. 1263:

MKTIAAYLVLVFFAGTALSSESISENLAWNKEFSSESVHGVFVLCKSSSNSCTTNNAT
RASTAYIPASTFKIPNALIGLETGAIKDARQVFKWDGKPRAMKQWEKDLTLRGAIQV
20 SAVPVFQQIARDIGKKRMOKYLNLFSGYGNANIGGGIDKFWLEGQLRISAVNQVKFLE
SLYLNNLPASKANQLIVKEAIVTEATPEYIVHSGTGYSGVGTESNPGVAWWVGWVE
KGTEVYFFAFNMDIDNESKLPSRKSIPTKIMASEGIIGG

SEQ ID No. 1264:

MKKFILPIFISILVLSACSSIKTKSEDNFHISSQQHEKAIKSYFDEAQTQGVIIKEGK
25 NLSTYGNALARANKEYVPASTFKMLIALIGLENHKATTNEIFKWDGKKRTYPMWEKD
MTLGEAMALSAPVYQELARRTGLELMQKEVKRVNFGNTNIGTQVDNFWLVGPKLI
TPVQEVNFADDLAHNRLPFKLETQEEVKKMLLIKEVNGSKIYAKSGWGMGVTPQVG
WLTGWVEQANGKKIPFSLNLEMKEGMSGIRNEITYKSLENLGI

SEQ ID No. 1265:

MNIKALLLITSAIFISACSPYIVTANPNHSASKSDDKAEEKIKNLFNEAHTTGVLVIHQGQ
30 TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWNGQKRLFPEWEK
DMTLGDAMKASAIKVYQDLARRIGLELMSNEVKRVGYGNADIGTQVDNFWLVGPKL
ITPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVDPQV
GWLTGWVVQPQGNIVAFSLNLEMKKGIPSSVRKEITYKSLEQLGIL

35 **SEQ ID No. 1266:**

MNIKALLLITSAISISACSPYIVTANPNHSASKSDEKAEEKIKNLFNEAHTTGVLVIQQGQ
TQQSYGNDLARASTEYVPASTFKMLNALIGLEHHKATTTEVFKWDGQKRLFPEWEK
DMTLGDAIKASAIKVYQDLARRIGLELMSKEVKRVGYGNADIGTQVDNFWLVGPKLI
40 TTPQQEAQFAYKLANKTLPFSQKVQDEVQSMLFIEEKNGNKIYAKSGWGWWDVDPQV

said peptides being chosen, preferably, from the peptides of sequence **SEQ ID No. 1267 to SEQ ID No. 1835** and **SEQ ID No. 2160 to SEQ ID No. 2171** as defined hereafter:

Peptide SEQ ID No.	Amino acid sequence	Position of the peptide in the OXA protein(s)	Clinical interest
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SEQ ID No. 1267	AAAYELAENLFEAGQADG WR	183-202 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1268	AAEGFIPASTFK	86-97 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1269	AALGR	41-45 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1270	ADGQVVAFALNMQMK	241-255 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1271	ADINEIFK	95-102 for the proteins of SEQ No. 1124	2df
SEQ ID No. 1272	ADWGK	50-54 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1273	AEGAIVISDER	40-50 for the proteins of SEQ No. 1127, 1130	OXA
SEQ ID No. 1274	AFALNLDIDK	222-231 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1275	AFAPMSTFK	49-57 for the proteins of SEQ No. 1256; 60-68 for the protein of sequence SEQ ID No. 1109	OXA
SEQ ID No. 1276	AFGYGNADVSGDPGQNG LDR	127-147 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1277	AFTMTK	174-179 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1278	AGDDIALR	256-263 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1279	AGHVVAFALNIDMPR	233-247 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1280	AGLWR	11-15 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1281	AHTEYVPASTFK	73-84 for the proteins of SEQ No. 1205, 1224	2df
SEQ ID No. 1282	AIIPWDGK	112-119 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1283	AIIPWDGKPR	112-121 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1284	AISDITITR	190-198 for the proteins of SEQ No. 1144	2d
SEQ ID No. 1285	AISGK	82-86 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1286	ALGQDR	121-126 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1287	ALPDLAK	256-262 for the proteins of SEQ No. 1256	2d

SEQ ID No. 1288	ALQAK	254-258 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1289	AMETFSPASTFK	50-61 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1290	AMLFLQER	196-203 for the proteins of SEQ No. 1227	2df
SEQ ID No. 1291	AMLVFDPVR	55-63 for the proteins of SEQ No. 1108, 1125, 1128, 1173, 1201, 1239, 1246; 44-52 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1292	AMTLLESGPGWELHGK	189-204 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1293	ANLHITLHGK	199-208 for the proteins of SEQ No. 1144	2d
SEQ ID No. 1294	ANQLIVK	183-189 for the proteins of SEQ No. 1247, 1263	OXA
SEQ ID No. 1295	ANTEYVPASTFK	71-82 for the proteins of SEQ No. 1124, 1132, 1145, 1198, 1199, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251; 66-77 for the protein of sequence SEQ ID No. 1227	2df
SEQ ID No. 1296	ANVSR	133-137 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1297	APIGWFIGWATR	224-235 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1298	APLGWFIGWATHEER	213-227 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1299	AQDEVQSMLFIEEK	196-209 for the proteins of SEQ No. 1161	2df
SEQ ID No. 1300	AQGVIVLWNENK	40-51 for the proteins of SEQ No. 1142	2df
SEQ ID No. 1301	ASAIQVYQDLAR	126-137 for the proteins of SEQ No. 1225	2df
SEQ ID No. 1302	ASAILVYQDLAR	126-137 for the proteins of SEQ No. 1175, 1184, 1215, 1230	2df
SEQ ID No. 1303	ASAIPVYQDLAR	126-137 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1156, 1157, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1169, 1170, 1174, 1176, 1177, 1178, 1181, 1182, 1183, 1185, 1186, 1192, 1194, 1195, 1197, 1202, 1203, 1204, 1206, 1211, 1212, 1213, 1214, 1226, 1233, 1236, 1237, 1238, 1240, 1241, 1253, 1260, 1261, 1265, 1266; 120-131 for the protein of sequence SEQ ID No. 1189; 120-131 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1304	ASAIPVYQDLPR	126-137 for the proteins of SEQ No. 1155	2df
SEQ ID No. 1305	ASAIQVYQDLAR	126-137 for the proteins of SEQ No. 1179, 1231	2df

SEQ ID No. 1306	ASAIsvYQDLAR	126-137 for the proteins of SEQ No. 1158, 1245	2df
SEQ ID No. 1307	ASALpVYQDLAR	126-137 for the proteins of SEQ No. 1159, 1180	2df
SEQ ID No. 1308	ASAMPVYQDLAR	126-137 for the proteins of SEQ No. 1232	2df
SEQ ID No. 1309	ASAVpVYQDLAR	126-137 for the proteins of SEQ No. 1196, 1209, 1210	2df
SEQ ID No. 1310	ASIEYVPASTFK	72-83 for the proteins of SEQ No. 1157, 1161	2df
SEQ ID No. 1311	ASNVPVYQELAR	113-124 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1312	ASPASTFK	49-56 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1313	ASTAYIPASTFK	59-70 for the proteins of SEQ No. 1247, 1263	OXA
SEQ ID No. 1314	ASTEYVPASTFK	72-83 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1158, 1159, 1160, 1162, 1163, 1164, 1165, 1166, 1167, 1169, 1170, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1192, 1194, 1195, 1196, 1197, 1202, 1203, 1204, 1206, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1261, 1265, 1266; 66-77 for the protein of sequence SEQ ID No. 1189; 66-77 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1315	ASTTEVFK	96-103 for the proteins of SEQ No. 1202	2df
SEQ ID No. 1316	ATSTEIFK	99-106 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1317	ATTNEIFK	97-104 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1224, 1264; 90-97 for the protein of sequence SEQ ID No. 1227	2df
SEQ ID No. 1318	ATTTAVFK	96-103 for the proteins of SEQ No. 1154	2df
SEQ ID No. 1319	ATTTEIFK	97-104 for the proteins of SEQ No. 1205; 96- 103 for the protein of sequence SEQ ID No. 1157; 96-103 for the protein of sequence SEQ ID No. 1161; 96-103 for the protein of sequence SEQ ID No. 1169	2df
SEQ ID No. 1320	ATTTEVFK	96-103 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1155, 1156, 1158, 1159, 1160, 1162, 1163, 1164, 1165, 1166, 1167, 1170, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1192, 1194, 1195, 1196, 1197, 1203, 1204, 1206, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1241, 1245,	2df

		1253, 1260, 1261, 1265, 1266; 90-97 for the protein of sequence SEQ ID No. 1189; 90-97 for the protein of sequence SEQ ID No. 1190	
SEQ ID No. 1321	AVSDITILEQTDNYTLHGK	191-209 for the proteins of SEQ No. 1235	OXA
SEQ ID No. 1322	AVSDITILEQTYNYTLHGK	191-209 for the proteins of SEQ No. 1187, 1188	2d
SEQ ID No. 1323	AVVPHFEAGDWDVQGK	195-210 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1324	AWEHDMSLR	100-108 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1325	AWIGSSLQISPLEQLEFLGK	148-167 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1326	CAAQMAPDSTFK	63-74 for the proteins of SEQ No. 1134	2d
SEQ ID No. 1327	CATQMAPDSTFK	48-59 for the proteins of SEQ No. 1119; 63-74 for the protein of sequence SEQ ID No. 1118	2d
SEQ ID No. 1328	CTHADAITGNTLYETGECA R	32-52 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1329	DAFLK	251-255 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1330	DDFILHGK	189-196 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1331	DDQEVLPYGGK	92-102 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1332	DDVLK	87-91 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1333	DEFHVFR	90-96 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1334	DEFQIFR	90-96 for the proteins of SEQ No. 1108, 1125, 1128, 1133, 1173, 1201, 1239, 1246; 79-85 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1335	DEFQVFR	90-96 for the proteins of SEQ No. 1114, 1127, 1130, 1131, 1242, 1249	2d
SEQ ID No. 1336	DELVR	260-264 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1337	DETSR	112-116 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1338	DFDYGNQDFSGDK	141-153 for the proteins of SEQ No. 1118, 1134; 126-138 for the protein of sequence SEQ ID No. 1119	2d
SEQ ID No. 1339	DFTLGEAMQASTVPVYQEL AR	120-140 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1340	DGNITSVAINIDMLSEADAP K	250-270 for the proteins of SEQ No. 1140	2df

SEQ ID No. 1341	DHDLITAMK	108-116 for the proteins of SEQ No. 1142, 1243	2df
SEQ ID No. 1342	DIAAWNR	101-107 for the proteins of SEQ No. 1142, 1243	2df
SEQ ID No. 1343	DIGEDK	131-136 for the proteins of SEQ No. 1131	2d
SEQ ID No. 1344	DILYIQELAGGWK	180-192 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1345	DITILEK	181-187 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1346	DLLSAK	166-171 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1347	DLMITEAGR	195-203 for the proteins of SEQ No. 1127, 1130, 1131	2d
SEQ ID No. 1348	DLMIVEAGR	195-203 for the proteins of SEQ No. 1108, 1114, 1125, 1128, 1133, 1173, 1201, 1239, 1246, 1249; 184-192 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1349	DLMIVEAK	195-202 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1350	DLPLR	243-247 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1351	DLSGNPGK	131-138 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1352	DLSLR	105-109 for the proteins of SEQ No. 1115, 1116, 1117, 1126, 1141, 1200, 1229, 1262; 106-110 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1353	DLTLR	105-109 for the proteins of SEQ No. 1110, 1193, 1250, 1259, 1263; 96-100 for the protein of sequence SEQ ID No. 1106; 96-100 for the protein of sequence SEQ ID No. 1111; 96-100 for the protein of sequence SEQ ID No. 1112	OXA
SEQ ID No. 1354	DMTLGDAIK	117-125 for the proteins of SEQ No. 1226, 1266	2df
SEQ ID No. 1355	DMTLGDAMALSAVPVYQE LAR	118-138 for the proteins of SEQ No. 1205	2df
SEQ ID No. 1356	DMTLGDAMK	117-125 for the proteins of SEQ No. 1147, 1148, 1149, 1152, 1153, 1156, 1157, 1158, 1159, 1161, 1162, 1165, 1166, 1167, 1169, 1170, 1175, 1176, 1178, 1179, 1181, 1183, 1184, 1185, 1186, 1194, 1195, 1196, 1197, 1202, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1230, 1231, 1232, 1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1265	2df
SEQ ID No. 1357	DMTLGEAMALSAVPVYQD LAR	118-138 for the proteins of SEQ No. 1224	2df
SEQ ID No. 1358	DMTLGEAMALSAVPVYQE LAR	118-138 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1264	2df

SEQ ID No. 1359	DMTLGEAMK	116-124 for the proteins of SEQ No. 1124, 1132, 1145, 1198, 1199, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251	2df
SEQ ID No. 1360	DMTLGQAMQASAVPVYQE LAR	111-131 for the proteins of SEQ No. 1227	2df
SEQ ID No. 1361	DNNGK	214-218 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1362	DQDLR	110-114 for the proteins of SEQ No. 1108, 1114, 1125, 1127, 1128, 1130, 1131, 1133, 1173, 1201, 1239, 1242, 1246, 1249; 99-103 for the protein of sequence SEQ ID No. 1120	2d
SEQ ID No. 1363	DQQIGWFGWASK	213-225 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1364	DQQIGWFGWASKPGK	213-228 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1365	DQQVQVYGNDLNR	53-65 for the proteins of SEQ No. 1227	2df
SEQ ID No. 1366	DQSFR	132-136 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1367	DQTLESAFK	105-113 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1368	DSCVWYSQVLTQQLGMTR	98-115 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1369	DSIVWYSQELTR	113-124 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1370	DSIVWYSQQLTR	102-113 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1371	DSNLR	109-113 for the proteins of SEQ No. 1187, 1188, 1235; 96-100 for the protein of sequence SEQ ID No. 1135; 108-112 for the protein of sequence SEQ ID No. 1144	2d
SEQ ID No. 1372	DSYIAWGGEAWK	81-92 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1373	DTLNPEWPK	67-76 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1374	DVDEVFYK	88-95 for the proteins of SEQ No. 1144, 1187, 1188, 1235	2d
SEQ ID No. 1375	DVSGDPGK	144-151 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1376	DWILR	204-208 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1377	DWPAMAGAWR	265-274 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1378	EAFLR	256-260 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d

SEQ ID No. 1379	EAIAR	250-254 for the proteins of SEQ No. 1113, 1121, 1127, 1130, 1131, 1133, 1242	2d
SEQ ID No. 1380	EAIVR	250-254 for the proteins of SEQ No. 1108, 1114, 1125, 1128, 1173, 1201, 1239, 1246, 1249; 239-243 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1381	EAIVTEATPEYIVHSK	190-205 for the proteins of SEQ No. 1247, 1263	OXA
SEQ ID No. 1382	EALVTEAAPEYLVHSK	190-205 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1229, 1250, 1259, 1262; 181-196 for the protein of sequence SEQ ID No. 1106; 181-196 for the protein of sequence SEQ ID No. 1111; 181-196 for the protein of sequence SEQ ID No. 1112	OXA
SEQ ID No. 1383	EALVTEAPEYLVHSK	191-205 for the proteins of SEQ No. 1248	2d
SEQ ID No. 1384	EEIVR	240-244 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1385	EEVLAALPAQLK	251-262 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1386	EFNGSK	209-214 for the proteins of SEQ No. 1205	2df
SEQ ID No. 1387	EFSAEAVNGVFLCK	31-45 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1229, 1248, 1250, 1259, 1262; 22-36 for the protein of sequence SEQ ID No. 1106; 22-36 for the protein of sequence SEQ ID No. 1111; 22-36 for the protein of sequence SEQ ID No. 1112	OXA
SEQ ID No. 1388	EFSSSVHGVFLCK	31-45 for the proteins of SEQ No. 1247, 1263	OXA
SEQ ID No. 1389	EGDMAK	248-253 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1390	EGMSGSIR	254-261 for the proteins of SEQ No. 1122, 1129, 1172, 1207, 1264	2df
SEQ ID No. 1391	EGMTGSIR	254-261 for the proteins of SEQ No. 1123	2df
SEQ ID No. 1392	EGSCDK	54-59 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1393	EIAVWNR	125-131 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1394	EIAYK	262-266 for the proteins of SEQ No. 1238	2df
SEQ ID No. 1395	EIFER	20-24 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1396	EIFYHYR	79-85 for the proteins of SEQ No. 1143	2d

SEQ ID No. 1397	EIGDDK	131-136 for the proteins of SEQ No. 1108, 1125, 1128, 1173, 1201, 1239, 1246; 120-125 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1398	EIGDGK	131-136 for the proteins of SEQ No. 1133	2d
SEQ ID No. 1399	EIGEDK	131-136 for the proteins of SEQ No. 1114, 1130, 1249	2d
SEQ ID No. 1400	EIGEDNAR	131-138 for the proteins of SEQ No. 1242	OXA
SEQ ID No. 1401	EIGENK	131-136 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1402	EIGPK	153-157 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1403	EIGSEIDK	136-143 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1404	EITYK	262-266 for the proteins of SEQ No. 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1169, 1170, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1192, 1194, 1195, 1196, 1202, 1203, 1204, 1206, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1240, 1241, 1245, 1253, 1260, 1261, 1265, 1266; 263-267 for the protein of sequence SEQ ID No. 1122; 263-267 for the protein of sequence SEQ ID No. 1123; 263-267 for the protein of sequence SEQ ID No. 1129; 263-267 for the protein of sequence SEQ ID No. 1172; 256-260 for the protein of sequence SEQ ID No. 1189; 256-260 for the protein of sequence SEQ ID No. 1190; 263-267 for the protein of sequence SEQ ID No. 1205; 263-267 for the protein of sequence SEQ ID No. 1207; 263-267 for the protein of sequence SEQ ID No. 1224; 263-267 for the protein of sequence SEQ ID No. 1264	2df
SEQ ID No. 1405	EITYR	262-266 for the proteins of SEQ No. 1146	2df
SEQ ID No. 1406	EMIYK	181-186 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1407	EMLYVER	205-211 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1408	EMTYK	262-266 for the proteins of SEQ No. 1197	2df
SEQ ID No. 1409	ENIEK	138-142 for the proteins of SEQ No. 1187, 1188, 1235; 137-141 for the protein of sequence SEQ ID No. 1144	2d
SEQ ID No. 1410	ENQLIVK	183-189 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1229, 1250, 1259, 1262; 174-180 for the	OXA

		protein of sequence SEQ ID No. 1106; 174-180 for the protein of sequence SEQ ID No. 1111; 174-180 for the protein of sequence SEQ ID No. 1112; 184-190 for the protein of sequence SEQ ID No. 1248	
SEQ ID No. 1411	EQAILLFR	156-163 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1412	EQIQFLLR	165-172 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1413	EQLAFDPQVQQQVK	182-195 for the proteins of SEQ No. 1227	2df
SEQ ID No. 1414	EQVDFVQR	189-196 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1415	ETEVYFFAFNMDIDNESK	229-246 for the proteins of SEQ No. 1110, 1193, 1250, 1259; 220-237 for the protein of sequence SEQ ID No. 1106; 220-237 for the protein of sequence SEQ ID No. 1111; 220-237 for the protein of sequence SEQ ID No. 1112	OXA
SEQ ID No. 1416	ETTTPR	90-95 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1417	EVGEIR	126-131 for the proteins of SEQ No. 1247	2d
SEQ ID No. 1418	EVGEVR	126-131 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1229, 1250, 1259, 1262; 117-122 for the protein of sequence SEQ ID No. 1106; 117-122 for the protein of sequence SEQ ID No. 1111; 117-122 for the protein of sequence SEQ ID No. 1112; 127-132 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1419	EVNGSK	209-214 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1224, 1264	2df
SEQ ID No. 1420	EWQENK	24-29 for the proteins of SEQ No. 1136, 1208, 1234, 1243	2df
SEQ ID No. 1421	EYELYLN VWK	78-87 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1422	EYLPASTFK	62-70 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1229, 1250, 1262; 53-61 for the protein of sequence SEQ ID No. 1106; 53-61 for the protein of sequence SEQ ID No. 1111; 53-61 for the protein of sequence SEQ ID No. 1112; 63-71 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1423	EYLPVSTFK	62-70 for the proteins of SEQ No. 1259	2de
SEQ ID No. 1424	EYNTSGTFVFDGK	27-40 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1425	EYVPASTFK	75-83 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1169, 1170, 1174, 1175, 1176, 1177, 1178, 1179,	2df

		1180, 1181, 1182, 1183, 1184, 1185, 1186, 1192, 1194, 1195, 1196, 1197, 1202, 1203, 1204, 1206, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1261, 1265, 1266; 76-84 for the protein of sequence SEQ ID No. 1122; 76-84 for the protein of sequence SEQ ID No. 1123; 74-82 for the protein of sequence SEQ ID No. 1124; 76-84 for the protein of sequence SEQ ID No. 1129; 74-82 for the protein of sequence SEQ ID No. 1132; 74-82 for the protein of sequence SEQ ID No. 1145; 76-84 for the protein of sequence SEQ ID No. 1172; 69-77 for the protein of sequence SEQ ID No. 1189; 69-77 for the protein of sequence SEQ ID No. 1190; 74-82 for the protein of sequence SEQ ID No. 1198; 74-82 for the protein of sequence SEQ ID No. 1199; 76-84 for the protein of sequence SEQ ID No. 1205; 76-84 for the protein of sequence SEQ ID No. 1207; 74-82 for the protein of sequence SEQ ID No. 1217; 74-82 for the protein of sequence SEQ ID No. 1218; 74-82 for the protein of sequence SEQ ID No. 1219; 74-82 for the protein of sequence SEQ ID No. 1220; 74-82 for the protein of sequence SEQ ID No. 1221; 74-82 for the protein of sequence SEQ ID No. 1222; 74-82 for the protein of sequence SEQ ID No. 1223; 76-84 for the protein of sequence SEQ ID No. 1224; 69-77 for the protein of sequence SEQ ID No. 1227; 74-82 for the protein of sequence SEQ ID No. 1244; 74-82 for the protein of sequence SEQ ID No. 1251; 76-84 for the protein of sequence SEQ ID No. 1264	
SEQ ID No. 1426	FAAYVAGFGYGNGDISGEP GK	120-140 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1427	FAPESTFK	45-52 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1428	FAQYAK	121-126 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1429	FDYGNK	138-143 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1430	FDYGNR	146-151 for the proteins of SEQ No. 1137; 125-130 for the protein of sequence SEQ ID No. 1105	2d
SEQ ID No. 1431	FEDLYK	232-237 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1432	FEDTFHISNQK	27-37 for the proteins of SEQ No. 1224	2df
SEQ ID No. 1433	FEDTFHTSNQQHEK	27-40 for the proteins of SEQ No. 1205	2df
SEQ ID No. 1434	FEYGNQDVSGDSGK	133-146 for the proteins of SEQ No. 1107	2d

SEQ ID No. 1435	FFSDFQAK	34-41 for the proteins of SEQ No. 1133	2d
SEQ ID No. 1436	FFSDLQAEGAIVIADER	34-50 for the proteins of SEQ No. 1131, 1242	2d
SEQ ID No. 1437	FFSDLR	34-39 for the proteins of SEQ No. 1127, 1130	OXA
SEQ ID No. 1438	FFSEFQAK	34-41 for the proteins of SEQ No. 1108, 1114, 1125, 1128, 1173, 1201, 1239, 1246, 1249; 23-30 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1439	FGLEGQLR	153-160 for the proteins of SEQ No. 1117	2de
SEQ ID No. 1440	FILPIFSISILVLSACSSIK	4-24 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1264	2df
SEQ ID No. 1441	FLALLFSAVVLVSLGHAQDK	5-24 for the proteins of SEQ No. 1121	2d
SEQ ID No. 1442	FLALLFSAVVLVSLGHAQEK	5-24 for the proteins of SEQ No. 1113	2d
SEQ ID No. 1443	FLESLYLNNLPASK	169-182 for the proteins of SEQ No. 1247, 1263	OXA
SEQ ID No. 1444	FLLEGQLR	153-160 for the proteins of SEQ No. 1200	2de
SEQ ID No. 1445	FQQYVDR	118-124 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1446	FSDYVQR	131-137 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1447	FSTASTFK	63-70 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1448	FSWDGK	117-122 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1449	FSYGNQNISGGIDK	139-152 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1259, 1262; 130-143 for the protein of sequence SEQ ID No. 1106; 130-143 for the protein of sequence SEQ ID No. 1111; 130-143 for the protein of sequence SEQ ID No. 1112; 140-153 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1450	FSYGNQNISGGTDK	139-152 for the proteins of SEQ No. 1229	2de
SEQ ID No. 1451	FSYGSQNISGGIDK	139-152 for the proteins of SEQ No. 1250	2de
SEQ ID No. 1452	FTEYVK	126-131 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1453	FVAHK	173-177 for the proteins of SEQ No. 1107	2d

SEQ ID No. 1454	FVPASTYK	62-69 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1455	FVYDLAQGQLPFK	184-196 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1456	FVYDLAQGQLPFKPEVQQQ VK	184-204 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1457	FWLEDQLR	153-160 for the proteins of SEQ No. 1116, 1193, 1229, 1250; 144-151 for the protein of sequence SEQ ID No. 1106; 144-151 for the protein of sequence SEQ ID No. 1111	2de
SEQ ID No. 1458	FWLEGPLK	144-151 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1459	FWLEGQLR	153-160 for the proteins of SEQ No. 1110, 1115, 1126, 1141, 1247, 1259, 1262, 1263; 144-151 for the protein of sequence SEQ ID No. 1112; 154-161 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1460	FYPASSFK	53-60 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1461	FYPASTFK	66-73 for the proteins of SEQ No. 1144, 1187, 1188, 1235	2d
SEQ ID No. 1462	GACDK	44-48 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1463	GAEVYFFAFNMDIDNENK	229-246 for the proteins of SEQ No. 1141, 1248	2d
SEQ ID No. 1464	GAIQVSAVPVFQQIAR	110-125 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1229, 1247, 1250, 1259, 1262, 1263; 101-116 for the protein of sequence SEQ ID No. 1106; 101-116 for the protein of sequence SEQ ID No. 1112; 111-126 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1465	GAIQVSAVPVFQQITR	101-116 for the proteins of SEQ No. 1111	2de
SEQ ID No. 1466	GDYWIDGNLEISAHEQISFL R	156-176 for the proteins of SEQ No. 1127, 1130	OXA
SEQ ID No. 1467	GDYWIDGNLK	156-165 for the proteins of SEQ No. 1131	2d
SEQ ID No. 1468	GELPVSEDALEMTK	181-194 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1469	GEQPAGPAAR	241-250 for the proteins of SEQ No. 1256; 252-261 for the protein of sequence SEQ ID No. 1109	OXA
SEQ ID No. 1470	GFAGHNQDQDLR	103-114 for the proteins of SEQ No. 1108, 1125, 1128, 1173, 1201, 1239, 1246; 92-103 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1471	GIPSSVR	254-260 for the proteins of SEQ No. 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1169, 1170, 1174, 1175, 1176, 1177, 1178, 1179, 1180,	2df

		1181, 1182, 1183, 1184, 1185, 1186, 1192, 1194, 1195, 1196, 1197, 1202, 1203, 1204, 1206, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1261, 1265, 1266; 248-254 for the protein of sequence SEQ ID No. 1189; 248-254 for the protein of sequence SEQ ID No. 1190	
SEQ ID No. 1472	GISSSVR	254-260 for the proteins of SEQ No. 1146	2df
SEQ ID No. 1473	GLNGTFVVYDLK	26-37 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1474	GMEIWNSNHTPK	101-112 for the proteins of SEQ No. 1118, 1134; 86-97 for the protein of sequence SEQ ID No. 1119	2d
SEQ ID No. 1475	GNQTLVFAR	230-238 for the proteins of SEQ No. 1254	2d
SEQ ID No. 1476	GNYWIDGNLEISAHEQISFL R	156-176 for the proteins of SEQ No. 1242	OXA
SEQ ID No. 1477	GPLEISAFEEAR	164-175 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1478	GPLTITPIQEVK	172-183 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1479	GSGWFGWIVR	219-229 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1480	GSLLLWDQK	66-74 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1481	GTEVYFFAFNMDIDNENK	229-246 for the proteins of SEQ No. 1115, 1116, 1117, 1126, 1200, 1229, 1262	OXA
SEQ ID No. 1482	GTEVYFFAFNMDIDNESK	229-246 for the proteins of SEQ No. 1247, 1263	OXA
SEQ ID No. 1483	GTFVLYDVQR	38-47 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1484	GTIVVADER	42-50 for the proteins of SEQ No. 1108, 1114, 1125, 1128, 1133, 1173, 1201, 1239, 1246, 1249; 31-39 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1485	GTIVVLDAR	63-71 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1486	GTIVVVDER	42-50 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1487	GTLPF SAR	200-207 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1488	GTPSSVR	254-260 for the proteins of SEQ No. 1154	2df
SEQ ID No. 1489	HALSSAFVLLGCIAASAHA K	5-24 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d

SEQ ID No. 1490	HIADSK	234-239 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1491	HNGLTHAWLASSLK	152-165 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1492	HNGLTQSWLMSSLTISPK	147-164 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1493	HNGTDGAWIISSLR	148-161 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1494	HTLSVFDQER	54-63 for the proteins of SEQ No. 1131	2d
SEQ ID No. 1495	HVTFASFR	241-248 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1496	IAISLMGYDAGFLR	57-70 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1497	IALSLMAFDAEIIDQK	75-90 for the proteins of SEQ No. 1118, 1134; 60-75 for the protein of sequence SEQ ID No. 1119	2d
SEQ ID No. 1498	IALSLMGFDGILK	53-66 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1499	IANALIGLENHK	87-98 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1500	IAWIVGFVYLK	205-215 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1501	IDTFWLDNSLK	141-151 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1502	IDYYNLDR	41-48 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1503	IFNALIALDSGVIK	62-75 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1504	IFNSLLALDSGALDNER	95-111 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1505	IFNTLIGLENGIVK	61-74 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1506	IGLDLMQK	138-145 for the proteins of SEQ No. 1124, 1132, 1145, 1198, 1199, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251	2df
SEQ ID No. 1507	IGLEK	131-135 for the proteins of SEQ No. 1235	OXA
SEQ ID No. 1508	IGLELMQQEVQR	133-144 for the proteins of SEQ No. 1227	2df
SEQ ID No. 1509	IGLELMSK	139-146 for the proteins of SEQ No. 1147, 1148, 1149, 1151, 1153, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1166, 1167, 1169, 1170, 1175, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1194, 1195, 1196, 1197, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232,	2df

		1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1266	
SEQ ID No. 1510	IGLELMSNEVK	139-149 for the proteins of SEQ No. 1146, 1150, 1152, 1154, 1155, 1163, 1164, 1165, 1174, 1176, 1192, 1202, 1203, 1204, 1206, 1233, 1261, 1265; 133-143 for the protein of sequence SEQ ID No. 1189; 133-143 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1511	IGLER	126-130 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1512	IGLNK	130-134 for the proteins of SEQ No. 1118, 1134; 115-119 for the protein of sequence SEQ ID No. 1119	2d
SEQ ID No. 1513	IGLNLMQK	140-147 for the proteins of SEQ No. 1224	2df
SEQ ID No. 1514	IGP\$LMQSELQR	142-153 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1515	IGYGNMQIGTEVDQFWLK	154-171 for the proteins of SEQ No. 1171, 1216	2df
SEQ ID No. 1516	IGYGNMQMGTQVDQFWLK	154-171 for the proteins of SEQ No. 1168	2df
SEQ ID No. 1517	IINHNLVPK	167-175 for the proteins of SEQ No. 1119; 182-190 for the protein of sequence SEQ ID No. 1118	2d
SEQ ID No. 1518	IINHNLVPR	182-190 for the proteins of SEQ No. 1134	2d
SEQ ID No. 1519	ILFQQGTQQACAER	41-54 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1520	ILNNWFK	20-26 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1521	ILNTLISLEEK	71-81 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1522	ILSLVCLISIGACAEHMSR	6-26 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1523	INESR	219-223 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1524	INIVK	255-259 for the proteins of SEQ No. 1187, 1188, 1235; 254-258 for the protein of sequence SEQ ID No. 1144	2d
SEQ ID No. 1525	INLYGNALSR	61-70 for the proteins of SEQ No. 1124, 1132, 1145, 1198, 1199, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251	2df
SEQ ID No. 1526	IPFSLNLEMK	244-253 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1264	2df
SEQ ID No. 1527	IPHTLFALDADAVR	76-89 for the proteins of SEQ No. 1131	2d
SEQ ID No. 1528	IPHTLFALDAGAAR	76-89 for the proteins of SEQ No. 1114, 1249	2d

SEQ ID No. 1529	IPHTLFALDAGAVR	76-89 for the proteins of SEQ No. 1108, 1113, 1121, 1125, 1128, 1133, 1173, 1201, 1239, 1246; 65-78 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1530	IPLGK	255-259 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1531	IPNAIIGLETGVIK	71-84 for the proteins of SEQ No. 1110, 1116, 1117, 1126, 1141, 1200, 1229, 1250, 1262; 62-75 for the protein of sequence SEQ ID No. 1106; 62-75 for the protein of sequence SEQ ID No. 1111; 72-85 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1532	IPNALIGLETGAIK	71-84 for the proteins of SEQ No. 1247, 1263	OXA
SEQ ID No. 1533	IPNSLIAFDTGAVR	78-91 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1534	IPSAIIGLETGVIK	71-84 for the proteins of SEQ No. 1115, 1193, 1259; 62-75 for the protein of sequence SEQ ID No. 1112	2de
SEQ ID No. 1535	ISAFNQVK	161-168 for the proteins of SEQ No. 1247	2d
SEQ ID No. 1536	ISAHEQILFLR	166-176 for the proteins of SEQ No. 1131	2d
SEQ ID No. 1537	ISAMEQTR	160-167 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1538	ISAMEQVK	165-172 for the proteins of SEQ No. 1187, 1235; 152-159 for the protein of sequence SEQ ID No. 1135; 164-171 for the protein of sequence SEQ ID No. 1144	2d
SEQ ID No. 1539	ISATEQVAFLR	164-174 for the proteins of SEQ No. 1142	2df
SEQ ID No. 1540	ISATQQIAFLR	164-174 for the proteins of SEQ No. 1243	2df
SEQ ID No. 1541	ISAVNQVEFLESFLNK	161-177 for the proteins of SEQ No. 1115, 1116, 1117, 1126, 1141, 1200, 1229, 1262; 162-178 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1542	ISAVNQVEFLESFLNK	161-177 for the proteins of SEQ No. 1110, 1193, 1250, 1259; 152-168 for the protein of sequence SEQ ID No. 1106; 152-168 for the protein of sequence SEQ ID No. 1111; 152-168 for the protein of sequence SEQ ID No. 1112	OXA
SEQ ID No. 1543	ISAVNQVK	161-168 for the proteins of SEQ No. 1263	2de
SEQ ID No. 1544	ISPREEQIFLR	170-180 for the proteins of SEQ No. 1118, 1134; 155-165 for the protein of sequence SEQ ID No. 1119	2d
SEQ ID No. 1545	ISPREEQVR	166-173 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1546	ISPEGQVR	155-162 for the proteins of SEQ No. 1256	2d

SEQ ID No. 1547	ISPLEQLAFLR	162-172 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1548	ITAFQQVDFLR	188-198 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1549	ITLFLFLNLVFGQDK	4-19 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1550	ITPIQEVNFADDFANNR	174-190 for the proteins of SEQ No. 1205	2df
SEQ ID No. 1551	ITPIQEVNFADDLANNR	174-190 for the proteins of SEQ No. 1224	2df
SEQ ID No. 1552	ITPQQEAQFAYK	173-184 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1164, 1165, 1166, 1167, 1169, 1170, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1192, 1194, 1195, 1196, 1197, 1202, 1203, 1204, 1206, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1261, 1265, 1266; 167-178 for the protein of sequence SEQ ID No. 1189; 167-178 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1553	ITPQQEAQFTYK	173-184 for the proteins of SEQ No. 1163	2df
SEQ ID No. 1554	ITPVQEVNFADDLAHR	174-190 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1264	2df
SEQ ID No. 1555	IVAFALK	241-247 for the proteins of SEQ No. 1124, 1145	2df
SEQ ID No. 1556	IVAFALNMEMR	241-251 for the proteins of SEQ No. 1198, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251; 242-252 for the protein of sequence SEQ ID No. 1132; 242-252 for the protein of sequence SEQ ID No. 1199	2df
SEQ ID No. 1557	IVESTTLADGTVVHGK	186-201 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1558	IYNSLIGLNEK	74-84 for the proteins of SEQ No. 1144, 1187, 1188, 1235	2d
SEQ ID No. 1559	KPDIGWWVGWIER	237-249 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1560	LACATNNLAR	50-59 for the proteins of SEQ No. 1248	2d
SEQ ID No. 1561	LAQGELPFPAPVQSTVR	172-188 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1562	LAQNELPYPIEQK	177-190 for the proteins of SEQ No. 1187, 1188, 1235	2d
SEQ ID No. 1563	LAQNELQYPIEQK	176-189 for the proteins of SEQ No. 1144	2d

SEQ ID No. 1564	LDFGNK	143-148 for the proteins of SEQ No. 1187, 1188, 1235; 142-147 for the protein of sequence SEQ ID No. 1144	2d
SEQ ID No. 1565	LDGSLNR	206-212 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1566	LEIGK	244-248 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1567	LEILQQALAEGLYPK	255-270 for the proteins of SEQ No. 1227	2df
SEQ ID No. 1568	LENQEQVK	173-180 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1569	LETQEEVEK	195-203 for the proteins of SEQ No. 1122	2df
SEQ ID No. 1570	LETQEEVK	195-202 for the proteins of SEQ No. 1123, 1129, 1172, 1205, 1207, 1224, 1264	2df
SEQ ID No. 1571	LFAAEGVK	55-62 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1572	LFESAGVK	58-65 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1573	LFGAAGVK	30-37 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1574	LFPEWEK	110-116 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1169, 1170, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1192, 1194, 1195, 1196, 1197, 1202, 1203, 1204, 1206, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1261, 1265, 1266; 104-110 for the protein of sequence SEQ ID No. 1189; 104-110 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1575	LGESR	126-130 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1576	LGVDR	121-125 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1577	LHVSR	181-186 for the proteins of SEQ No. 1136, 1142, 1208, 1234, 1243	2df
SEQ ID No. 1578	LHYGNAK	131-137 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1579	LLNLLSQSK	160-168 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1580	LLQDER	243-248 for the proteins of SEQ No. 1191	2d

SEQ ID No. 1581	LLVQDGCGR	38-47 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1582	LNEVGYNR	160-168 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1583	LNIGNADPSTK	144-154 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1584	LNIGNK	130-135 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1585	LPASK	178-182 for the proteins of SEQ No. 1247, 1263; 172-176 for the protein of sequence SEQ ID No. 1256	2d
SEQ ID No. 1586	LPHTLFALDADAVR	76-89 for the proteins of SEQ No. 1127, 1130	OXA
SEQ ID No. 1587	LPHTLFALDAGAVR	76-89 for the proteins of SEQ No. 1242	- OXA
SEQ ID No. 1588	LPLAIMGFDSGILQSPK	62-78 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1589	LPLAIMGYDADILLDATTP R	69-88 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1590	LPSSLIALETGAVR	98-111 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1591	LPVSAQTLQYTANILK	170-185 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1592	LPVSR	205-210 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1593	LPVSPTAVDMTER	173-185 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1594	LSASK	178-182 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1229, 1250, 1259, 1262; 169-173 for the protein of sequence SEQ ID No. 1106; 169-173 for the protein of sequence SEQ ID No. 1111; 169-173 for the protein of sequence SEQ ID No. 1112; 179-183 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1595	LSAVPIYQEVAR	121-132 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1596	LSAVPVYQELAR	127-138 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1205, 1207, 1264; 125-136 for the protein of sequence SEQ ID No. 1124; 125-136 for the protein of sequence SEQ ID No. 1132; 125-136 for the protein of sequence SEQ ID No. 1145; 125-136 for the protein of sequence SEQ ID No. 1198; 125-136 for the protein of sequence SEQ ID No. 1199; 125-136 for the protein of sequence SEQ ID No. 1217; 125-136 for the protein of sequence SEQ ID No. 1218; 125-136 for the protein of sequence SEQ ID No. 1219; 125-136 for the protein of sequence SEQ ID No. 1220; 125-136 for the	2df

		protein of sequence SEQ ID No. 1221; 125-136 for the protein of sequence SEQ ID No. 1222; 125-136 for the protein of sequence SEQ ID No. 1223; 125-136 for the protein of sequence SEQ ID No. 1244; 125-136 for the protein of sequence SEQ ID No. 1251	
SEQ ID No. 1597	LSCTLVIDEASGDLHR	37-53 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1598	LSLQHGWFIEWIEK	211-224 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1599	LSQNSLPFSQEAMNSVK	164-180 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1600	LSVNPKE	168-173 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1601	LTQDER	239-244 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1602	LTVGAR	245-250 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1603	LYGFALNIDMPGGEADIGK	228-246 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1604	LYHNELPFR	178-186 for the proteins of SEQ No. 1114, 1249	2d
SEQ ID No. 1605	LYHNK	176-180 for the proteins of SEQ No. 1136, 1142, 1208, 1234, 1243	2df
SEQ ID No. 1606	LYQNLPFR	178-186 for the proteins of SEQ No. 1133	2d
SEQ ID No. 1607	MDDLFEK	243-248 for the proteins of SEQ No. 1108, 1114, 1125, 1128, 1133, 1173, 1201, 1239, 1246, 1249; 232-237 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1608	MEDLHK	243-248 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1609	MLIALIGLENHK	85-96 for the proteins of SEQ No. 1264	2df
SEQ ID No. 1610	MLLIEQQGDAALYAK	198-212 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1611	MLLIK	204-208 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1205, 1207, 1224, 1264	2df
SEQ ID No. 1612	MLNALIGLEHHK	84-95 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1166, 1167, 1169, 1170, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1192, 1194, 1195, 1196, 1197, 1202, 1203, 1204, 1206, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1245, 1253, 1260, 1261, 1265, 1266; 78-89 for the protein of	2df

		sequence SEQ ID No. 1189; 78-89 for the protein of sequence SEQ ID No. 1190	
SEQ ID No. 1613	MLNALIGLENHK	85-96 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1205, 1207, 1224	2df
SEQ ID No. 1614	MLNALIGLENQK	83-94 for the proteins of SEQ No. 1124, 1132, 1145, 1198, 1199, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251	2df
SEQ ID No. 1615	MLNALIGLEYHK	84-95 for the proteins of SEQ No. 1241	2df
SEQ ID No. 1616	MLNALIGLQHGK	78-89 for the proteins of SEQ No. 1227	2df
SEQ ID No. 1617	MLNALISLEHHK	84-95 for the proteins of SEQ No. 1165	2df
SEQ ID No. 1618	MQAYVDAFDYGNR	139-151 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1619	MQEGLNK	123-129 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1620	MSPASTYK	87-94 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1621	MTAGGK	234-239 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1622	MVSGK	165-169 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1623	NEHDPVLPYR	71-80 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1624	NEHQIFK	86-92 for the proteins of SEQ No. 1248; 85-91 for the protein of sequence SEQ ID No. 1141	2d
SEQ ID No. 1625	NEHQVFK	85-91 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1193, 1200, 1229, 1250, 1259, 1262; 76-82 for the protein of sequence SEQ ID No. 1106; 76-82 for the protein of sequence SEQ ID No. 1111; 76-82 for the protein of sequence SEQ ID No. 1112	OXA
SEQ ID No. 1626	NEITYK	262-267 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1205, 1207, 1224, 1264	2df
SEQ ID No. 1627	NELLMK	260-265 for the proteins of SEQ No. 1124, 1145, 1198, 1217, 1218, 1220, 1221, 1222, 1223, 1244, 1251; 261-266 for the protein of sequence SEQ ID No. 1132; 261-266 for the protein of sequence SEQ ID No. 1199	2df
SEQ ID No. 1628	NELMMK	260-265 for the proteins of SEQ No. 1219	2df
SEQ ID No. 1629	NELPFR	181-186 for the proteins of SEQ No. 1108, 1113, 1114, 1121, 1125, 1128, 1173, 1201, 1239, 1246, 1249; 170-175 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1630	NFILIFVILISCK	5-19 for the proteins of SEQ No. 1144, 1187, 1235	2d

SEQ ID No. 1631	NFILIFIVILTSCK	5-19 for the proteins of SEQ No. 1188	2d
SEQ ID No. 1632	NISSYGNNLVR	62-72 for the proteins of SEQ No. 1224	2df
SEQ ID No. 1633	NISTYGNNLTR	62-72 for the proteins of SEQ No. 1205	2df
SEQ ID No. 1634	NLFNEVHTTGVLVIR	43-57 for the proteins of SEQ No. 1170	2df
SEQ ID No. 1635	NLSTYGNALAR	62-72 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1264	2df
SEQ ID No. 1636	NMENLELFGK	187-196 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1637	NMLLLEENNGYK	201-212 for the proteins of SEQ No. 1198	2df
SEQ ID No. 1638	NMLLLEESNGYK	201-212 for the proteins of SEQ No. 1124, 1132, 1145, 1199, 1217, 1218, 1219, 1220, 1221, 1223, 1244, 1251	2df
SEQ ID No. 1639	NMLLLEK	201-207 for the proteins of SEQ No. 1222	2df
SEQ ID No. 1640	NMTLG DAMK	117-125 for the proteins of SEQ No. 1146, 1150, 1151, 1154, 1155, 1160, 1163, 1164, 1174, 1177, 1180, 1182, 1192, 1203, 1204, 1206, 1233, 1261; 111-119 for the protein of sequence SEQ ID No. 1189; 111-119 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1641	NNGLTEAWLESSLK	156-169 for the proteins of SEQ No. 1118, 1134; 141-154 for the protein of sequence SEQ ID No. 1119	2d
SEQ ID No. 1642	NQLPFK	181-186 for the proteins of SEQ No. 1131	2d
SEQ ID No. 1643	NQLPFQVEHQR	181-191 for the proteins of SEQ No. 1127, 1130, 1242	OXA
SEQ ID No. 1644	NSAIENTIDNMYLQDLENS TK	191-211 for the proteins of SEQ No. 1134	2d
SEQ ID No. 1645	NSAIENTIENMYLQDLDNS TK	191-211 for the proteins of SEQ No. 1118	2d
SEQ ID No. 1646	NSAIENTIENMYLQDLENST K	176-196 for the proteins of SEQ No. 1119	2d
SEQ ID No. 1647	NSAVVWYELFAK	119-130 for the proteins of SEQ No. 1127, 1130, 1242	OXA
SEQ ID No. 1648	NSQVPAYK	118-125 for the proteins of SEQ No. 1187, 1188, 1235; 117-124 for the protein of sequence SEQ ID No. 1144	2d
SEQ ID No. 1649	NSTVWIYELFAK	119-130 for the proteins of SEQ No. 1114, 1249	2d
SEQ ID No. 1650	NSTVWVYELFAK	119-130 for the proteins of SEQ No. 1108, 1125, 1128, 1131, 1133, 1173, 1201, 1239, 1246; 108-119 for the protein of sequence SEQ	OXA

		ID No. 1120	
SEQ ID No. 1651	NSTVWVYQLFAK	119-130 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1652	NTSGALVIQTDK	48-59 for the proteins of SEQ No. 1218	2df
SEQ ID No. 1653	NTSGVLVIQTDK	48-59 for the proteins of SEQ No. 1124, 1132, 1145, 1198, 1199, 1217, 1219, 1220, 1221, 1222, 1223, 1244, 1251	2df
SEQ ID No. 1654	NVDEMFFYYDGSK	75-87 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1655	NWILR	204-208 for the proteins of SEQ No. 1108, 1114, 1125, 1127, 1128, 1130, 1133, 1173, 1201, 1239, 1242, 1246, 1249; 193-197 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1656	NWNAAMDRLR	125-133 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1657	NYVDAFHYNQDISGDK	118-134 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1658	QADHAILVFDQAR	51-63 for the proteins of SEQ No. 1133	2d
SEQ ID No. 1659	QAEHALLVFGQER	51-63 for the proteins of SEQ No. 1127, 1130, 1242	OXA
SEQ ID No. 1660	QAITK	251-255 for the proteins of SEQ No. 1136, 1142, 1208, 1243; 247-251 for the protein of sequence SEQ ID No. 1234	2df
SEQ ID No. 1661	QAMLTEANSYIIR	193-206 for the proteins of SEQ No. 1142	2df
SEQ ID No. 1662	QEVQFVSALAR	171-181 for the proteins of SEQ No. 1227	2df
SEQ ID No. 1663	QFASIK	243-248 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1664	QGMPGSIR	254-261 for the proteins of SEQ No. 1205	2df
SEQ ID No. 1665	QGMSGIR	254-261 for the proteins of SEQ No. 1224	2df
SEQ ID No. 1666	QGQTQQSYGNDLAR	58-71 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1169, 1170, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1194, 1195, 1196, 1197, 1202, 1203, 1204, 1206, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1261, 1265, 1266; 52-65 for the protein of sequence SEQ ID No. 1189; 52-65 for the protein of sequence SEQ ID No. 1190	2df

SEQ ID No. 1667	QIDYGNADPSTIK	143-155 for the proteins of SEQ No. 1127, 1130, 1242	OXA
SEQ ID No. 1668	QIDYGNVDPSTIK	143-155 for the proteins of SEQ No. 1131	2d
SEQ ID No. 1669	QIGEAR	129-134 for the proteins of SEQ No. 1136, 1208, 1234, 1243	2df
SEQ ID No. 1670	QIGQAR	129-134 for the proteins of SEQ No. 1142	2df
SEQ ID No. 1671	QIMLIEQTPAFTLR	190-203 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1672	QLGSAIDQFWLR	152-163 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1673	QLHDNK	199-204 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1674	QLIFVHTVVQK	229-239 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1675	QLIFVHTVVQKPGK	229-242 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1676	QLPVK	178-182 for the proteins of SEQ No. 1191; 184-188 for the protein of sequence SEQ ID No. 1137	OXA
SEQ ID No. 1677	QLPVKPR	184-190 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1678	QLSLDVLDK	265-273 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1679	QLVYAR	237-242 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1680	QMMLTEASTDYIIR	217-230 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1681	QMSIVEATPDYVLHGK	214-229 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1682	QPTDPAR	99-105 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1683	QPTDPTR	93-99 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1684	QPVSAGIR	246-253 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1685	QQLVK	275-279 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1686	QTLVFAR	232-238 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1687	QVGAEK	126-131 for the proteins of SEQ No. 1228	2df

SEQ ID No. 1688	QVVFAR	238-243 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1689	SADEVLPYGGK	84-94 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1690	SADEVLPYGGKPQR	84-97 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1691	SCATNDLAR	50-58 for the proteins of SEQ No. 1110, 1193, 1250, 1259; 41-49 for the protein of sequence SEQ ID No. 1106; 41-49 for the protein of sequence SEQ ID No. 1111; 41-49 for the protein of sequence SEQ ID No. 1112	OXA
SEQ ID No. 1692	SCATNNLAR	50-58 for the proteins of SEQ No. 1115, 1116, 1117, 1126, 1141, 1200, 1229, 1262	OXA
SEQ ID No. 1693	SDIPGGSK	251-258 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1694	SDWGK	29-33 for the proteins of SEQ No. 1133	2d
SEQ ID No. 1695	SEDNFHISSQHEK	27-40 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1264	2df
SEQ ID No. 1696	SEMPASIR	252-259 for the proteins of SEQ No. 1124, 1145, 1198, 1217, 1218, 1219, 1220, 1221, 1222, 1244, 1251; 253-260 for the protein of sequence SEQ ID No. 1132; 253-260 for the protein of sequence SEQ ID No. 1199	2df
SEQ ID No. 1697	SEMPASTR	252-259 for the proteins of SEQ No. 1223	2df
SEQ ID No. 1698	SFAAHNQDQDLR	103-114 for the proteins of SEQ No. 1114, 1249	2d
SEQ ID No. 1699	SFAGHNK	103-109 for the proteins of SEQ No. 1133	2d
SEQ ID No. 1700	SFAGHNQDQDLR	103-114 for the proteins of SEQ No. 1127, 1130, 1131, 1242	2d
SEQ ID No. 1701	SFAGHNQDQNL	103-114 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1702	SFLESWAK	100-107 for the proteins of SEQ No. 1144	2d
SEQ ID No. 1703	SFTAWEK	109-115 for the proteins of SEQ No. 1124, 1132, 1145, 1199, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251; 104-110 for the protein of sequence SEQ ID No. 1227	2df
SEQ ID No. 1704	SFTTWEK	109-115 for the proteins of SEQ No. 1198	2df
SEQ ID No. 1705	SGSGWLR	207-213 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1706	SGWGMAVDPQVGWYVGF VEK	221-240 for the proteins of SEQ No. 1168, 1171, 1216	2df

SEQ ID No. 1707	SGWGMDVSPQVGWLTGW VEK	219-238 for the proteins of SEQ No. 1224	2df
SEQ ID No. 1708	SGWGMDVTPQVGWLTGW VEK	219-238 for the proteins of SEQ No. 1205	2df
SEQ ID No. 1709	SIHPASTFK	69-77 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1710	SIPTK	252-256 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1229, 1248, 1250, 1259, 1262, 1263; 243-247 for the protein of sequence SEQ ID No. 1106; 243-247 for the protein of sequence SEQ ID No. 1111; 243-247 for the protein of sequence SEQ ID No. 1112	OXA
SEQ ID No. 1711	SISTK	252-256 for the proteins of SEQ No. 1247	2d
SEQ ID No. 1712	SLGLSNNLSR	76-85 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1713	SLSMSGK	4-10 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1714	SMLFIEEK	202-209 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1169, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1182, 1183, 1184, 1185, 1186, 1192, 1194, 1195, 1196, 1197, 1202, 1203, 1204, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1261, 1265, 1266; 196-203 for the protein of sequence SEQ ID No. 1189; 196-203 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1715	SNGEK	239-243 for the proteins of SEQ No. 1205, 1224	2df
SEQ ID No. 1716	SNGLTHSWLGSSLK	141-154 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1717	SNGYK	208-212 for the proteins of SEQ No. 1124, 1132, 1145, 1199, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251	2df
SEQ ID No. 1718	SPTWELK	79-85 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1719	SPTWELKPEYNPSR	79-93 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1720	SQDIVR	208-213 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1721	SQQKPTDPTIWLK	100-112 for the proteins of SEQ No. 1109	2de
SEQ ID No. 1722	SQVGWLTGWVEQPDGK	225-240 for the proteins of SEQ No. 1244	2df

SEQ ID No. 1723	SSSNSCTTNNAAR	46-58 for the proteins of SEQ No. 1247	2d
SEQ ID No. 1724	SSSNSCTTNNATR	46-58 for the proteins of SEQ No. 1263	2de
SEQ ID No. 1725	SVYGELR	139-145 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1726	SWILR	204-208 for the proteins of SEQ No. 1131	2d
SEQ ID No. 1727	SYFDEAQTQGVIIK	44-58 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1205, 1207, 1224, 1264	2df
SEQ ID No. 1728	SYLEK	139-143 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1729	SYPMWEK	111-117 for the proteins of SEQ No. 1205, 1224	2df
SEQ ID No. 1730	TAYIPASTFK	61-70 for the proteins of SEQ No. 1247, 1263; 77-86 for the protein of sequence SEQ ID No. 1168; 77-86 for the protein of sequence SEQ ID No. 1171; 77-86 for the protein of sequence SEQ ID No. 1216	2df
SEQ ID No. 1731	TDDLFK	243-248 for the proteins of SEQ No. 1127, 1130, 1131, 1242	2d
SEQ ID No. 1732	TDINEIFK	95-102 for the proteins of SEQ No. 1132, 1145, 1198, 1199, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251	2df
SEQ ID No. 1733	TFIHNDPR	51-58 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1734	TGAGFTANR	216-224 for the proteins of SEQ No. 1118, 1134; 201-209 for the protein of sequence SEQ ID No. 1119	2d
SEQ ID No. 1735	TGFNDGQK	197-204 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1736	TGLADSK	210-216 for the proteins of SEQ No. 1187, 1188; 209-215 for the protein of sequence SEQ ID No. 1144	2d
SEQ ID No. 1737	TGLDLMQK	140-147 for the proteins of SEQ No. 1205	2df
SEQ ID No. 1738	TGLELMQK	140-147 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1264	2df
SEQ ID No. 1739	TGMGYPK	198-204 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1740	TGNR	197-201 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1741	TGTGSFIDAR	200-209 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1742	TGTGSLSDAK	211-220 for the proteins of SEQ No. 1109	2de

SEQ ID No. 1743	TGVATEYQPEIGWWAGWV ER	213-232 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1744	TGVSYPLLADGTR	202-214 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1745	TGWAAMDIK	217-225 for the proteins of SEQ No. 1132, 1199	2df
SEQ ID No. 1746	TGWAMDIK	217-224 for the proteins of SEQ No. 1124, 1145, 1198, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251	2df
SEQ ID No. 1747	TGWAMDVK	217-224 for the proteins of SEQ No. 1217	2df
SEQ ID No. 1748	TGWATR	206-211 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1749	TGWCFDCTPELGWWVGW VK	205-223 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1750	TGWEGR	211-216 for the proteins of SEQ No. 1108, 1114, 1125, 1127, 1128, 1130, 1131, 1173, 1201, 1239, 1242, 1246, 1249; 200-205 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1751	TGWFVDK	230-236 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1752	TGYDTK	209-214 for the proteins of SEQ No. 1234	2df
SEQ ID No. 1753	TGYGVR	233-238 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1754	TGYSAR	209-214 for the proteins of SEQ No. 1208	2df
SEQ ID No. 1755	TGYSTR	209-214 for the proteins of SEQ No. 1136, 1142, 1243	2df
SEQ ID No. 1756	THESSNWGK	25-33 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1757	TICTAIADAGTGK	25-37 for the proteins of SEQ No. 1254, 1255, 1257, 1258	2d
SEQ ID No. 1758	TIGGAPDAYWVDDSLQISA R	169-188 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1759	TLPFSASSYETLR	177-189 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1760	TLPFSLK	189-195 for the proteins of SEQ No. 1157, 1161, 1169	2df
SEQ ID No. 1761	TLPFSPK	189-195 for the proteins of SEQ No. 1147, 1153, 1170, 1181, 1186, 1197, 1203, 1225, 1240, 1241, 1253	2df
SEQ ID No. 1762	TLPFSQEVQDEVQSILFIEE K	189-209 for the proteins of SEQ No. 1206	2df
SEQ ID No. 1763	TLPFSQEVQDEVQSMLFIEE K	189-209 for the proteins of SEQ No. 1150, 1192	2df

SEQ ID No. 1764	TLPFSQK	189-195 for the proteins of SEQ No. 1146, 1148, 1149, 1151, 1152, 1154, 1155, 1156, 1158, 1159, 1160, 1162, 1163, 1164, 1165, 1166, 1167, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1182, 1183, 1184, 1185, 1194, 1195, 1196, 1202, 1204, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1226, 1230, 1231, 1232, 1233, 1236, 1238, 1245, 1260, 1261, 1265, 1266; 183-189 for the protein of sequence SEQ ID No. 1189; 183-189 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1765	TLPSSQK	189-195 for the proteins of SEQ No. 1237	2df
SEQ ID No. 1766	TLQNGWFEGFIISK	225-238 for the proteins of SEQ No. 1118, 1134; 210-223 for the protein of sequence SEQ ID No. 1119	2d
SEQ ID No. 1767	TMQEYLNK	123-130 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1768	TNGNSTSVYNESR	51-63 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1769	TQTYQAYDAAR	72-82 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1770	TTDPTIWEK	93-101 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1771	TTTTTEVFK	96-103 for the proteins of SEQ No. 1153, 1186	2df
SEQ ID No. 1772	TWASNDFSR	41-49 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1773	TWDMVQR	191-197 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1774	TWMQFSVVVWSQEITQK	113-129 for the proteins of SEQ No. 1118, 1134; 98-114 for the protein of sequence SEQ ID No. 1119	2d
SEQ ID No. 1775	TYPMWEK	111-117 for the proteins of SEQ No. 1122, 1123, 1129, 1172, 1207, 1264	2df
SEQ ID No. 1776	TYVVDPAR	58-65 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1777	VAFSLNIEMK	244-253 for the proteins of SEQ No. 1205	2df
SEQ ID No. 1778	VANSLIGLSTGAVR	70-83 for the proteins of SEQ No. 1138	2d
SEQ ID No. 1779	VEHQR	187-191 for the proteins of SEQ No. 1108, 1113, 1114, 1121, 1125, 1127, 1128, 1130, 1131, 1133, 1173, 1201, 1239, 1242, 1246, 1249; 176-180 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1780	VELGK	248-252 for the proteins of SEQ No. 1138	2d

SEQ ID No. 1781	VFDDAGVSGTFVLMDITAD R	38-57 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1782	VFLDSWAK	88-95 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1783	VFLESWAK	101-108 for the proteins of SEQ No. 1187, 1188, 1235	2d
SEQ ID No. 1784	VFLSSWAQDMNLSSAIK	89-105 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1785	VGFER	134-138 for the proteins of SEQ No. 1137	2df
SEQ ID No. 1786	VILVFDQVR	55-63 for the proteins of SEQ No. 1114, 1249	2d
SEQ ID No. 1787	VITFTK	228-233 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1788	VMAAMVR	158-164 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1789	VPLAVMGYDAGILVDAHN PR	58-77 for the proteins of SEQ No. 1256	2d
SEQ ID No. 1790	VQANVK	195-200 for the proteins of SEQ No. 1124, 1132, 1145, 1198, 1199, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1244, 1251	2df
SEQ ID No. 1791	VQDEVK	196-201 for the proteins of SEQ No. 1202	2df
SEQ ID No. 1792	VQDEVQSMLFIEEK	196-209 for the proteins of SEQ No. 1146, 1147, 1148, 1149, 1150, 1151, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1162, 1163, 1164, 1165, 1166, 1167, 1169, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1182, 1183, 1184, 1185, 1186, 1192, 1194, 1195, 1196, 1197, 1203, 1204, 1209, 1210, 1211, 1212, 1213, 1215, 1225, 1226, 1230, 1231, 1232, 1233, 1236, 1237, 1238, 1240, 1241, 1245, 1253, 1260, 1261, 1265, 1266; 190-203 for the protein of sequence SEQ ID No. 1189; 190-203 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1793	VQDEVQSMLFIEEMNGNK	196-213 for the proteins of SEQ No. 1170, 1181	2df
SEQ ID No. 1794	VQDGVQSMLFIEEK	196-209 for the proteins of SEQ No. 1214	2df
SEQ ID No. 1795	VQHEVQSMLFIEEK	196-209 for the proteins of SEQ No. 1152	2df
SEQ ID No. 1796	VSCLPCYQVVSHK	138-150 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1797	VSCVWCYQALAR	114-125 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1798	VSDVCSEVTAEGWQEV	37-53 for the proteins of SEQ No. 1139	2df

SEQ ID No. 1799	VSEVEGWQIHGK	186-197 for the proteins of SEQ No. 1105	2d
SEQ ID No. 1800	VSFSLNIEMK	244-253 for the proteins of SEQ No. 1224	2df
SEQ ID No. 1801	VSPCSSFK	54-61 for the proteins of SEQ No. 1107	2d
SEQ ID No. 1802	VSQVPAYK	105-112 for the proteins of SEQ No. 1135	2d
SEQ ID No. 1803	VVFAR	229-233 for the proteins of SEQ No. 1256; 239-243 for the protein of sequence SEQ ID No. 1107; 240-244 for the protein of sequence SEQ ID No. 1109	OXA
SEQ ID No. 1804	WDGAK	97-101 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1805	WDGEK-	104-108 for the proteins of SEQ No. 1151, 1160, 1177, 1180, 1182	2df
SEQ ID No. 1806	WDGHIYDFPDWNR	92-104 for the proteins of SEQ No. 1228	2df
SEQ ID No. 1807	WDGIK	97-101 for the proteins of SEQ No. 1114, 1249	2d
SEQ ID No. 1808	WDGKPR	92-97 for the proteins of SEQ No. 1110, 1115, 1116, 1117, 1126, 1141, 1193, 1200, 1229, 1247, 1250, 1259, 1262, 1263; 83-88 for the protein of sequence SEQ ID No. 1106; 83-88 for the protein of sequence SEQ ID No. 1111; 83-88 for the protein of sequence SEQ ID No. 1112; 116-121 for the protein of sequence SEQ ID No. 1140; 107-112 for the protein of sequence SEQ ID No. 1168; 107-112 for the protein of sequence SEQ ID No. 1171; 107-112 for the protein of sequence SEQ ID No. 1216; 93-98 for the protein of sequence SEQ ID No. 1248	OXA
SEQ ID No. 1809	WDGQK	104-108 for the proteins of SEQ No. 1146, 1147, 1150, 1153, 1154, 1155, 1157, 1161, 1163, 1164, 1165, 1169, 1170, 1181, 1186, 1192, 1197, 1203, 1204, 1206, 1225, 1226, 1240, 1241, 1253, 1261, 1266; 98-102 for the protein of sequence SEQ ID No. 1189; 98-102 for the protein of sequence SEQ ID No. 1190	2df
SEQ ID No. 1810	WDGQTR	95-100 for the proteins of SEQ No. 1136, 1142, 1208, 1234, 1243	2df
SEQ ID No. 1811	WDGVK	97-101 for the proteins of SEQ No. 1127, 1130, 1133, 1242	2d
SEQ ID No. 1812	WDGVNR	97-102 for the proteins of SEQ No. 1108, 1125, 1128, 1131, 1173, 1201, 1239, 1246; 86-91 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1813	WDYKPEFNGYK	78-88 for the proteins of SEQ No. 1256; 89-99 for the protein of sequence SEQ ID No. 1109	OXA
SEQ ID No. 1814	WETYSVVWFSQQITEWLG MER	97-117 for the proteins of SEQ No. 1105	2d

SEQ ID No. 1815	WNGQK	104-108 for the proteins of SEQ No. 1152, 1176, 1202, 1265	2df
SEQ ID No. 1816	YAQAK	155-159 for the proteins of SEQ No. 1140	2df
SEQ ID No. 1817	YFSDFNAK	34-41 for the proteins of SEQ No. 1113, 1121	2d
SEQ ID No. 1818	YGTHLDR	68-74 for the proteins of SEQ No. 1168, 1171, 1216	2df
SEQ ID No. 1819	YIIHMK	54-59 for the proteins of SEQ No. 1144, 1187, 1188, 1235	2d
SEQ ID No. 1820	YLDELVK	245-251 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1821	YLMITEAGR	195-203 for the proteins of SEQ No. 1242	OXA
SEQ ID No. 1822	YLNLFSGNANIGGGIDK	135-152 for the proteins of SEQ No. 1247, 1263	OXA
SEQ ID No. 1823	YNGEK	96-100 for the proteins of SEQ No. 1187, 1188, 1235	2d
SEQ ID No. 1824	YPHNPR	88-93 for the proteins of SEQ No. 1252	2de
SEQ ID No. 1825	YPVWVYSQQVAHHLGAQR	103-120 for the proteins of SEQ No. 1255	2d
SEQ ID No. 1826	YSNVLAFK	106-113 for the proteins of SEQ No. 1143	2d
SEQ ID No. 1827	YSPASTFK	68-75 for the proteins of SEQ No. 1108, 1113, 1114, 1121, 1125, 1127, 1128, 1130, 1131, 1133, 1173, 1201, 1239, 1242, 1246, 1249; 57- 64 for the protein of sequence SEQ ID No. 1120	OXA
SEQ ID No. 1828	YSVVPVYQQLAR	141-152 for the proteins of SEQ No. 1139	2df
SEQ ID No. 1829	YSVWVYSQLTAK	109-120 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1830	YSVWVYSQQVAHHLGAQR	103-120 for the proteins of SEQ No. 1254, 1257, 1258	2d
SEQ ID No. 1831	YTPASTFK	55-62 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1832	YTSAFGYGNADVSGEPGK	130-147 for the proteins of SEQ No. 1191	2d
SEQ ID No. 1833	YVFVSALTGNLGSNLTSSIK	228-247 for the proteins of SEQ No. 1119; 243-262 for the protein of sequence SEQ ID No. 1118	2d
SEQ ID No. 1834	YVFVSALTGSLGSNLTSSIK	243-262 for the proteins of SEQ No. 1134	2d

SEQ ID No. 1835	YVGHDR	50-55 for the proteins of SEQ No. 1138	2d
SEQ ID No. 2160	ANQAFLPASTFK	62-73 for the proteins of SEQ No. 1136, 1142, 1208, 1234, 1243	2df
SEQ ID No. 2161	DEHQVFK	88-94 for the proteins of SEQ No. 1136, 1142, 1208, 1234, 1243	2df
SEQ ID No. 2162	DHNLITAMK	108-116 for the proteins of SEQ No. 1136, 1208, 1234	2df
SEQ ID No. 2163	DIATWNR	101-107 for the proteins of SEQ No. 1136, 1208, 1234	2df
SEQ ID No. 2164	IPNSLIALDLGVVK	74-87 for the proteins of SEQ No. 1136, 1142, 1208, 1234, 1243	2df
SEQ ID No. 2165	ISATEQISFLR	164-174 for the proteins of SEQ No. 1136, 1208, 1234	2df
SEQ ID No. 2166	QAMLTEANGDYIIR	193-206 for the proteins of SEQ No. 1136, 1208, 1234, 1243	2df
SEQ ID No. 2167	QQGFTNNLK	52-60 for the proteins of SEQ No. 1136, 1142, 1208, 1234, 1243	2df
SEQ ID No. 2168	SQGVVVLWNENK	40-51 for the proteins of SEQ No. 1136, 1208, 1234, 1243	2df
SEQ ID No. 2169	SWNAHFTEHK	30-39 for the proteins of SEQ No. 1136, 1208, 1234, 1243	2df
SEQ ID No. 2170	VLALSAVFLVASIIGMPAVA K	3-23 for the proteins of SEQ No. 1136, 1208, 1234, 1243	2df
SEQ ID No. 2171	YSVVPVYQEFAR	117-128 for the proteins of SEQ No. 1136, 1142, 1208, 1234, 1243	2df

In the clinical interest column, the entries 2d, 2de, 2df correspond to the functional subgroups of OXA beta-lactamases which the corresponding peptide makes it possible to detect. Therefore, the detection of a 2df peptide will indicate the presence of a carbapenemase beta-lactamase capable of hydrolysing carbapenems.

The entry 2de will indicate the presence of a beta-lactamase with an extended spectrum (ESBL) capable of hydrolysing penicillins, first-generation cephalosporins such as cephaloridine and cefalotin, and at least one antibiotic from the oxyimino-beta-lactam class such as cefotaxime, ceftazidime or monobactams such as aztreonam.

The entry OXA indicates a common peptide between at least two of the subgroups 2d, 2de and 2df. The corresponding peptide indicates the presence of an OXA beta-lactamase and the presence of a mechanism of resistance at least to penicillins and to first-generation cephalosporins.

The detection of a mechanism of resistance to ESBL (extended-spectrum beta-lactamase) cephalosporins, induced by the OXA protein, is characterised by the detection of at least one resistance-marking 2de peptide chosen from the sequences

SEQ ID No. 1277, 1297, 1323, 1344, 1368, 1369, 1373, 1375, 1392, 1421, 1423,

5 **1427, 1429, 1439, 1444, 1446, 1450, 1451, 1457, 1465, 1468, 1490, 1491, 1495,**

1498, 1534, 1543, 1545, 1575, 1589, 1597, 1598, 1600, 1602, 1657, 1713, 1721,

1724, 1740, 1742, 1787, 1824, 1268, 1269, 1270, 1271, 1272, 1278, 1279, 1280,

1281, 1283, 1285, 1288, 1290, 1295, 1299, 1300, 1301, 1302, 1303, 1304, 1305,

1306, 1307, 1308, 1309, 1310, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1332,

10 **1337, 1339, 1340, 1341, 1342, 1350, 1354, 1355, 1356, 1357, 1358, 1359, 1360,**

1365, 1366, 1367, 1386, 1389, 1390, 1391, 1393, 1394, 1402, 1404, 1405, 1407,

1408, 1413, 1414, 1419, 1420, 1425, 1432, 1433, 1440, 1447, 1448, 1456, 1471,

1472, 1477, 1478, 1480, 1485, 1487, 1488, 1499, 1504, 1506, 1508, 1509, 1510,

1513, 1514, 1515, 1516, 1521, 1522, 1525, 1526, 1530, 1533, 1539, 1540, 1548,

15 **1550, 1551, 1552, 1553, 1554, 1555, 1556, 1559, 1567, 1569, 1570, 1571, 1572,**

1574, 1577, 1582, 1590, 1592, 1595, 1596, 1605, 1609, 1610, 1611, 1612, 1613,

1614, 1615, 1616, 1617, 1618, 1620, 1626, 1627, 1628, 1632, 1633, 1634, 1635,

1637, 1638, 1639, 1640, 1652, 1653, 1656, 1660, 1661, 1662, 1664, 1665, 1666,

1669, 1670, 1671, 1672, 1673, 1677, 1678, 1680, 1681, 1685, 1687, 1695, 1696,

20 **1697, 1703, 1704, 1706, 1707, 1708, 1709, 1712, 1714, 1715, 1717, 1720, 1722,**

1725, 1727, 1729, 1730, 1732, 1733, 1737, 1738, 1743, 1746, 1748, 1751, 1752,

1753, 1754, 1755, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1769, 1771,

1773, 1775, 1776, 1777, 1781, 1785, 1788, 1790, 1791, 1792, 1793, 1794, 1795,

1796, 1797, 1798, 1800, 1805, 1806, 1809, 1810, 1815, 1816, 1818, 1828, 2160,

25 **2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171.**

The detection of a mechanism of resistance to carbapenems or to cephalosporins, induced by the expression of the GES protein, is characterised by

30 the detection of at least one peptide belonging to the GES protein and to its different sequence variants **SEQ ID No. 2114 to SEQ ID No. 2130.**

SEQ ID No. 2114:

MRFIHALLLAGIAHSAYASEKLTFTKTDLEKLEREKAAQIGVAIVDPQGEIVAGHRMAQ

DEMANDES OU BREVETS VOLUMINEUX

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

CECI EST LE TOME __1__ DE __2__

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.**

THIS IS VOLUME __1__ OF __2__

NOTE: For additional volumes please contact the Canadian Patent Office.

CLAIMS

1. A method of detection, by mass spectrometry, that is an MS/MS spectrometry in multiple reaction monitoring (MRM) mode, for at least one microorganism contained in a sample, of at least one marker of resistance to at least one antimicrobial, wherein:
 - (a) the antimicrobial is a cephalosporin, and
 - (b) said at least one marker of resistance comprises at least one TEM protein or TEM peptide, wherein the TEM protein or peptide is or comprises at least one the peptides of SEQ ID NOs: 166-261, 1923, 1927 and 1928.
2. The method of claim 1, wherein proteins from said microorganism are digested into peptides.
3. The method of claim 2, wherein the digestion is performed by an enzyme.
4. The method of claim 3, wherein the enzyme is trypsin.
5. The method of any one of claims 1 to 4, wherein the at least one resistance marker is/are TEM peptides comprising at least one of the peptides of SEQ ID NOs: 166-218, 220-230, 232-241, 243-252, 254-257, 259-261, 1923, 1927, and 1928.
6. The method of claim 5, wherein the at least one resistance marker is/are at least one of the peptides of SEQ ID NOs: 166, 167, 168, 169, 170, 171, 172, 173, 174, 180, 181, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 212, 213, 214, 215, 216, 217, 219, 220, 223, 224, 225, 226, 227, 228, 229, 230, 241, 242, 243, 250, 251, 252, 253, 254, 255, 259, 260, 261, 1927, and 1928.
7. The method of any one of claims 1 to 6, wherein the resistance is an extended-spectrum beta-lactamase (ESBL) resistance and the resistance-marking peptides are one or more of the peptides of SEQ ID NOs: 168, 169, 179, 181, 186, 199, 200, 205,

206, 208, 212, 213, 214, 215, 216, 217, 222, 225, 226, 227, 230, 234, 236, 237, 238, 239, 240, 249, 254, 255, 256, 259, 261, 1927, and 1928.

8. The method of any one of claims 1 to 4, wherein the at least one resistance
5 marker is/are TEM peptides consisting of at least one of the peptides of SEQ ID NOs:
166-218, 220-230, 232-241, 243-252, 254-257, 259-261, 1923, 1927, and 1928.