

SEQUENCE LISTING

<110> University of Copenhagen
AdaptVac ApS

<120> Nucleic acid vaccines

<130> P5856PC00

<160> 101

<170> PatentIn version 3.5

<210> 1

<211> 13

<212> PRT

<213> Streptococcus pyogenes

<400> 1

Ala His Ile Val Met Val Asp Ala Tyr Lys Pro Thr Lys
1 5 10

<210> 2

<211> 13

<212> PRT

<213> Streptococcus dysgalactiae

<400> 2

Asp Pro Ile Val Met Ile Asp Asn Asp Lys Pro Ile Thr
1 5 10

<210> 3

<211> 12

<212> PRT

<213> Streptococcus pneumoniae

<400> 3

Lys Leu Gly Asp Ile Glu Phe Ile Lys Val Asn Lys
1 5 10

<210> 4

<211> 22

<212> PRT

<213> Streptococcus phocae

<400> 4

Leu Val Thr Gly Thr Ala His Ile Val Met Val Asp Asn Tyr Lys Pro
1 5 10 15

Ile Val Glu Thr Gly Asp
20

<210> 5

<211> 15

<212> PRT

<213> Enterococcus faecalis

<400> 5

Asn Thr Ile Val Met Val Asp Lys Leu Lys Glu Val Pro Pro Thr
1 5 10 15

<210> 6

<211> 20

<212> PRT

<213> Ruminococcus sp. AF26-25AA

<400> 6

Ser Glu Asn Gly Asn Pro Leu Ile Val Met Val Asp Asp Thr Thr Lys
1 5 10 15

Val Lys Ile Ser
20

<210> 7

<211> 17

<212> PRT

<213> Ruminococcus sp. AF25-19

<400> 7

Gly Thr Pro Ile Val Ile Met Val Asp Glu Ala Lys Pro Ser Leu Pro
1 5 10 15

Asp

<210> 8

<211> 17

<212> PRT

<213> Ruminococcus sp. Marseille-P6503

<400> 8

Gly Asn Pro Leu Ile Val Met Ile Asp Glu Ala Glu Gln Lys Glu Ile
1 5 10 15

Pro

<210> 9

<211> 17

<212> PRT

<213> Ruminococcus sp.

<400> 9

Ala Gly Gly Ile Ile Val Met Lys Asp Asn Thr Thr Lys Val Ser Ile
1 5 10 15

Ser

<210> 10
<211> 17
<212> PRT
<213> Ruminococcus flavefaciens

<400> 10

Gly Asn Pro Ile Val Thr Met Ile Asp Asp Ala Thr Leu Val Lys Ile
1 5 10 15

Ser

<210> 11
<211> 17
<212> PRT
<213> Ruminococcus sp.

<400> 11

Gly Asn Ser Thr Ile Thr Met Val Asp Asp Thr Thr Lys Val His Ile
1 5 10 15

Thr

<210> 12
<211> 17
<212> PRT
<213> Ruminococcus sp. AM43-6

<400> 12

Gly Thr Pro Leu Ile Val Met Val Asp Asp Thr Thr Lys Val Glu Ile
1 5 10 15

Ser

<210> 13
<211> 15
<212> PRT
<213> Artificial sequence

<220>
<223> Rumtrunk D9N

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Rumtrunk D9N

<400> 13

Gly Asn Pro Leu Ile Val Met Val Asn Asp Thr Thr Lys Val Lys

1 5 10 15

<210> 14
<211> 15
<212> PRT
<213> Ruminococcus sp.

<400> 14

Gly Asn Pro Leu Ile Val Met Val Asp Asp Thr Thr Lys Val Lys
1 5 10 15

<210> 15
<211> 20
<212> PRT
<213> Bacillus cereus

<400> 15

Asn Glu Lys Val Thr Gly Gln Phe Glu Ile Val Lys Val Asp Ala Asn
1 5 10 15

Asp Lys Thr Lys
20

<210> 16
<211> 19
<212> PRT
<213> Bacillus cereus

<400> 16

Ser Lys Ser Leu Gly Gln Phe Glu Ile Val Lys Val Asp Ala Gln Asp
1 5 10 15

Lys Thr Lys

<210> 17
<211> 16
<212> PRT
<213> Bacillus cereus

<400> 17

Leu Gly Gln Phe Glu Ile Val Lys Val Asp Ser Gln Asp Lys Thr Lys
1 5 10 15

<210> 18
<211> 17
<212> PRT
<213> Bacillus cereus

<400> 18

Val Thr Gly Gln Phe Glu Ile Val Lys Val Asp Ala Glu Asp Lys Thr
1 5 10 15

Arg

<210> 19
<211> 19
<212> PRT
<213> Bacillus cereus VD022

<400> 19

Glu Lys Val Met Gly Gln Phe Glu Ile Met Lys Val Asp Ala Asn Asp
1 5 10 15

Lys Thr Lys

<210> 20
<211> 23
<212> PRT
<213> Clostridium perfringens B str. ATCC 3626

<400> 20

Asp Thr Lys Gln Val Val Lys His Glu Asp Lys Asn Asp Lys Ala Gln
1 5 10 15

Thr Leu Val Val Glu Lys Pro
20

<210> 21
<211> 116
<212> PRT
<213> Streptococcus pyogenes

<400> 21

Gly Ala Met Val Asp Thr Leu Ser Gly Leu Ser Ser Glu Gln Gly Gln
1 5 10 15

Ser Gly Asp Met Thr Ile Glu Glu Asp Ser Ala Thr His Ile Lys Phe
20 25 30

Ser Lys Arg Asp Glu Asp Gly Lys Glu Leu Ala Gly Ala Thr Met Glu
35 40 45

Leu Arg Asp Ser Ser Gly Lys Thr Ile Ser Thr Trp Ile Ser Asp Gly
50 55 60

Gln Val Lys Asp Phe Tyr Leu Tyr Pro Gly Lys Tyr Thr Phe Val Glu
65 70 75 80

Thr Ala Ala Pro Asp Gly Tyr Glu Val Ala Thr Ala Ile Thr Phe Thr
85 90 95

Val Asn Glu Gln Gly Gln Val Thr Val Asn Gly Lys Ala Thr Lys Gly
 100 105 110

Asp Ala His Ile
 115

<210> 22
 <211> 104
 <212> PRT
 <213> Streptococcus dysgalactiae
 <400> 22

Ile Asp Thr Met Ser Gly Leu Ser Gly Glu Thr Gly Gln Ser Gly Asn
 1 5 10 15

Thr Thr Ile Glu Glu Asp Ser Thr Thr His Val Lys Phe Ser Lys Arg
 20 25 30

Asp Ser Asn Gly Lys Glu Leu Ala Gly Ala Met Ile Glu Leu Arg Asn
 35 40 45

Leu Ser Gly Gln Thr Ile Gln Ser Trp Val Ser Asp Gly Thr Val Lys
 50 55 60

Asp Phe Tyr Leu Met Pro Gly Thr Tyr Gln Phe Val Glu Thr Ala Ala
 65 70 75 80

Pro Glu Gly Tyr Glu Leu Ala Ala Pro Ile Thr Phe Thr Ile Asp Glu
 85 90 95

Lys Gly Gln Ile Trp Val Asp Ser
 100

<210> 23
 <211> 123
 <212> PRT
 <213> Streptococcus pneumoniae
 <400> 23

Ser Ser Gly Leu Val Pro Arg Gly Ser His Met Lys Pro Leu Arg Gly
 1 5 10 15

Ala Val Phe Ser Leu Gln Lys Gln His Pro Asp Tyr Pro Asp Ile Tyr
 20 25 30

Gly Ala Ile Asp Gln Asn Gly Thr Tyr Gln Asn Val Arg Thr Gly Glu
 35 40 45

Asp Gly Lys Leu Thr Phe Lys Asn Leu Ser Asp Gly Lys Tyr Arg Leu
 50 55 60

Phe Glu Asn Ser Glu Pro Ala Gly Tyr Lys Pro Val Gln Asn Lys Pro
65 70 75 80

Ile Val Ala Phe Gln Ile Val Asn Gly Glu Val Arg Asp Val Thr Ser
85 90 95

Ile Val Pro Gln Asp Ile Pro Ala Thr Tyr Glu Phe Thr Asn Gly Lys
100 105 110

His Tyr Ile Thr Asn Glu Pro Ile Pro Pro Lys
115 120

<210> 24
<211> 129
<212> PRT
<213> Actinomyces viscosus

<400> 24

Gly Ser Leu Ser Lys Tyr Gly Lys Val Ile Leu Thr Lys Thr Gly Thr
1 5 10 15

Asp Asp Leu Ala Asp Lys Thr Lys Tyr Asn Gly Ala Gln Phe Gln Val
20 25 30

Tyr Glu Cys Thr Lys Thr Ala Ser Gly Ala Thr Leu Arg Asp Ser Asp
35 40 45

Pro Ser Thr Gln Thr Val Asp Pro Leu Thr Ile Gly Gly Glu Lys Thr
50 55 60

Phe Thr Thr Ala Gly Gln Gly Thr Val Glu Ile Asn Tyr Leu Arg Ala
65 70 75 80

Asn Asp Tyr Val Asn Gly Ala Lys Lys Asp Gln Leu Thr Asp Glu Asp
85 90 95

Tyr Tyr Cys Leu Val Glu Thr Lys Ala Pro Glu Gly Tyr Asn Leu Gln
100 105 110

Ala Asp Pro Leu Pro Phe Arg Val Leu Ala Glu Lys Ala Glu Lys Lys
115 120 125

Ala

<210> 25
<211> 102
<212> PRT
<213> Streptococcus pneumonia serotype 4 (strain ATCC BAA-334/TIGR4)

<400> 25

Gly Ser Thr Thr Lys Val Lys Leu Ile Lys Val Asp Gln Asp His Asn
1 5 10 15

Arg Leu Glu Gly Val Gly Phe Lys Leu Val Ser Val Ala Arg Asp Val
20 25 30

Ser Ala Ala Ala Val Pro Leu Ile Gly Glu Tyr Arg Tyr Ser Ser Ser
35 40 45

Gly Gln Val Gly Arg Thr Leu Tyr Thr Asp Lys Asn Gly Glu Ile Phe
50 55 60

Val Thr Asn Leu Pro Leu Gly Asn Tyr Arg Phe Lys Glu Val Glu Pro
65 70 75 80

Leu Ala Gly Tyr Ala Val Thr Thr Leu Asp Thr Asp Val Gln Leu Val
85 90 95

Asp His Gln Leu Val Thr
100

<210> 26

<211> 94

<212> PRT

<213> Streptococcus pneumonia serotype 4 (strain ATCC BAA-334/TIGR4)

<400> 26

Pro Arg Gly Asn Val Asp Phe Met Lys Val Asp Gly Arg Thr Asn Thr
1 5 10 15

Ser Leu Gln Gly Ala Met Phe Lys Val Met Lys Glu Glu Ser Gly His
20 25 30

Tyr Thr Pro Val Leu Gln Asn Gly Lys Glu Val Val Val Thr Ser Gly
35 40 45

Lys Asp Gly Arg Phe Arg Val Glu Gly Leu Glu Tyr Gly Thr Tyr Tyr
50 55 60

Leu Trp Glu Leu Gln Ala Pro Thr Gly Tyr Val Gln Leu Thr Ser Pro
65 70 75 80

Val Ser Phe Thr Ile Gly Lys Asp Thr Arg Lys Glu Leu Val
85 90

<210> 27

<211> 123

<212> PRT

<213> Corynebacterium diphtheriae NCTC 13129

<400> 27

Val Val Thr Tyr His Gly Lys Leu Lys Val Val Lys Lys Asp Gly Lys
1 5 10 15

Glu Ala Gly Lys Val Leu Lys Gly Ala Glu Phe Glu Leu Tyr Gln Cys
20 25 30

Thr Ser Ala Ala Val Leu Gly Lys Gly Pro Leu Thr Val Asp Gly Val
35 40 45

Lys Lys Trp Thr Thr Gly Asp Asp Gly Thr Phe Thr Ile Asp Gly Leu
50 55 60

His Val Thr Asp Phe Glu Asp Gly Lys Glu Ala Ala Pro Ala Thr Lys
65 70 75 80

Lys Phe Cys Leu Lys Glu Thr Lys Ala Pro Ala Gly Tyr Ala Leu Pro
85 90 95

Asp Pro Asn Val Thr Glu Ile Glu Phe Thr Arg Ala Lys Ile Ser Glu
100 105 110

Lys Asp Lys Phe Glu Gly Asp Asp Glu Val Thr
115 120

<210> 28

<211> 134

<212> PRT

<213> Lactobacillus rhamnosus GG

<400> 28

Ser Thr Asn Asp Thr Thr Thr Gln Asn Val Val Leu Thr Lys Tyr Gly
1 5 10 15

Phe Asp Lys Asp Val Thr Ala Ile Asp Arg Ala Thr Asp Gln Ile Trp
20 25 30

Thr Gly Asp Gly Ala Lys Pro Leu Gln Gly Val Asp Phe Thr Ile Tyr
35 40 45

Asn Val Thr Ala Asn Tyr Trp Ala Ser Pro Lys Asp Tyr Lys Gly Ser
50 55 60

Phe Asp Ser Ala Pro Val Ala Ala Thr Gly Thr Thr Asn Asp Lys Gly
65 70 75 80

Gln Leu Thr Gln Ala Leu Pro Ile Gln Ser Lys Asp Ala Ser Gly Lys
85 90 95

Thr Arg Ala Ala Val Tyr Leu Phe His Glu Thr Asn Pro Arg Ala Gly
100 105 110

Tyr Asn Thr Ser Ala Asp Phe Trp Leu Thr Leu Pro Ala Lys Ala Ala
115 120 125

Ala Asp Gly Asn Val Tyr
130

<210> 29
<211> 114
<212> PRT
<213> Lactobacillus rhamnosus GG

<400> 29

Thr Thr Tyr Glu Arg Thr Phe Val Lys Lys Asp Ala Glu Thr Lys Glu
1 5 10 15

Val Leu Glu Gly Ala Gly Phe Lys Ile Ser Asn Ser Asp Gly Lys Phe
20 25 30

Leu Lys Leu Thr Asp Lys Asp Gly Gln Ser Val Ser Ile Gly Glu Gly
35 40 45

Phe Ile Asp Val Leu Ala Asn Asn Tyr Arg Leu Thr Trp Val Ala Glu
50 55 60

Ser Asp Ala Thr Val Phe Thr Ser Asp Lys Ser Gly Lys Phe Gly Leu
65 70 75 80

Asn Gly Phe Ala Asp Asn Thr Thr Thr Tyr Thr Ala Val Glu Thr Asn
85 90 95

Val Pro Asp Gly Tyr Asp Ala Ala Ala Asn Thr Asp Phe Lys Ala Asp
100 105 110

Asn Ser

<210> 30
<211> 107
<212> PRT
<213> Streptococcus agalactiae A909

<400> 30

Gly Gln Ile Thr Ile Lys Lys Ile Asp Gly Ser Thr Lys Ala Ser Leu
1 5 10 15

Gln Gly Ala Ile Phe Val Leu Lys Asn Ala Thr Gly Gln Phe Leu Asn

20

25

30

Phe Asn Asp Thr Asn Asn Val Glu Trp Gly Thr Glu Ala Asn Ala Thr
 35 40 45

Glu Tyr Thr Thr Gly Ala Asp Gly Ile Ile Thr Ile Thr Gly Leu Lys
 50 55 60

Glu Gly Thr Tyr Tyr Leu Val Glu Lys Lys Ala Pro Leu Gly Tyr Asn
 65 70 75 80

Leu Leu Asp Asn Ser Gln Lys Val Ile Leu Gly Asp Gly Ala Thr Asp
 85 90 95

Thr Thr Asn Ser Asp Asn Leu Leu Val Asn Pro
 100 105

<210> 31
 <211> 91
 <212> PRT
 <213> Streptococcus intermedius

<400> 31

Glu Gln Asp Val Val Phe Ser Lys Val Asn Val Ala Gly Glu Glu Ile
 1 5 10 15

Ala Gly Ala Lys Ile Gln Leu Lys Asp Ala Gln Gly Gln Val Val His
 20 25 30

Ser Trp Thr Ser Lys Ala Gly Gln Ser Glu Thr Val Lys Leu Lys Ala
 35 40 45

Gly Thr Tyr Thr Phe His Glu Ala Ser Ala Pro Thr Gly Tyr Leu Ala
 50 55 60

Val Thr Asp Ile Thr Phe Glu Val Asp Val Gln Gly Lys Val Thr Val
 65 70 75 80

Lys Asp Ala Asn Gly Asn Gly Val Lys Ala Asp
 85 90

<210> 32
 <211> 104
 <212> PRT
 <213> Streptococcus pneumoniae

<400> 32

Lys Leu Gly Asp Ile Glu Phe Ile Lys Val Asn Lys Asn Asp Lys Lys
 1 5 10 15

Pro Leu Arg Gly Ala Val Phe Ser Leu Gln Lys Gln His Pro Asp Tyr
20 25 30

Pro Asp Ile Tyr Gly Ala Ile Asp Gln Asn Gly Thr Tyr Gln Asn Val
35 40 45

Arg Thr Gly Glu Asp Gly Lys Leu Thr Phe Lys Asn Leu Ser Asp Gly
50 55 60

Lys Tyr Arg Leu Phe Glu Asn Ser Glu Pro Ala Gly Tyr Lys Pro Val
65 70 75 80

Gln Asn Lys Pro Ile Val Ala Phe Gln Ile Val Asn Gly Glu Val Arg
85 90 95

Asp Val Thr Ser Ile Val Pro Gln
100

<210> 33
<211> 130
<212> PRT
<213> Corynebacterium diphtheriae NCTC 13129

<400> 33

Gly Ser Glu Arg Lys Gly Ser Leu Thr Leu His Lys Lys Lys Gly Ala
1 5 10 15

Glu Ser Glu Lys Arg Ala Thr Gly Lys Glu Met Asp Asp Val Ala Gly
20 25 30

Glu Pro Leu Asn Gly Val Thr Phe Lys Ile Thr Lys Leu Asn Phe Asp
35 40 45

Leu Gln Asn Gly Asp Trp Ala Lys Phe Pro Lys Thr Ala Ala Asp Ala
50 55 60

Lys Gly His Glu Thr Ser Thr Thr Lys Glu Val Glu Thr Ser Gly Asn
65 70 75 80

Gly Thr Ala Val Phe Asp Asn Leu Asp Leu Gly Ile Tyr Leu Val Glu
85 90 95

Glu Thr Lys Ala Pro Asp Gly Ile Val Thr Gly Ala Pro Phe Ile Val
100 105 110

Ser Ile Pro Met Val Asn Glu Ala Ser Asp Ala Trp Asn Tyr Asn Val
115 120 125

Val Ala
130

<210> 34
 <211> 149
 <212> PRT
 <213> Clostridium perfringens B str. ATCC 3626

<400> 34

Asn Leu Pro Glu Val Lys Asp Gly Thr Leu Arg Thr Thr Val Ile Ala
 1 5 10 15

Asp Gly Val Asn Gly Ser Ser Glu Lys Glu Ala Leu Val Ser Phe Glu
 20 25 30

Asn Ser Lys Asp Gly Val Asp Val Lys Asp Thr Ile Asn Tyr Glu Gly
 35 40 45

Leu Val Ala Asn Gln Asn Tyr Thr Leu Thr Gly Thr Leu Met His Val
 50 55 60

Lys Ala Asp Gly Ser Leu Glu Glu Ile Ala Thr Lys Thr Thr Asn Val
 65 70 75 80

Thr Ala Gly Glu Asn Gly Asn Gly Thr Trp Gly Leu Asp Phe Gly Asn
 85 90 95

Gln Lys Leu Gln Val Gly Glu Lys Tyr Val Val Phe Glu Asn Ala Glu
 100 105 110

Ser Val Glu Asn Leu Ile Asp Thr Asp Lys Asp Tyr Asn Leu Asp Thr
 115 120 125

Lys Gln Val Val Lys His Glu Asp Lys Asn Asp Lys Ala Gln Thr Leu
 130 135 140

Val Val Glu Lys Pro
 145

<210> 35
 <211> 39
 <212> DNA
 <213> Streptococcus pyogenes

<400> 35

gctcacatcg tgatggtgga cgcttacaag cccaccaag

39

<210> 36
 <211> 39
 <212> DNA
 <213> Streptococcus dysgalactiae

<400> 36

gaccccatcg tgatgatcga caacgacaag cccatcacc

39

<210> 37
 <211> 36
 <212> DNA
 <213> Streptococcus pneumoniae

 <400> 37
 aaactgggtg atattgaatt tattaaagtt aataaa 36

 <210> 38
 <211> 66
 <212> DNA
 <213> Streptococcus phocae

 <400> 38
 ctggttaccg gcaccgcaca tattgttatg gttgataact ataagccgat cgtggaaacc 60
 ggtgat 66

 <210> 39
 <211> 60
 <212> DNA
 <213> Enterococcus faecalis

 <400> 39
 accgaagtta gcggtatac cattgtgatg gtggataaac tgaaagaagt tccgcctacc 60

 <210> 40
 <211> 60
 <212> DNA
 <213> Ruminococcus sp. AF26-25AA

 <400> 40
 agcgaaaacg gcaacccgct gattgtgatg gtggatgata ccaccaaagt gaaaattagc 60

 <210> 41
 <211> 51
 <212> DNA
 <213> Ruminococcus sp. AF25-19

 <400> 41
 ggcaccccga ttgtgattat ggtggatgaa gcgaaaccga gcctgccgga t 51

 <210> 42
 <211> 51
 <212> DNA
 <213> Ruminococcus sp. Marseille-P6503

 <400> 42
 ggcaaccgc tgattgtgat gattgatgaa gcggaacaga aagaaattcc g 51

 <210> 43
 <211> 51
 <212> DNA
 <213> Ruminococcus sp.

 <400> 43
 gcgggcggca ttattgtgat gaaagataac accaccaaag tgagcattag c 51

<210> 44
 <211> 48
 <212> DNA
 <213> Ruminococcus flavefaciens

 <400> 44
 ggcaaccga ttgtgaccat gattgatgat gcgacctgg tgaaaatt 48

 <210> 45
 <211> 51
 <212> DNA
 <213> Ruminococcus sp.

 <400> 45
 ggcaacagca ccattaccat ggtggatgat accaccaaag tgcattattac c 51

 <210> 46
 <211> 51
 <212> DNA
 <213> Ruminococcus sp. AM43-6

 <400> 46
 ggcaaccgc tgattgtgat ggtggatgat accaccaaag tggaaattag c 51

 <210> 47
 <211> 45
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> Rumtrunk D9N DNA

 <220>
 <221> misc_feature
 <222> (1)..(45)
 <223> Rumtrunk D9N

 <400> 47
 ggtaatccgc tgattgtgat ggtgaatgat accaccaaag tgaaa 45

 <210> 48
 <211> 45
 <212> DNA
 <213> Ruminococcus sp.

 <400> 48
 ggcaaccgc tgattgtgat ggtggatgat accaccaaag tgaaa 45

 <210> 49
 <211> 45
 <212> DNA
 <213> Bacillus cereus

 <400> 49
 ggtcagttcg aaattgttaa agttgatgca aacgataaaa ctaaa 45

<210> 50
 <211> 57
 <212> DNA
 <213> *Bacillus cereus*

 <400> 50
 agcaaaagcc tgggccagtt tgaaattgtg aaagtggatg cgcaggataa aacaaaa 57

 <210> 51
 <211> 48
 <212> DNA
 <213> *Bacillus cereus*

 <400> 51
 ctgggccagt ttgaaattgt taaagttgat agccaggata aaacaaaa 48

 <210> 52
 <211> 51
 <212> DNA
 <213> *Bacillus cereus*

 <400> 52
 gttaccggtc agtttgaaat cgttaaagtt gatgccgaag ataagacccg t 51

 <210> 53
 <211> 57
 <212> DNA
 <213> *Bacillus cereus* VD022

 <400> 53
 gaaaaagtga tgggccagtt cgaaatcatg aaagttgatg ccaacgacaa gacaaaa 57

 <210> 54
 <211> 69
 <212> DNA
 <213> *Clostridium perfringens* B str. ATCC 3626

 <400> 54
 gacaccaagc aggtggtgaa gcacgaggac aagaacgaca agggccagac cctggtggtg 60
 gagaagccc 69

 <210> 55
 <211> 348
 <212> DNA
 <213> *Streptococcus pyogenes*

 <400> 55
 ggtgcaatgg ttgataccct gagcgggtctg agcagcgaac agggtcagag cggtgatatg 60
 accattgaag aagatagcgc aaccacatc aaattcagca aacgtgatga agatggtaaa 120
 gaactggcag gcgcaacaat ggaactgcgt gatagcagcg gtaaaacat tagcacctgg 180
 attagtgatg gtcagggtgaa agatTTTTAT ctgtaccctg gcaaatacac ctttgttgaa 240
 accgcagcac cggatggtta tgaagttgca accgcaatta cttttaccgt taatgaacag 300
 ggccagggtta ccgtgaatgg taaagcaacc aaaggtgatg cacatatt 348

<210> 56
 <211> 318
 <212> DNA
 <213> Streptococcus dysgalactiae

<400> 56
 atgggtattg ataccatgag cggctctgagc ggtgaaaccg gtcagagcgg taataaccacc 60
 attgaagagg atagcaccac acatgtgaaa ttcagcaaac gcgatgcaaa cggcaaagaa 120
 ctggcaggcg caatgattga actgcgtaat ctgagtggtc agaccattca gagctggggt 180
 agtgatggca ccgttaaaga tttttatctg atgcctggca cctatcagtt tgttgaaacc 240
 gcagcaccgg aaggttatga gctggcagca ccgattacct ttaccattga tgaaaaaggt 300
 cagatttggg ttgatagc 318

<210> 57
 <211> 369
 <212> DNA
 <213> Streptococcus pneumoniae

<400> 57
 agcagcggcc tggtgccgcg cggcagccat atgaagccgc tgcgtggtgc cgtgtttagc 60
 ctgcagaaac agcatcccga ctatcccgat atctatggcg cgattgatca gaatgggacc 120
 tatcaaaatg tgcgtaccgg cgaagatggt aaactgacct ttaagaatct gagcgatggc 180
 aaatatcgcc tgtttgaaaa tagcgaacct gctggctata aaccggtgca gaataagccg 240
 attgtggcgt ttcagattgt gaatggcgaa gtgcgtgatg tgaccagcat tgtgccgcag 300
 gatattccgg ctacatatga atttaccaac ggtaaacatt atatcaccaa tgaaccgata 360
 ccgccgaaa 369

<210> 58
 <211> 387
 <212> DNA
 <213> Actinomyces viscosus

<400> 58
 ggtagcctga gcaaatatgg taaagtgatt ctgacaaaaa ccggcaccga tgatctggca 60
 gataaaacca aatataacgg tgcacagttt cagggtgatg aatgtaccaa aacagcaagc 120
 ggtgcaacct tgcgtgatag cgatccgagc acacagaccg ttgatccgct gaccattggt 180
 ggtgaaaaaa cttttaccac cgcaggctcag ggcaccgttg aaattaatta tctgcgtgcc 240
 aatgattatg tgaacggtgc aaaaaaagat cagctgaccg atgaagatta ttactgtctg 300
 gttgaaacca aagcaccgga aggttataat ctgcaggcag atccgctgcc gtttcgtggt 360
 ctggccgaaa aagcagaaaa aaaagcc 387

<210> 59
 <211> 306
 <212> DNA

<213> Streptococcus pneumonia serotype 4 (strain ATCC BAA-334/TIGR4)

<400> 59

```
ggtagcacca ccaaagtga actgattaaa gttgatcagg atcacatcg tctggaaggt      60
gttggtttta aactggttag cgttgcacgt gatgtagcag cagcagcagt tccgctgatt    120
ggtgaatatc gttatagcag cagcggtcag gttggtcgta ccctgtatac cgataaaaaat   180
ggcgaaatth tcgttaccaa tctgccgctg ggtaactatc gttttaaaga agttgaaccg    240
ctggcagggtt atgcagttac cacactggat accgatgttc agctggttga tcatcagctg   300
gtgacc                                           306
```

<210> 60

<211> 282

<212> DNA

<213> Streptococcus pneumonia serotype 4 (strain ATCC BAA-334/TIGR4)

<400> 60

```
ccgcgtggta atgttgattt tatgaaagtt gatggtcgca ccaataccag cctgcagggt      60
gcaatgttta aagtgatgaa agaagaaagc ggtcactata caccggtgct gcagaatggt    120
aaagaagttg ttgttaccag cggtaaagat ggtcgttttc gtgttgaagg tctggaatat   180
ggcacctatt atctgtggga actgcaggca ccgaccgggt atgttcagct gaccagtccg    240
gtagttttta ccattggcaa agatacccggt aaagaactgg tg                        282
```

<210> 61

<211> 369

<212> DNA

<213> Corynebacterium diphtheriae NCTC 13129

<400> 61

```
gttggtacct atcatggtaa actgaaagtg gtgaaaaaag acggtaaaga ggcaggcaaa      60
gttctgaaag gtgcagaatt tgaactgtat cagtgtacca gcgcagcagt ttaggtaaa    120
ggtccgctga ccgttgatgg tgtgaaaaaa tggaccaccg gtgatgatgg cacctttacc   180
attgatggtc tgcattgtac cgattttgaa gatggtaaag aagccgcacc ggcaacaaaa   240
aaattctgtc tgaaagaaac caaagcaccg gcaggttatg cactgcctga tccgaatgtg   300
accgaaattg aatttaccg tgcaaaaatc agcgagaaag ataaatttga aggcgacgat    360
gaagtgacc                                           369
```

<210> 62

<211> 402

<212> DNA

<213> Lactobacillus rhamnosus GG

<400> 62

```
agcaccaatg ataccaccac acagaatgtt gttctgacca aatatggctt cgataaagat      60
gttaccgcaa ttgatcgtgc aaccgatcag atttggaccg gtgatgggtgc aaaaccgctg   120
cagggtgttg attttacat ttataacgtg accgccaatt attgggcaag cccgaaagat    180
```

tataaaggca gctttgatag cgcaccggtt gcagccaccg gtacaacaaa tgataaaggc	240
cagctgaccc aggcactgcc gattcagagc aaagatgcaa gcggtaaaac ccgtgcagca	300
gtttacctgt ttcacgaaac caatccgctg gcaggttata ataccagcgc agatttttgg	360
ctgaccctgc ctgcaaaagc agcagcagat ggtaatgttt at	402

<210> 63
 <211> 342
 <212> DNA
 <213> Lactobacillus rhamnosus GG

<400> 63	
accacctatg aacgtacctt tgttaaaaaa gacgccgaaa ccaaagaagt tctggaaggc	60
gcaggcttta aaatcagcaa tagtgatggc aaattcctga aactgaccga taaagatggt	120
cagagcgtaa gcattggtga aggttttatt gatgttctgg ccaataacta tcgtctgacc	180
tgggttcgag aaagtgatgc aaccgttttt accagcgata aaagcggcaa atttggtctg	240
aatggttttg cagataatac caccacctat accgcagttg aaaccaatgt tccggatggt	300
tatgatgcag cagcaaacac cgatttcaaa gccgataata gc	342

<210> 64
 <211> 321
 <212> DNA
 <213> Streptococcus agalactiae A909

<400> 64	
ggtcagatta ccatcaaaaa aatcgatggc agcaccaaag caagcctgca gggcgcaatt	60
ttgtttctga aaaatgcaac cggtcagttc ctgaatttta acgataccaa taatgttgaa	120
tggggcaccg aagcaaatgc caccgaatat accaccggtg cagatgggat tattaccatt	180
accggtctga aagaaggcac ctattacctg gttgaaaaaa aagcaccgct ggggtataat	240
ctgctggata attcacagaa agtgatttta ggtgatggcg caaccgatac caccaatagc	300
gataacctgc tggttaatcc g	321

<210> 65
 <211> 273
 <212> DNA
 <213> Streptococcus intermedius

<400> 65	
gaacaggatg ttgtgttttag caaagttaat gttgccggtg aagaaattgc gggcgcaaaa	60
atccagctga aagatgcaca ggggtcaagt gttcatagct ggaccagcaa agcaggtcag	120
agcgaaaccg ttaaactgaa agcaggcacc tatacctttc atgaagcaag cgcaccgacc	180
ggttatctgg cagttaccga tattaccttt gaagttgatg ttcagggtaa agtgaccgtt	240
aaagatgcaa atggtaatgg tgtgaaagcc gac	273

<210> 66
 <211> 312
 <212> DNA
 <213> Streptococcus pneumoniae

<400> 66
 aaactgggtg atattgagtt catcaaagtg aacaaaaacg ataaaaaacc gctgcgtggt 60
 gcagtttttta gcctgcagaa acagcatccg gattaccggtg atatttatgg tgcaattgat 120
 cagaatggca cctatcagaa tgttcgtacc ggtgaagatg gtaaaactgac ctttaaaaac 180
 ctgagcgacg gtaaatatcg cctgtttgaa aatagcgaac cggcagggtta taaaccgggt 240
 cagaataaac cgattgtggc ctttcagatt gttaatgggtg aagttcgtga tgtgaccagc 300
 attgttccgc ag 312

<210> 67
 <211> 390
 <212> DNA
 <213> Corynebacterium diphtheriae NCTC 13129

<400> 67
 ggtagcgaac gtaaaggtag tctgaccctg cataaaaaaga aaggtgcaga aagcgaaaaa 60
 cgtgcaaccg gtaaagaaat ggatgatgtt gccggtgaac cgctgaatgg tgttaccttt 120
 aaaatcacca aactgaactt cgatctgcag aatgggtgatt gggcaaaatt tccgaaaacc 180
 gcagcagatg caaaaggtca tgaaaccagc accaccaaag aagtggaaac cagcggtaat 240
 ggacccgcag tttttgataa tctggatctg ggtatttacc tgggtggaaga aaccaaagca 300
 ccggatggta ttgttacagg tgcaccgttt attgttagca ttccgatggt taatgaagca 360
 agtgatgcct ggaattataa cgttgttgca 390

<210> 68
 <211> 447
 <212> DNA
 <213> Clostridium perfringens B str. ATCC 3626

<400> 68
 aacctgcccg aggtgaagga cggcaccctg aggaccaccg tgatcgccga cggcgtgaac 60
 ggacgcagcg agaaggaggc cctggtgagc ttcgagaaca gcaaggacgg cgtggacgtg 120
 aaggacacca tcaactacga gggcctgggtg gccaaaccaga actacaccct gaccggcacc 180
 ctgatgcacg tgaaggccga cggcagcctg gaggagatcg ccaccaagac caccaacgtg 240
 accgccggcg agaacggcaa cggcacctgg ggcctggact tcggcaacca gaagctgcag 300
 gtgggcgaga agtacgtggt gttcgagaac gccgagagcg tggagaacct gatcgacacc 360
 gacaaggact acaacctgga caccaagcag gtgggtgaagc acgaggacaa gaacgacaag 420
 gccagaccc tgggtggtgga gaagccc 447

<210> 69
 <211> 170

<212> PRT
<213> Homo sapiens

<400> 69

Arg Met Leu Lys Ala Leu Asn Asp Gln Leu Asn Arg Glu Leu Tyr Ser
1 5 10 15

Ala Tyr Leu Tyr Phe Ala Met Ala Ala Tyr Phe Glu Asp Leu Gly Leu
20 25 30

Glu Gly Phe Ala Asn Trp Met Lys Ala Gln Ala Glu Glu Glu Ile Gly
35 40 45

His Ala Leu Arg Phe Tyr Asn Tyr Ile Tyr Asp Arg Asn Gly Arg Val
50 55 60

Glu Leu Asp Glu Ile Pro Lys Pro Pro Lys Glu Trp Glu Ser Pro Leu
65 70 75 80

Lys Ala Phe Glu Ala Ala Tyr Glu His Glu Lys Phe Ile Ser Lys Ser
85 90 95

Ile Tyr Glu Leu Ala Ala Leu Ala Glu Glu Glu Lys Asp Tyr Ser Thr
100 105 110

Arg Ala Phe Leu Glu Trp Phe Ile Asn Glu Gln Val Glu Glu Glu Ala
115 120 125

Ser Val Lys Lys Ile Leu Asp Lys Leu Lys Phe Ala Lys Asp Ser Pro
130 135 140

Gln Ile Leu Phe Met Leu Asp Lys Glu Leu Ser Ala Arg Ala Pro Lys
145 150 155 160

Leu Pro Gly Leu Leu Met Gln Gly Gly Glu
165 170

<210> 70
<211> 154
<212> PRT
<213> Homo sapiens

<400> 70

Met Gln Ile Tyr Glu Gly Lys Leu Thr Ala Glu Gly Leu Arg Phe Gly
1 5 10 15

Ile Val Ala Ser Arg Phe Asn His Ala Leu Val Asp Arg Leu Val Glu
20 25 30

Gly Ala Ile Asp Cys Ile Val Arg His Gly Gly Arg Glu Glu Asp Ile

35

40

45

Thr Leu Val Arg Val Pro Gly Ser Trp Glu Ile Pro Val Ala Ala Gly
 50 55 60

Glu Leu Ala Arg Lys Glu Asp Ile Asp Ala Val Ile Ala Ile Gly Val
 65 70 75 80

Leu Ile Arg Gly Ala Thr Pro His Phe Asp Tyr Ile Ala Ser Glu Val
 85 90 95

Ser Lys Gly Leu Ala Asn Leu Ser Leu Glu Leu Arg Lys Pro Ile Thr
 100 105 110

Phe Gly Val Ile Thr Ala Asp Thr Leu Glu Gln Ala Ile Glu Arg Ala
 115 120 125

Gly Thr Lys His Gly Asn Lys Gly Trp Glu Ala Ala Leu Ser Ala Ile
 130 135 140

Glu Met Ala Asn Leu Phe Lys Ser Leu Arg
 145 150

<210> 71
 <211> 122
 <212> PRT
 <213> Homo sapiens

<400> 71

Pro Ala Asn Ser Thr Val Leu Ser Phe Cys Ala Phe Ala Val Asp Pro
 1 5 10 15

Ala Lys Ala Tyr Lys Asp Tyr Leu Ala Ser Gly Gly Gln Pro Ile Thr
 20 25 30

Asn Cys Val Lys Met Leu Cys Thr His Thr Gly Thr Gly Gln Ala Ile
 35 40 45

Thr Val Thr Pro Glu Ala Asn Met Asp Gln Glu Ser Phe Gly Gly Ala
 50 55 60

Ser Cys Cys Leu Tyr Cys Arg Cys His Ile Asp His Pro Asn Pro Lys
 65 70 75 80

Gly Phe Cys Asp Leu Lys Gly Lys Tyr Val Gln Ile Pro Thr Thr Cys
 85 90 95

Ala Asn Asp Pro Val Gly Phe Thr Leu Arg Asn Thr Val Cys Thr Val
 100 105 110

Cys Gly Met Trp Lys Gly Tyr Gly Cys Ser
115 120

<210> 72
<211> 205
<212> PRT
<213> Homo sapiens

<400> 72

Met Lys Met Glu Glu Leu Phe Lys Lys His Lys Ile Val Ala Val Leu
1 5 10 15

Arg Ala Asn Ser Val Glu Glu Ala Lys Lys Lys Ala Leu Ala Val Phe
20 25 30

Leu Gly Gly Val His Leu Ile Glu Ile Thr Phe Thr Val Pro Asp Ala
35 40 45

Asp Thr Val Ile Lys Glu Leu Ser Phe Leu Lys Glu Met Gly Ala Ile
50 55 60

Ile Gly Ala Gly Thr Val Thr Ser Val Glu Gln Ala Arg Lys Ala Val
65 70 75 80

Glu Ser Gly Ala Glu Phe Ile Val Ser Pro His Leu Asp Glu Glu Ile
85 90 95

Ser Gln Phe Ala Lys Glu Lys Gly Val Phe Tyr Met Pro Gly Val Met
100 105 110

Thr Pro Thr Glu Leu Val Lys Ala Met Lys Leu Gly His Thr Ile Leu
115 120 125

Lys Leu Phe Pro Gly Glu Val Val Gly Pro Gln Phe Val Lys Ala Met
130 135 140

Lys Gly Pro Phe Pro Asn Val Lys Phe Val Pro Thr Gly Gly Val Asn
145 150 155 160

Leu Asp Asn Val Cys Glu Trp Phe Lys Ala Gly Val Leu Ala Val Gly
165 170 175

Val Gly Ser Ala Leu Val Lys Gly Thr Pro Val Glu Val Ala Glu Lys
180 185 190

Ala Lys Ala Phe Val Glu Lys Ile Arg Gly Cys Thr Glu
195 200 205

<210> 73

<211> 282
<212> PRT
<213> Thermotoga maritima

<400> 73

Met Gly Ala Arg Ala Ser Gly Ser Lys Ser Gly Ser Gly Ser Asp Ser
1 5 10 15

Gly Ser Lys Met Glu Glu Leu Phe Lys Lys His Lys Ile Val Ala Val
20 25 30

Leu Arg Ala Asn Ser Val Glu Glu Ala Lys Lys Lys Ala Leu Ala Val
35 40 45

Phe Leu Gly Gly Val His Leu Ile Glu Ile Thr Phe Thr Val Pro Asp
50 55 60

Ala Asp Thr Val Ile Lys Glu Leu Ser Phe Leu Lys Glu Met Gly Ala
65 70 75 80

Ile Ile Gly Ala Gly Thr Val Thr Ser Val Glu Gln Cys Arg Lys Ala
85 90 95

Val Glu Ser Gly Ala Glu Phe Ile Val Ser Pro His Leu Asp Glu Glu
100 105 110

Ile Ser Gln Phe Cys Lys Glu Lys Gly Val Phe Tyr Met Pro Gly Val
115 120 125

Met Thr Pro Thr Glu Leu Val Lys Ala Met Lys Leu Gly His Thr Ile
130 135 140

Leu Lys Leu Phe Pro Gly Glu Val Val Gly Pro Gln Phe Val Lys Ala
145 150 155 160

Met Lys Gly Pro Phe Pro Asn Val Lys Phe Val Pro Thr Gly Gly Val
165 170 175

Asn Leu Asp Asn Val Cys Glu Trp Phe Lys Ala Gly Val Leu Ala Val
180 185 190

Gly Val Gly Ser Ala Leu Val Lys Gly Thr Pro Val Glu Val Ala Glu
195 200 205

Lys Ala Lys Ala Phe Val Glu Lys Ile Arg Gly Cys Thr Glu Gln Lys
210 215 220

Leu Ile Ser Glu Glu Asp Leu Gln Ser Arg Pro Glu Pro Thr Ala Pro
225 230 235 240

Pro Glu Glu Ser Phe Arg Ser Gly Val Glu Thr Thr Thr Pro Pro Gln
 245 250 255

Lys Gln Glu Pro Ile Asp Lys Glu Leu Tyr Pro Leu Thr Ser Leu Arg
 260 265 270

Ser Leu Phe Gly Asn Asp Pro Ser Ser Gln
 275 280

<210> 74
 <211> 510
 <212> DNA
 <213> Homo sapiens

<400> 74
 agaatgctga aggccctgaa cgaccagctg aacagagagc tgtactccgc ctacctgtac 60
 ttcgctatgg ccgcctactt cgaggacctg ggccttgagg gattcgccaa ctggatgaag 120
 gctcaggccg aggaagagat cggccacgct ctgagattct acaactacat ctacgacaga 180
 aacggccgcg tggaactgga cgagatcccc aagcctccta aagagtggga gagccctctg 240
 aaggctttcg aggctgctta cgagcacgag aagttcatca gcaagagcat ctacgagctg 300
 gccgctctgg ccgaagagga aaaggactac tctaccagag ctttctgga atggttcac 360
 aacgaacagg tggaagagga agccagcgtc aagaagatcc tggacaagct gaagttcgcc 420
 aaggacagcc ctcatgctt gttcatgctg gacaaagagc tgagcgccag ggctcctaaa 480
 ctgcctggac tgcttatgca aggcggcgaa 510

<210> 75
 <211> 462
 <212> DNA
 <213> Homo sapiens

<400> 75
 atgcagatct acgagggcaa gctgaccgcc gagggcctga ggttcggcat cgtggccagc 60
 aggttcaacc acgccctggt ggacaggctg gtggagggcg ccatcgactg catcgtgagg 120
 cacggcggca gggaggagga catcacctg gtgagggtgc ccggcagctg ggagatcccc 180
 gtggccgccg gcgagctggc caggaaggag gacatcgacg ccgtgatcgc catcggcgtg 240
 ctgatcaggg gcgccacccc ccacttcgac tacatcgcca gcgaggtgag caagggcctg 300
 gccaacctga gcctggagct gaggaagccc atcaccttcg gcgtgatcac cgccgacacc 360
 ctggagcagg ccatcgagag ggccggcacc aagcacggca acaagggtg ggaggccgcc 420
 ctgagcgcca tcgagatggc caacctgttc aagagcctga gg 462

<210> 76
 <211> 366
 <212> DNA
 <213> Homo sapiens

<400> 76
cccgccaaaca gcaccgtgct gagcttctgc gccttcgccg tggaccccg caaggcctac 60
aaggactacc tggccagcgg cggccagccc atcaccaact gcgtgaagat gctgtgcacc 120
cacaccggca ccggccaggc catcaccgtg acccccgagg ccaacatgga ccaggagagc 180
ttcggcggcg ccagctgctg cctgtactgc aggtgccaca tcgaccacc caacccaag 240
ggcttctgcg acctgaaggg caagtacgtg cagatcccca ccacctgcgc caacgacccc 300
gtgggcttca ccctgaggaa caccgtgtgc accgtgtgcg gcatgtggaa gggctacggc 360
tgcagc 366

<210> 77
<211> 615
<212> DNA
<213> Homo sapiens

<400> 77
atgaagatgg aggagctgtt caagaagcac aagatcgtgg ccgtgctgag ggccaacagc 60
gtggaggagg ccaagaagaa ggccctggcc gtgttcctgg gcggcgtgca cctgatcgag 120
atcaccttca ccgtgcccga cgccgacacc gtgatcaagg agctgagctt cctgaaggag 180
atgggcgcca tcatcggcgc cggcaccgtg accagcgtgg agcaggccag gaaggccgtg 240
gagagcggcg ccgagttcat cgtgagcccc cacctggacg aggagatcag ccagttcgcc 300
aaggagaagg gcgtgttcta catgcccggc gtgatgacct ccaccgagct ggtgaaggcc 360
atgaagctgg gccacacat cctgaagctg ttccccggcg aggtggtggg cccccagttc 420
gtgaaggcca tgaagggcc cttccccaac gtgaagtctg tgcccaccgg cggcgtgaac 480
ctggacaacg tgtgcgagt gttcaaggcc ggcgtgctgg ccgtgggcgt gggcagcgcc 540
ctggtgaagg gcacccccgt ggaggtggcc gagaaggcca aggccttcgt ggagaagatc 600
aggggctgca ccgag 615

<210> 78
<211> 846
<212> DNA
<213> Thermotoga maritima

<400> 78
atgggcgcca gggccagcgg cagcaagagc ggcagcggca gcgacagcgg cagcaagatg 60
gaggagctgt tcaagaagca caagatcgtg gccgtgctga gggccaacag cgtggaggag 120
gccaagaaga aggccctggc cgtgttcctg ggcggcgtgc acctgatcga gatcaccttc 180
acctgccccg acgccgacac cgtgatcaag gagctgagct tcctgaagga gatgggcgcc 240
atcatcggcg ccggcaccgt gaccagcgtg gagcagtgc ggaaggccgt ggagagcggc 300
gccgagttca tcgtgagccc ccacctggac gaggagatca gccagtcttg caaggagaag 360
ggcgtgttct acatgcccgg cgtgatgacc cccaccgagc tggatgaaggc catgaagctg 420

ggccacacca tcctgaagct gttccccggc gaggtggtgg gccccagtt cgtgaaggcc 480
atgaagggcc ctttcccaa cgtgaagtgc gtgcccaccg gcggcgtgaa cctggacaac 540
gtgtgcgagt ggttcaaggc cggcgtgctg gccgtgggcg tgggcagcgc cctggtgaag 600
ggcacccccg tggaggtggc cgagaaggcc aaggccttcg tggagaagat caggggctgc 660
accgagcaga agctgatcag cgaggaggac ctgcagagca ggcccagacc caccgcccc 720
cccgaggaga gcttcaggag cggcgtggag accaccaccc cccccagaa gcaggagccc 780
atcgacaagg agctgtaccc cctgaccagc ctgaggagcc tgttcggcaa cgacccagc 840
agccag 846

<210> 79
<211> 19
<212> PRT
<213> Homo sapiens

<400> 79

Met Thr Arg Leu Thr Val Leu Ala Leu Leu Ala Gly Leu Leu Ala Ser
1 5 10 15

Ser Arg Ala

<210> 80
<211> 18
<212> PRT
<213> Homo sapiens

<400> 80

Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
1 5 10 15

Tyr Ser

<210> 81
<211> 19
<212> PRT
<213> Homo sapiens

<400> 81

Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ser
1 5 10 15

Ser Arg Ala

<210> 82
<211> 20

<212> PRT
<213> Cricetulus griseus

<400> 82

Met Gly Ser Ala Ala Leu Leu Leu Trp Val Leu Leu Leu Trp Val Pro
1 5 10 15

Gly Ser Asn Gly
20

<210> 83
<211> 20
<212> PRT
<213> Cricetulus griseus

<400> 83

Met Gly Ser Ala Ala Leu Leu Leu Trp Val Leu Leu Leu Trp Val Pro
1 5 10 15

Ser Ser Arg Ala
20

<210> 84
<211> 20
<212> PRT
<213> Homo sapiens

<400> 84

Met Glu Ala Pro Ala Gln Leu Leu Phe Leu Leu Leu Leu Trp Leu Pro
1 5 10 15

Ser Ser Arg Ala
20

<210> 85
<211> 154
<212> PRT
<213> Artificial

<220>
<223> Vector

<220>
<221> MISC_FEATURE
<222> (1)..(154)
<223> pVax1_ SpyTag-AP205

<400> 85

Ala His Ile Val Met Val Asp Ala Tyr Lys Pro Thr Lys Gly Ser Gly
1 5 10 15

Thr Ala Gly Gly Gly Ser Gly Ser Ala Asn Lys Pro Met Gln Pro Ile
20 25 30

Thr Ser Thr Ala Asn Lys Ile Val Trp Ser Asp Pro Thr Arg Leu Ser
 35 40 45

Thr Thr Phe Ser Ala Ser Leu Leu Arg Gln Arg Val Lys Val Gly Ile
 50 55 60

Ala Glu Leu Asn Asn Val Ser Gly Gln Tyr Val Ser Val Tyr Lys Arg
 65 70 75 80

Pro Ala Pro Lys Pro Glu Gly Cys Ala Asp Ala Cys Val Ile Met Pro
 85 90 95

Asn Glu Asn Gln Ser Ile Arg Thr Val Ile Ser Gly Ser Ala Glu Asn
 100 105 110

Leu Ala Thr Leu Lys Ala Glu Trp Glu Thr His Lys Arg Asn Val Asp
 115 120 125

Thr Leu Phe Ala Ser Gly Asn Ala Gly Leu Gly Phe Leu Asp Pro Thr
 130 135 140

Ala Ala Ile Val Ser Ser Asp Thr Thr Ala
 145 150

<210> 86
 <211> 198
 <212> PRT
 <213> Artificial

<220>
 <223> Vector

<220>
 <221> MISC_FEATURE
 <222> (1)..(198)
 <223> pVAX1_ HBc-SpyTag

<400> 86

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Ser Val Glu Leu Leu
 1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Ile Arg Asp Leu Leu Asp
 20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Val
 35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60

Leu Met Asn Leu Ala Thr Trp Val Gly Ser Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Glu Leu Val Val Ser Tyr Val Asn Val Asn Met Gly Leu Lys
85 90 95

Leu Arg Gln Ile Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Thr Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Gly Gly Gly Gly Gly Ser Pro Gly Gly Gly Thr
145 150 155 160

Pro Ser Pro Gly Gly Gly Gly Ser Gln Ser Pro Gly Gly Gly Gly Ser
165 170 175

Gln Ser Gly Glu Ser Gln Cys Gly Ser Ala His Ile Val Met Val Asp
180 185 190

Ala Tyr Lys Pro Thr Lys
195

<210> 87
<211> 360
<212> PRT
<213> Artificial

<220>
<223> Vector

<220>
<221> MISC_FEATURE
<222> (1)..(360)
<223> pVAX1-SPYCEGFP

<400> 87

Gly Ala Met Val Asp Thr Leu Ser Gly Leu Ser Ser Glu Gln Gly Gln
1 5 10 15

Ser Gly Asp Met Thr Ile Glu Glu Asp Ser Ala Thr His Ile Lys Phe
20 25 30

Ser Lys Arg Asp Glu Asp Gly Lys Glu Leu Ala Gly Ala Thr Met Glu
35 40 45

Leu Arg Asp Ser Ser Gly Lys Thr Ile Ser Thr Trp Ile Ser Asp Gly
50 55 60

Gln Val Lys Asp Phe Tyr Leu Tyr Pro Gly Lys Tyr Thr Phe Val Glu
65 70 75 80

Thr Ala Ala Pro Asp Gly Tyr Glu Val Ala Thr Ala Ile Thr Phe Thr
85 90 95

Val Asn Glu Gln Gly Gln Val Thr Val Asn Gly Lys Ala Thr Lys Gly
100 105 110

Asp Ala His Ile Gly Gly Ser Gly Ser Met Val Ser Lys Gly Glu Glu
115 120 125

Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val
130 135 140

Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr
145 150 155 160

Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro
165 170 175

Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys
180 185 190

Phe Ser Arg Tyr Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser
195 200 205

Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp
210 215 220

Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr
225 230 235 240

Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly
245 250 255

Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val
260 265 270

Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys
275 280 285

Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr
290 295 300

Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn

305 310 315 320

His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys
325 330 335

Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr
340 345 350

Leu Gly Met Asp Glu Leu Tyr Lys
355 360

<210> 88
<211> 465
<212> DNA
<213> Artificial

<220>
<223> Vector

<220>
<221> misc_feature
<222> (1)..(465)
<223> pVax1_SpyTag-AP205

<400> 88
gctcacatcg tgatggtgga cgcctacaag cccacaaaag gctctggaac agctggcggc 60
ggatctggct ctgccaacaa acctatgcag cccatcacca gcaccgcaa caagatcggt 120
tggagcgacc ccaccagact gagcaccaca ttcagcgcta gcctgctgag acagcgctg 180
aaagtgggaa tcgccgagct gaacaatgtg tccggccagt acgtgtccgt gtacaagagg 240
cctgctccta agcctgaggg ctgtgccgat gcctgtgtga tcatgcccga cgagaaccag 300
agcatcagaa ccgtgatcag cggcagcgcc gagaacctgg ctacactgaa ggctgagtgg 360
gagacacaca agagaaacgt ggacaccctg ttgcctctg gcaacgctgg actgggcttc 420
ctggatccta cagccgctat cgtgtctagc gacaccacag cctga 465

<210> 89
<211> 597
<212> DNA
<213> Artificial

<220>
<223> Vector

<220>
<221> misc_feature
<222> (1)..(597)
<223> pVAX1_HBc-SpyTag

<400> 89
atggacatcg acccctacaa agaatttggc gccagcgtgg aactgctgag cttcctgcct 60
agcgacttct tcccttccat ccgggacctg ctggatacag ccagcgact gtatagagag 120

gccctggaat ctcccagca cgtgtcacct caccacacag ctctgagaca ggccatcctg	180
tgttggggcg agctgatgaa cctggccaca tgggtcggaa gcaacctgga agatcccgcc	240
agcagagaac tgggtgtgtc ctacgtgaac gtgaacatgg gcctgaagct gagacagatc	300
ctgtggttcc acatcagctg cctgaccttc ggagagaaaa ccgtgctgga atacctggtg	360
tccttcggcg tgtggatcag aaccctacc gcctacagac ctcctaacgc tcccatcctg	420
agcaccctgc ctgagacaac agttgttggc ggaggcggag gatctcctgg cggaggaaca	480
ccttctccag gtgggtgtgg atctcaaagt cctgggtgtg gcggttctca gagcggcgaa	540
tctcagtgtg gctctgcca catcgtgatg gtggacgcct acaagcccac caaatga	597

<210> 90
 <211> 1082
 <212> DNA
 <213> Artificial

<220>
 <223> Vector

<220>
 <221> misc_feature
 <222> (1)..(1082)
 <223> pVAX1-SPYCEGFP

<400> 90	
gagccatggg ggatacactg tctggactgt ctagcgagca gggccagagc ggcgacatga	60
caatcgagga agatagcgcc acacacatca agttcagcaa gcgcgacgag gacggcaaag	120
aactggctgg cgctaccatg gaactgagag acagcagcgg caagaccatc agcacctgga	180
tctctgacgg ccaagtgaag gacttctatc tgtaccccg caagtacacc ttcgtggaaa	240
cagccgctcc tgacggatac gaggtggcca cagccatcac cttaccgtg aacgagcagg	300
gacaagtgac agtgaacggc aaggccacaa agggcgacgc tcacattggc ggctctggct	360
ccatgggtgtc caaggcgcaa gaactgttca ccggcgtggg gccattctg gtggaactgg	420
atggggatgt gaacggccac aagttctccg tgtctggcga aggcgaaggg gatgccacat	480
acggcaagct gacctgaag ttcatctgca ccaccgaaa gctgcccgtg ccttggccta	540
cactgggtcac cacactgaca tacggcgtgc agtgcttcag cagatacccc gaccatatga	600
agcagcacga cttcttcaag agcgccatgc ctgagggcta cgtgcaagag agaaccatct	660
tctttaagga cgacggcaac tacaagacca gggccgaagt gaagtctgag ggcgacaccc	720
tggtaacag aatcgagctg aagggcacatg acttcaaaga ggatggcaac atcctgggcc	780
acaagctcga gtacaactac aacagccaca acgtgtacat catggccgac aagcagaaaa	840
acggcatcaa agtgaacttc aagatccggc acaacatcga ggacggaagc gtgcagctgg	900
ccgatcacta ccagcagaac acacctatcg gcgacggacc tgtgctgctg cctgataacc	960

actacctgag cacacagagc gccctgagca aggaccctaa cgagaagagg gaccacatgg 1020
 tgctgctgga atttgtgacc gccgctggca tcacactcgg catggacgag ctgtacaaat 1080
 ga 1082

<210> 91
 <211> 4
 <212> PRT
 <213> Artificial

<220>
 <223> C-terminal tag

<220>
 <221> misc_feature
 <222> (1)..(4)
 <223> C-tag

<400> 91

Glu Pro Glu Ala
 1

<210> 92
 <211> 183
 <212> PRT
 <213> Hepatitis B virus

<400> 92

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Ser Val Glu Leu Leu
 1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Ile Arg Asp Leu Leu Asp
 20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Val
 35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60

Leu Met Asn Leu Ala Thr Trp Val Gly Ser Asn Leu Glu Asp Pro Ala
 65 70 75 80

Ser Arg Glu Leu Val Val Ser Tyr Val Asn Val Asn Met Gly Leu Lys
 85 90 95

Leu Arg Gln Ile Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125

Pro Thr Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Gly Gly Gly Gly Gly Ser Pro Gly Gly Gly Thr
145 150 155 160

Pro Ser Pro Gly Gly Gly Gly Ser Gln Ser Pro Gly Gly Gly Gly Ser
165 170 175

Gln Ser Gly Glu Ser Gln Cys
180

<210> 93

<211> 242

<212> PRT

<213> Artificial

<220>

<223> Tandem hepatitis core protein construct

<220>

<221> misc_feature

<222> (1)..(242)

<223> Tandem hepatitis core protein

<400> 93

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
145 150 155 160

Ser Gly Gly Ser Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr
165 170 175

Val Glu Leu Leu Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg
180 185 190

Asp Leu Leu Asp Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser
195 200 205

Pro Glu His Cys Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu
210 215 220

Cys Trp Gly Glu Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu
225 230 235 240

Glu Asp

<210> 94
<211> 239
<212> PRT
<213> Artificial

<220>
<223> Enhanced green fluorescent protein

<220>
<221> misc_feature
<222> (1)..(239)
<223> eGFP

<400> 94

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu
1 5 10 15

Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
20 25 30

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
35 40 45

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
50 55 60

Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys

65		70		75		80
Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu						
	85			90		95
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu						
	100			105		110
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly						
	115			120		125
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr						
	130			135		140
Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn						
	145			150		155
Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser						
	165			170		175
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly						
	180			185		190
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu						
	195			200		205
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe						
	210			215		220
Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys						
	225			230		235

<210> 95
 <211> 6
 <212> PRT
 <213> Artificial

<220>
 <223> His-tag

<220>
 <221> misc_feature
 <222> (1)..(6)
 <223> His purification tag

<400> 95

His His His His His His
 1 5

<210> 96
 <211> 171

<212> PRT
<213> Plasmodium falciparum

<400> 96

Lys Val Thr Val Asp Thr Val Cys Lys Arg Gly Phe Leu Ile Gln Met
1 5 10 15

Ser Gly His Leu Glu Cys Lys Cys Glu Asn Asp Leu Val Leu Val Asn
20 25 30

Glu Glu Thr Cys Glu Glu Lys Val Leu Lys Cys Asp Glu Lys Thr Val
35 40 45

Asn Lys Pro Cys Gly Asp Phe Ser Lys Cys Ile Lys Ile Asp Gly Asn
50 55 60

Pro Val Ser Tyr Ala Cys Lys Cys Asn Leu Gly Tyr Asp Met Val Asn
65 70 75 80

Asn Val Cys Ile Pro Asn Glu Cys Lys Gln Val Thr Cys Gly Asn Gly
85 90 95

Lys Cys Ile Leu Asp Thr Ser Asn Pro Val Lys Thr Gly Val Cys Ser
100 105 110

Cys Asn Ile Gly Lys Val Pro Asn Val Gln Asp Gln Asn Lys Cys Ser
115 120 125

Lys Asp Gly Glu Thr Lys Cys Ser Leu Lys Cys Leu Lys Glu Gln Glu
130 135 140

Thr Cys Lys Ala Val Asp Gly Ile Tyr Lys Cys Asp Cys Lys Asp Gly
145 150 155 160

Phe Ile Ile Asp Gln Glu Ser Ser Ile Cys Thr
165 170

<210> 97
<211> 254
<212> PRT
<213> Natronobacterium gregoryi

<400> 97

Lys Ala Ala Ala Glu Glu Lys Ala Ala Pro Ala Ala Ala Lys Pro Ala
1 5 10 15

Thr Thr Glu Gly Glu Phe Pro Glu Thr Arg Glu Lys Met Ser Gly Ile
20 25 30

Arg Arg Ala Ile Ala Lys Ala Met Val His Ser Lys His Thr Ala Pro

35

40

45

His Val Thr Leu Met Asp Glu Ala Asp Val Thr Lys Leu Val Ala His
50 55 60

Arg Lys Lys Phe Lys Ala Ile Ala Ala Glu Lys Gly Ile Lys Leu Thr
65 70 75 80

Phe Leu Pro Tyr Val Val Lys Ala Leu Val Ser Ala Leu Arg Glu Tyr
85 90 95

Pro Val Leu Asn Thr Ser Ile Asp Asp Glu Thr Glu Glu Ile Ile Gln
100 105 110

Lys His Tyr Tyr Asn Ile Gly Ile Ala Ala Asp Thr Asp Arg Gly Leu
115 120 125

Leu Val Pro Val Ile Lys His Ala Asp Arg Lys Pro Ile Phe Ala Leu
130 135 140

Ala Gln Glu Ile Asn Glu Leu Ala Glu Lys Ala Arg Asp Gly Lys Leu
145 150 155 160

Thr Pro Gly Glu Met Lys Gly Ala Ser Cys Thr Ile Thr Asn Ile Gly
165 170 175

Ser Ala Gly Gly Gln Trp Phe Thr Pro Val Ile Asn His Pro Glu Val
180 185 190

Ala Ile Leu Gly Ile Gly Arg Ile Ala Glu Lys Pro Ile Val Arg Asp
195 200 205

Gly Glu Ile Val Ala Ala Pro Met Leu Ala Leu Ser Leu Ser Phe Asp
210 215 220

His Arg Met Ile Asp Gly Ala Thr Ala Gln Lys Ala Leu Asn His Ile
225 230 235 240

Lys Arg Leu Leu Ser Asp Pro Glu Leu Leu Leu Met Glu Ala
245 250

<210> 98

<211> 539

<212> PRT

<213> Norovirus

<400> 98

Lys Met Ala Ser Ser Asp Ala Asn Pro Ser Asp Gly Ser Ala Ala Asn
1 5 10 15

Leu Val Pro Glu Val Asn Asn Glu Val Met Ala Leu Glu Pro Val Val
 20 25 30

Gly Ala Ala Ile Ala Ala Pro Val Ala Gly Gln Gln Asn Val Ile Asp
 35 40 45

Pro Trp Ile Arg Asn Asn Phe Val Gln Ala Pro Gly Gly Glu Phe Thr
 50 55 60

Val Ser Pro Arg Asn Ala Pro Gly Glu Ile Leu Trp Ser Ala Pro Leu
 65 70 75 80

Gly Pro Asp Leu Asn Pro Tyr Leu Ser His Leu Ala Arg Met Tyr Asn
 85 90 95

Gly Tyr Ala Gly Gly Phe Glu Val Gln Val Ile Leu Ala Gly Asn Ala
 100 105 110

Phe Thr Ala Gly Lys Val Ile Phe Ala Ala Val Pro Pro Asn Phe Pro
 115 120 125

Thr Glu Gly Leu Ser Pro Ser Gln Val Thr Met Phe Pro His Ile Val
 130 135 140

Val Asp Val Arg Gln Leu Glu Pro Val Leu Ile Pro Leu Pro Asp Val
 145 150 155 160

Arg Asn Asn Phe Tyr His Tyr Asn Gln Ser Asn Asp Pro Thr Ile Lys
 165 170 175

Leu Ile Ala Met Leu Tyr Thr Pro Leu Arg Ala Asn Asn Ala Gly Asp
 180 185 190

Asp Val Phe Thr Val Ser Cys Arg Val Leu Thr Arg Pro Ser Pro Asp
 195 200 205

Phe Asp Phe Ile Phe Leu Val Pro Pro Thr Val Glu Ser Arg Thr Lys
 210 215 220

Pro Phe Ser Val Pro Val Leu Thr Val Glu Glu Met Thr Asn Ser Arg
 225 230 235 240

Phe Pro Ile Pro Leu Glu Lys Leu Phe Thr Gly Pro Ser Ser Ala Phe
 245 250 255

Val Val Gln Pro Gln Asn Gly Arg Cys Thr Thr Asp Gly Val Leu Leu
 260 265 270

Gly Thr Thr Gln Leu Ser Pro Val Asn Ile Cys Thr Phe Arg Gly Asp
275 280 285

Val Thr His Ile Thr Gly Ser Arg Asn Tyr Thr Met Asn Leu Ala Ser
290 295 300

Gln Asn Trp Asn Asp Tyr Asp Pro Thr Glu Glu Ile Pro Ala Pro Leu
305 310 315 320

Gly Thr Pro Asp Phe Val Gly Lys Ile Gln Gly Val Leu Thr Gln Thr
325 330 335

Thr Arg Thr Asp Gly Ser Thr Arg Gly His Lys Ala Thr Val Tyr Thr
340 345 350

Gly Ser Ala Asp Phe Ala Pro Lys Leu Gly Arg Val Gln Phe Glu Thr
355 360 365

Asp Thr Asp Arg Asp Phe Glu Ala Asn Gln Asn Thr Lys Phe Thr Pro
370 375 380

Val Gly Val Ile Gln Asp Gly Gly Thr Thr His Arg Asn Glu Pro Gln
385 390 395 400

Gln Trp Val Leu Pro Ser Tyr Ser Gly Arg Asn Thr His Asn Val His
405 410 415

Leu Ala Pro Ala Val Ala Pro Thr Phe Pro Gly Glu Gln Leu Leu Phe
420 425 430

Phe Arg Ser Thr Met Pro Gly Cys Ser Gly Tyr Pro Asn Met Asp Leu
435 440 445

Asp Cys Leu Leu Pro Gln Glu Trp Val Gln Tyr Phe Tyr Gln Glu Ala
450 455 460

Ala Pro Ala Gln Ser Asp Val Ala Leu Leu Arg Phe Val Asn Pro Asp
465 470 475 480

Thr Gly Arg Val Leu Phe Glu Cys Lys Leu His Lys Ser Gly Tyr Val
485 490 495

Thr Val Ala His Thr Gly Gln His Asp Leu Val Ile Pro Pro Asn Gly
500 505 510

Tyr Phe Arg Phe Asp Ser Trp Val Asn Gln Phe Tyr Thr Leu Ala Pro
515 520 525

Met Gly Asn Gly Thr Gly Arg Arg Arg Ala Val

530

535

<210> 99
 <211> 30
 <212> PRT
 <213> Homo sapiens

<400> 99

Met Lys Arg Gly Leu Cys Cys Val Leu Leu Leu Cys Gly Ala Val Phe
 1 5 10 15

Val Ser Pro Ser Gln Glu Ile His Ala Arg Phe Arg Arg Ala
 20 25 30

<210> 100
 <211> 18
 <212> PRT
 <213> Homo sapiens

<400> 100

Met Ala Phe Leu Trp Leu Leu Ser Cys Trp Ala Leu Leu Gly Thr Thr
 1 5 10 15

Phe Gly

<210> 101
 <211> 17
 <212> PRT
 <213> Homo sapiens

<400> 101

Met Leu Leu Leu Leu Leu Leu Gly Leu Arg Leu Gln Leu Ser Leu
 1 5 10 15

Gly