SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.
Christos Kyratsous
Neil Stahl
Sumathi Sivapalasingam

<120> Human Antibodies to Middle East
Respiratory Syndrome - Coronavirus Spike Protein

<130> A0027WO01

<150> 62/002,233
<151> 2014-05-23

<150> 62/004,971
<151> 2014-05-30

<150> 62/051,717
<151> 2014-09-17

<150> 62/072,716
<151> 2014-10-30

<160> 458

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 1
gaggtgcagc tggtggagtc tgggggaggc ttggttcagc ctgggggtc cctgagactc 60
tcctgttcag cctctggatt cacctttagc agctatgaca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attcgtggta gtggtcatac cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgttgtat 240
ctggaaatga acagcctgag agccgaggac acggccgtat attattgtgt gaaagatggg 300
agtatcgtag ggttcgaccc ctggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 2
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 2
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ser Ala Ser Gly Phe Thr Phe Ser Ser Tyr
            20                  25                  30
Asp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Ala Ile Arg Gly Ser Gly His Thr Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65                  70                  75                  80
Leu Glu Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Val Lys Asp Gly Ser Ile Val Gly Phe Asp Pro Trp Gly Gln Gly Thr
            100                 105                 110
Leu Val Thr Val Ser Ser
        115

<210> 3
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 3
ggattcacct ttagcagcta tgac                                          24

<210> 4
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 4
Gly Phe Thr Phe Ser Ser Tyr Asp
 1               5

<210> 5
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 5
attcgtggta gtggtcatac caca                                          24

<210> 6
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 6
Ile Arg Gly Ser Gly His Thr Thr
 1               5


<210> 7
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 7
gtgaaagatg ggagtatcgt agggttcgac ccc                                33

<210> 8
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 8
Val Lys Asp Gly Ser Ile Val Gly Phe Asp Pro
 1               5                   10


<210> 9
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 9
gacatccaga tgacccagtc tccttccacc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggccagtca gactattagt agctggttgg cctggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctataag gcgtctagtt tagaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca ccatcagcag cctgcagcct 240
gatgattttg caacttatta ctgccaacag tataatagtt attcgtacac ttttggccag 300
gggaccaagc tggagatcaa a                                             321

<210> 10

<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 10
Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Thr Ile Ser Ser Trp
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Lys Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr Ser Tyr
                85                  90                  95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
            100                 105


<210> 11
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 11
cagactatta gtagctgg                                                 18

<210> 12
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 12
Gln Thr Ile Ser Ser Trp
 1               5


<210> 13
<211> 9
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetic

<400> 13
aaggcgtct 9

<210> 14
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 14
Lys Ala Ser
1

<210> 15
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 15
caacagtata atagttattc gtacact 27

<210> 16
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 16
Gln Gln Tyr Asn Ser Tyr Ser Tyr Thr
1 5

<210> 17
<211> 375
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 17
caggtgcagc tggtgcagtc tggggctgag gtgaagaagc ctgggtcctc ggtgaaggtc 60
tcctgcaagg cttctggagg ctccttcagc gtctatgcta tcagctgggt gcgccaggcc 120
cctggacaag ggcttgagtg gatgggaggg atcatcccaa tctttggtac agcaaactac 180

gcacagaagt tccaggacag attcacgatt accacggacg aatccacgag cacagcctac 240
atggagctga gcagcctgag atctgaggac acggccatgt attactgtgc gagagagggg 300
gatattgtag tactaccagc tggtaagggg ggtatggacg tctggggcca agggaccacg 360
gtcaccgtct cctca 375

<210> 18
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 18
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1               5                  10                  15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Ser Phe Ser Val Tyr
            20                  25                  30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
    50                  55                  60
Gln Asp Arg Phe Thr Ile Thr Thr Asp Glu Ser Thr Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Met Tyr Tyr Cys
                85                  90                  95
Ala Arg Glu Gly Asp Ile Val Val Leu Pro Ala Gly Lys Gly Gly Met
            100                 105                 110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125


<210> 19
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 19
ggaggctcct tcagcgtcta tgct 24

<210> 20
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 20
Gly Gly Ser Phe Ser Val Tyr Ala
 1               5

<210> 21
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 21
atcatcccaa tctttggtac agca 24

<210> 22
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 22
Ile Ile Pro Ile Phe Gly Thr Ala
1 5

<210> 23
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 23
gcgagagagg gggatattgt agtactacca gctggtaagg ggggtatgga cgtc 54

<210> 24
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 24
Ala Arg Glu Gly Asp Ile Val Val Leu Pro Ala Gly Lys Gly Gly Met
1 5 10 15
Asp Val

<210> 25
<211> 336

<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 25
gatattgtga tgactcagtc tccactctcc ctgcccgtca cccctggaga gccggcctcc 60
atctcctgca ggtctagtca gagcctcctg catggtaatg gatacaacta tttggattgg 120
tacctgcaga agccagggca gtctccacag ctcctgatct atttggtttc tcatcgggcc 180
tccggggtcc ctgacaggtt cagtggcagt ggatcaggca cagattttac actgaaaatc 240
agcagagtgg aggctgagga tgttggggtt tattactgca tgcaagctct acaaagtcct 300
tggacgttcg gccaagggac caaggtggaa atcaaa 336

<210> 26
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 26
Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly
 1               5                  10                  15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Gly
            20                  25                  30
Asn Gly Tyr Asn Tyr Leu Asp Trp Tyr Leu Gln Lys Pro Gly Gln Ser
        35                  40                  45
Pro Gln Leu Leu Ile Tyr Leu Val Ser His Arg Ala Ser Gly Val Pro
    50                  55                  60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65                  70                  75                  80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ala
                85                  90                  95
Leu Gln Ser Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105                 110


<210> 27
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 27
cagagcctcc tgcatggtaa tggatacaac tat 33

<210> 28
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 28
Gln Ser Leu Leu His Gly Asn Gly Tyr Asn Tyr
 1               5                  10


<210> 29
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 29
ttggtttct                                                          9

<210> 30
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 30
Leu Val Ser
 1


<210> 31
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 31
atgcaagctc tacaaagtcc ttggacg                                     27

<210> 32
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 32
Met Gln Ala Leu Gln Ser Pro Trp Thr

1 5

<210> 33
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 33
gaggtgcagc tggtggagtc tgggggagac ttggtacagc cgggggggtc cctgagagtc 60
tcctgtgcag cctctggatt cacctttagc aactatgaca tgtactgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagtt attagtggta ttggtgctac cacatattac 180
gcagactccg tgaagggccg gttcaccata tccagagaca attccaagaa cacggtgttt 240
ctgcaaatga atagtctgag agccgaggac acggccgtat attactgtgt gaaaggggga 300
cctatagtgg ctacggatta ctggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 34
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 34
Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Val Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30
Asp Met Tyr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Val Ile Ser Gly Ile Gly Ala Thr Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val Phe
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Val Lys Gly Gly Pro Ile Val Ala Thr Asp Tyr Trp Gly Gln Gly Thr
100 105 110
Leu Val Thr Val Ser Ser
115

<210> 35
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 35
ggattcacct ttagcaacta tgac 24

<210> 36
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 36
Gly Phe Thr Phe Ser Asn Tyr Asp
 1 5

<210> 37
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 37
attagtggta ttggtgctac caca 24

<210> 38
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 38
Ile Ser Gly Ile Gly Ala Thr Thr
 1 5

<210> 39
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 39
gtgaaagggg gacctatagt ggctacggat tac 33

<210> 40
<211> 11
<212> PRT

<213> Artificial Sequence

<220>
<223> synthetic

<400> 40
Val Lys Gly Gly Pro Ile Val Ala Thr Asp Tyr
 1               5                  10


<210> 41
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 41
gacatccaga tgacccagtc tccttccacc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggccagtca gagtattagt agctggttgg cctggcatca gcagaaacca 120
gggaaagccc ctaagctcct gatctataag gcgtctagtt tagaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca ccatcagcag cctgcagcct 240
gatgattttg caacttatta ctgccaacag tataatagtt attcgtggac gttcggccaa 300
gggaccaagg tggaaatcaa a                                          321

<210> 42
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 42
Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
            20                  25                  30
Leu Ala Trp His Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Lys Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr Ser Trp
                85                  90                  95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105


<210> 43
<211> 18
<212> DNA

<213> Artificial Sequence

<220>
<223> synthetic

<400> 43
cagagtatta gtagctgg 18

<210> 44
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 44
Gln Ser Ile Ser Ser Trp
1 5

<210> 45
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 45
aaggcgtct 9

<210> 46
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 46
Lys Ala Ser
1

<210> 47
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 47

caacagtata atagttattc gtggacg 27

<210> 48
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 48
Gln Gln Tyr Asn Ser Tyr Ser Trp Thr
1 5

<210> 49
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 49
gaggtgcagc tggtggagtc tgggggagac ttggtacagc ctggagggtc cctaagactc 60
tcctgtacag cctctggatt caccttcagt aattatgaaa tgaactgggt ccgccaggct 120
ccagagaagg ggctggactg ggtttcattc attagtagta gtggtggtgc catatactac 180
gcagactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctcactgtat 240
ctgcaaatga acagcctgag agccgaggac tcggctattt atttctgtgc gcgatccgac 300
tccggtggta actcgaggta ctggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 50
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 50
Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Thr Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30
Glu Met Asn Trp Val Arg Gln Ala Pro Glu Lys Gly Leu Asp Trp Val
35 40 45
Ser Phe Ile Ser Ser Ser Gly Gly Ala Ile Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Ser Ala Ile Tyr Phe Cys
85 90 95
Ala Arg Ser Asp Ser Gly Gly Asn Ser Arg Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
        115

<210> 51
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 51
ggattcacct tcagtaatta tgaa 24

<210> 52
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 52
Gly Phe Thr Phe Ser Asn Tyr Glu
 1               5

<210> 53
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 53
attagtagta gtggtggtgc cata 24

<210> 54
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 54
Ile Ser Ser Ser Gly Gly Ala Ile
 1               5

<210> 55
<211> 33

<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 55
gcgcgatccg actccggtgg taactcgagg tac 33

<210> 56
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 56
Ala Arg Ser Asp Ser Gly Gly Asn Ser Arg Tyr
 1  5  10

<210> 57
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 57
gacatccaga tgacccagtc tccatcttcc gtgtctgcat ctgtaggaga cagagtcacc 60
gtcacttgtc gggcgagtca ggatattagc aactggttag tctggtatca gcagaaacca 120
gggaaagccc ctaagttcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcag cctacagcct 240
gaagattttg cgacttacta ttgtcaacag gctaacagtt tccctcctac tttcggcgga 300
gggaccaagg tggagatcaa a 321

<210> 58
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 58
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly
 1  5  10  15
Asp Arg Val Thr Val Thr Cys Arg Ala Ser Gln Asp Ile Ser Asn Trp
            20  25  30
Leu Val Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Phe Leu Ile
        35  40  45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly

```
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ala Asn Ser Phe Pro Pro
                85                  90                  95
Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 59
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 59
caggatatta gcaactgg 18

<210> 60
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 60
Gln Asp Ile Ser Asn Trp
 1               5

<210> 61
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 61
gctgcatcc 9

<210> 62
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 62
Ala Ala Ser

1

<210> 63
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 63
caacaggcta acagtttccc tcctact 27

<210> 64
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 64
Gln Gln Ala Asn Ser Phe Pro Pro Thr
1 5

<210> 65
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 65
gaggtgcagc tggtggagtc tgggggaggc ttggtacagc ctgggggtc cctgagactc 60
tcctgtgtag tttctggatt cacctttagt aattatgaca tgagctgggt ccgccaggct 120
ccagggaggg ggctggagtg ggtctcagct attaggggta gtggttttaa cacatattac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatggg 300
tctatagtga gtatggacta ctggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 66
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 66
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

```
Ser Leu Arg Leu Ser Cys Val Val Ser Gly Phe Thr Phe Ser Asn Tyr
            20                  25                  30
Asp Met Ser Trp Val Arg Gln Ala Pro Gly Arg Gly Leu Glu Trp Val
        35                  40                  45
Ser Ala Ile Arg Gly Ser Gly Phe Asn Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65                  70                  75                  80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Lys Asp Gly Ser Ile Val Ser Met Asp Tyr Trp Gly Gln Gly Thr
            100                 105                 110
Leu Val Thr Val Ser Ser
        115
```

<210> 67
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 67
ggattcacct ttagtaatta tgac 24

<210> 68
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 68
```
Gly Phe Thr Phe Ser Asn Tyr Asp
 1               5
```

<210> 69
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 69
attaggggta gtggttttaa caca 24

<210> 70
<211> 8
<212> PRT

<213> Artificial Sequence

<220>
<223> synthetic

<400> 70
Ile Arg Gly Ser Gly Phe Asn Thr
 1               5


<210> 71
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 71
gcgaaagatg ggtctatagt gagtatggac tac                                33

<210> 72
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 72
Ala Lys Asp Gly Ser Ile Val Ser Met Asp Tyr
 1               5                   10


<210> 73
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 73
gacatccaga tgacccagtc tccttccgcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggccagtca gagtattagt agctggttgg cctggtatca gcagaaacca 120
gggaaagccc ctaaactcct gatctataag gcgtctagtt tagaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagaa ttcactctca ccatcagcag cctgcagcct 240
gatgattttg caacttatta ctgccaacag tataatagtt attcgtggac gttcggccaa 300
gggaccaagg tggaaatcaa a                                             321

<210> 74
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 74
Asp Ile Gln Met Thr Gln Ser Pro Ser Ala Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Lys Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr Ser Trp
                85                  90                  95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105


<210> 75
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 75
cagagtatta gtagctgg                                                 18

<210> 76
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 76
Gln Ser Ile Ser Ser Trp
 1               5


<210> 77
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 77

aaggcgtct 9

<210> 78
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 78
Lys Ala Ser
1

<210> 79
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 79
caacagtata atagttattc gtggacg 27

<210> 80
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 80
Gln Gln Tyr Asn Ser Tyr Ser Trp Thr
1 5

<210> 81
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 81
gaggtgcagc tggtggagtc tgggggaggc ttggtacagc cgggggggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttagc acctatggca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcaact attattggta gtggttataa cacatactac 180
tcagactccg tgaagggccg gttcaccatg tccagagaca attccaagag cacgctgtat 240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtac gaaagaaggc 300
cctataattg gaaccacgaa ctggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 82
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 82
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr
            20                  25                  30
Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Thr Ile Ile Gly Ser Gly Tyr Asn Thr Tyr Tyr Ser Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Met Ser Arg Asp Asn Ser Lys Ser Thr Leu Tyr
65                  70                  75                  80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Thr Lys Glu Gly Pro Ile Ile Gly Thr Thr Asn Trp Gly Gln Gly Thr
            100                 105                 110
Leu Val Thr Val Ser Ser
        115


<210> 83
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 83
ggattcacct ttagcaccta tggc                                          24

<210> 84
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 84
Gly Phe Thr Phe Ser Thr Tyr Gly
 1               5


<210> 85
<211> 24

<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 85
attattggta gtggttataa caca 24

<210> 86
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 86
Ile Ile Gly Ser Gly Tyr Asn Thr
1 5

<210> 87
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 87
acgaaagaag gccctataat tggaaccacg aac 33

<210> 88
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 88
Thr Lys Glu Gly Pro Ile Ile Gly Thr Thr Asn
1 5 10

<210> 89
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 89
gacatccaga tgacccagtc tccttccacc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggccagtca gagtattagt agctggttgg cctggtatca acagaaacca 120
gggaaagccc ctaagctcct gatctataag gcgtctagtt tagaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca ccatcagcag cctgcagcct 240
gacgattttg caacttatta ctgccaccaa tataatagtt attcgtggac gttcggccaa 300
gggaccaagg tggaaatcaa a 321

<210> 90
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 90
Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Lys Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Asp Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr Asn Ser Tyr Ser Trp
                85                  90                  95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105


<210> 91
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 91
cagagtatta gtagctgg 18

<210> 92
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 92
Gln Ser Ile Ser Ser Trp

1 5

<210> 93
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 93
aaggcgtct 9

<210> 94
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 94
Lys Ala Ser
1

<210> 95
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 95
caccaatata atagttattc gtggacg 27

<210> 96
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 96
His Gln Tyr Asn Ser Tyr Ser Trp Thr
1 5

<210> 97
<211> 351
<212> DNA

<213> Artificial Sequence

<220>
<223> synthetic

<400> 97
gaggtgcagc tggtggagtc tgggggaggc ttggtgcagc ctgggggggtc cctgagactc 60
tcctgtgcag tctttggatt cacctttagc ggctatgcca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtggtg gtggtggtag cacatactac 180
acagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gtcctactgg 300
aacaacggta tggacgtctg gggccaaggg accacggtca ccgtctcctc a 351

<210> 98
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 98
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Val Phe Gly Phe Thr Phe Ser Gly Tyr
 20 25 30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
Ser Ala Ile Ser Gly Gly Gly Gly Ser Thr Tyr Tyr Thr Asp Ser Val
 50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
Ala Ser Tyr Trp Asn Asn Gly Met Asp Val Trp Gly Gln Gly Thr Thr
 100 105 110
Val Thr Val Ser Ser
 115


<210> 99
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 99
ggattcacct ttagcggcta tgcc 24

<210> 100
<211> 8
<212> PRT

<213> Artificial Sequence

<220>
<223> synthetic

<400> 100
Gly Phe Thr Phe Ser Gly Tyr Ala
 1               5


<210> 101
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 101
attagtggtg gtggtggtag caca                                          24

<210> 102
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 102
Ile Ser Gly Gly Gly Gly Ser Thr
 1               5


<210> 103
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 103
gcgtcctact ggaacaacgg tatggacgtc                                    30

<210> 104
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 104

```
Ala Ser Tyr Trp Asn Asn Gly Met Asp Val
 1               5                  10
```

<210> 105
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 105
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccgtca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaa 324

<210> 106
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 106
```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
            20                  25                  30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
                85                  90                  95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
            100                 105
```

<210> 107
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 107

cagagcatta gcagctat 18

<210> 108
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 108
Gln Ser Ile Ser Ser Tyr
1 5

<210> 109
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 109
gctgcatcc 9

<210> 110
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 110
Ala Ala Ser
1

<210> 111
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 111
caacagagtt acagtacccc tccgatcacc 30

<210> 112
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 112
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
 1               5                  10


<210> 113
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 113
cagctgcagc tgcaggagtc gggcccagga ctagtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagt agtaatactt actactgggg ctggatccgc 120
cagcccccag ggaaggggct ggagtggatt ggaactatat attatactgg gaacacctac 180
tacaagtcgt ccctcaagag tcgagtcacc atatccgtag acacgtccag gaaccagttc 240
tccctgaagc tgacctctgt gaccgccgca gacacggctg tctattactg tgcgcgacag 300
tttgctgact tgaactacgt tgactactgg ggccagggaa ccctggtcac cgtctcctca 360


<210> 114
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 114
Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1               5                  10                  15
Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Asn
            20                  25                  30
Thr Tyr Tyr Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
        35                  40                  45
Trp Ile Gly Thr Ile Tyr Tyr Thr Gly Asn Thr Tyr Tyr Lys Ser Ser
    50                  55                  60
Leu Lys Ser Arg Val Thr Ile Ser Val Asp Thr Ser Arg Asn Gln Phe
65                  70                  75                  80
Ser Leu Lys Leu Thr Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
                85                  90                  95
Cys Ala Arg Gln Phe Ala Asp Leu Asn Tyr Val Asp Tyr Trp Gly Gln
            100                 105                 110
Gly Thr Leu Val Thr Val Ser Ser
        115                 120


<210> 115

<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 115
ggtggctcca tcagtagtaa tacttactac 30

<210> 116
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 116
Gly Gly Ser Ile Ser Ser Asn Thr Tyr Tyr
1 5 10

<210> 117
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 117
atatattata ctgggaacac c 21

<210> 118
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 118
Ile Tyr Tyr Thr Gly Asn Thr
1 5

<210> 119
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 119
gcgcgacagt ttgctgactt gaactacgtt gactac 36

<210> 120
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 120
Ala Arg Gln Phe Ala Asp Leu Asn Tyr Val Asp Tyr
 1               5                  10


<210> 121
<211> 363
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 121
gaggtgcagc tggtggagtc gggggggaggc ttggttcagc ctgggggggtc cctgagactc 60
tcctgtgcag cctctggatt ctcctttagc agctatggca tgaactgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtggtc gtggtggtaa cacatactcc 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgttt 240
cttcaaatga atggcctgag agccgaggac tcggcctttt attactgtgc gaaagtgggg 300
acttatagtt cttcgtcccc ctttgactac tggggccagg gaaccctggt caccgtctcc 360
tca 363

<210> 122
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 122
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Ser Ser Tyr
            20                  25                  30
Gly Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Ala Ile Ser Gly Arg Gly Gly Asn Thr Tyr Ser Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe
65                  70                  75                  80
Leu Gln Met Asn Gly Leu Arg Ala Glu Asp Ser Ala Phe Tyr Tyr Cys

```
                85                  90                  95
Ala Lys Val Gly Thr Tyr Ser Ser Ser Pro Phe Asp Tyr Trp Gly
            100                 105                 110
Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 123
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 123
ggattctcct ttagcagcta tggc 24

<210> 124
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 124
```
Gly Phe Ser Phe Ser Ser Tyr Gly
 1               5
```

<210> 125
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 125
attagtggtc gtggtggtaa caca 24

<210> 126
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 126
```
Ile Ser Gly Arg Gly Gly Asn Thr
 1               5
```

<210> 127
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 127
gcgaaagtgg ggacttatag ttcttcgtcc ccctttgact ac 42

<210> 128
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 128
Ala Lys Val Gly Thr Tyr Ser Ser Ser Ser Pro Phe Asp Tyr
 1               5                  10


<210> 129
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 129
gaggtgcagc tggtggagtc tgggggaggc ttggttcagc ctgggggtc cctgagactc 60
tcctgtgcag cctctggatt cacctctaac agctatccca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcaggt attagtggta gaggtggtaa cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cactctgtat 240
ctgcaaatga acagcctgag agtcgaggac acggccgtat attactgtgc ggaaactgga 300
actgcctttg actactgggg ccagggaacc ctggtcaccg tctcctca 348

<210> 130
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 130
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Ser Asn Ser Tyr
            20                  25                  30

```
Pro Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Gly Ile Ser Gly Arg Gly Gly Asn Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65                  70                  75                  80
Leu Gln Met Asn Ser Leu Arg Val Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Glu Thr Gly Thr Ala Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val
            100                 105                 110
Thr Val Ser Ser
        115
```

<210> 131
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 131
ggattcacct ctaacagcta tccc 24

<210> 132
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 132
```
Gly Phe Thr Ser Asn Ser Tyr Pro
 1               5
```

<210> 133
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 133
attagtggta gaggtggtaa caca 24

<210> 134
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 134
Ile Ser Gly Arg Gly Gly Asn Thr
 1               5


<210> 135
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 135
gcggaaactg gaactgcctt tgactac                                          27

<210> 136
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 136
Ala Glu Thr Gly Thr Ala Phe Asp Tyr
 1               5


<210> 137
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 137
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagc aataataatt actactgggg ctggatccgc 120
cagcccccag ggaaggggct ggactggatt gggagtatct attatagtgg gaatacctac 180
tacaacccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
tccctgaaga tgagttctgt gaccgccaca gacacggctc tgtattactg tgcgagacag 300
ggagcagatc acaactgggt cgacccctgg ggccagggaa ccctggtcac cgtctcctca 360


<210> 138
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 138
Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1               5                  10                  15
Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Asn Asn
            20                  25                  30
Asn Tyr Tyr Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Asp
        35                  40                  45
Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Asn Thr Tyr Tyr Asn Pro Ser
    50                  55                  60
Leu Lys Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe
65                  70                  75                  80
Ser Leu Lys Met Ser Ser Val Thr Ala Thr Asp Thr Ala Leu Tyr Tyr
                85                  90                  95
Cys Ala Arg Gln Gly Ala Asp His Asn Trp Val Asp Pro Trp Gly Gln
            100                 105                 110
Gly Thr Leu Val Thr Val Ser Ser
        115                 120


<210> 139
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 139
ggtggctcca tcagcaataa taattactac                                    30

<210> 140
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 140
Gly Gly Ser Ile Ser Asn Asn Asn Tyr Tyr
 1               5                  10


<210> 141
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 141
atctattata gtgggaatac c 21

<210> 142
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 142
Ile Tyr Tyr Ser Gly Asn Thr
1 5

<210> 143
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 143
gcgagacagg gagcagatca caactgggtc gacccc 36

<210> 144
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 144
Ala Arg Gln Gly Ala Asp His Asn Trp Val Asp Pro
1 5 10

<210> 145
<211> 351
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 145
gaggtgcagc tggtggagtc tgggggaggc ttggtacagc ctgggggtc cctgagactc 60
tcctgtgttg tctctggatt cacctctaga aactatgcca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtgggag cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca atcccaagaa cacgttgtat 240
ctacaaatga acagcctgag agccgaggac acggccctat attactgtgc ggaagatcct 300

ggaacttctt ttgactactg gggccaggga accctggtca ccgtctcctc a 351

<210> 146
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 146
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Val Val Ser Gly Phe Thr Ser Arg Asn Tyr
            20                  25                  30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Pro Lys Asn Thr Leu Tyr
65                  70                  75                  80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
                85                  90                  95
Ala Glu Asp Pro Gly Thr Ser Phe Asp Tyr Trp Gly Gln Gly Thr Leu
            100                 105                 110
Val Thr Val Ser Ser
        115


<210> 147
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 147
ggattcacct ctagaaacta tgcc 24

<210> 148
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 148
Gly Phe Thr Ser Arg Asn Tyr Ala
 1               5


<210> 149

<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 149
attagtggta gtggtgggag caca 24

<210> 150
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 150
Ile Ser Gly Ser Gly Gly Ser Thr
1 5

<210> 151
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 151
gcggaagatc ctggaacttc ttttgactac 30

<210> 152
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 152
Ala Glu Asp Pro Gly Thr Ser Phe Asp Tyr
1 5 10

<210> 153
<211> 390
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 153
caggtgcagc tggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60
tcctgtgcag cgtctggatt caccttcagt aactatggca tacactgggt ccgccaggct 120
ccaggcaagg ggctggagtg ggtggcaggt atatactatg atggaagtaa taaatactat 180
ggagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctatat 240
ctgcaaatga acagcctgag agccgaggac acggctgttt attactgtgc gagagatcgg 300
ggtaataacc actactatca taataatccc tactactatt atcacggttt ggacgtctgg 360
ggccaaggga ccacggtcac cgtctcctca 390

<210> 154
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 154
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
            20                  25                  30
Gly Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ala Gly Ile Tyr Tyr Asp Gly Ser Asn Lys Tyr Tyr Gly Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65                  70                  75                  80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Asp Arg Gly Asn Asn His Tyr Tyr His Asn Asn Pro Tyr Tyr
            100                 105                 110
Tyr Tyr His Gly Leu Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val
        115                 120                 125
Ser Ser
    130


<210> 155
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 155
ggattcacct tcagtaacta tggc 24

<210> 156
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 156
Gly Phe Thr Phe Ser Asn Tyr Gly
 1               5


<210> 157
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 157
atatactatg atggaagtaa taaa                                              24

<210> 158
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 158
Ile Tyr Tyr Asp Gly Ser Asn Lys
 1               5


<210> 159
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 159
gcgagagatc ggggtaataa ccactactat cataataatc cctactacta ttatcacggt 60
ttggacgtc                                                               69

<210> 160
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 160

```
Ala Arg Asp Arg Gly Asn Asn His Tyr Tyr His Asn Asn Pro Tyr Tyr
 1               5                  10                  15
Tyr Tyr His Gly Leu Asp Val
            20
```

<210> 161
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 161
gaaatagttt tgacacagag tcccggcaca ctgtcactct ctcccgggga aagagccacc 60
ttgtcatgta gagcaagtca gtcagtctct agctcttatc tcgcctggta ccagcagaag 120
ccgggacagg ccccctagact gctgatctac ggggcaagtt ccagggccac cggaatcccc 180
gaccggttca gtggaagcgg aagcggaacc gattttactt tgacgatttc tagactggag 240
ccagaggatt tcgccgttta ctattgtcaa cagtacggaa gcagcccgtg gacgtttggc 300
cagggcacga aggtagaaat caag                                       324

<210> 162
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 162
```
Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
 1               5                  10                  15
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
            20                  25                  30
Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
        35                  40                  45
Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
    50                  55                  60
Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65                  70                  75                  80
Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
                85                  90                  95
Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 163
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 163
agagcaagtc agtcagtctc tagctcttat ctcgcc 36

<210> 164
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 164
Arg Ala Ser Gln Ser Val Ser Ser Ser Tyr Leu Ala
 1  5  10

<210> 165
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 165
ggggcaagtt ccagggccac c 21

<210> 166
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 166
Gly Ala Ser Ser Arg Ala Thr
 1  5

<210> 167
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 167
caacagtacg gaagcagccc gtggacg 27

<210> 168
<211> 9

<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 168
Gln Gln Tyr Gly Ser Ser Pro Trp Thr
 1               5


<210> 169
<211> 345
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 169
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgctctg tctctggtgg ctccatcact agttcctatt ggagctggat ccggcagccc 120
ccaggaaggg gcctggagtg gattggatat gtctattact acgggaccac caaatacaac 180
ccctccctca agagtcgagt caccacatca atggacacgt ccaagaacca gttctccctg 240
aaactgaact ctgtgaccgc tgcggacacg gccgtttatt actgtgcgag actggaacta 300
ctctttgact actggggcca gggaaccctg gtcactgtct cctca                 345

<210> 170
<211> 115
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 170
Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1               5                  10                  15
Thr Leu Ser Leu Thr Cys Ser Val Ser Gly Gly Ser Ile Thr Ser Ser
            20                  25                  30
Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Arg Gly Leu Glu Trp Ile
        35                  40                  45
Gly Tyr Val Tyr Tyr Tyr Gly Thr Thr Lys Tyr Asn Pro Ser Leu Lys
    50                  55                  60
Ser Arg Val Thr Thr Ser Met Asp Thr Ser Lys Asn Gln Phe Ser Leu
65                  70                  75                  80
Lys Leu Asn Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
                85                  90                  95
Arg Leu Glu Leu Leu Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr
            100                 105                 110
Val Ser Ser
        115

<210> 171
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 171
ggtggctcca tcactagttc ctat 24

<210> 172
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 172
Gly Gly Ser Ile Thr Ser Ser Tyr
1 5

<210> 173
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 173
gtctattact acgggaccac c 21

<210> 174
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 174
Val Tyr Tyr Tyr Gly Thr Thr
1 5

<210> 175
<211> 27
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetic

<400> 175
gcgagactgg aactactctt tgactac 27

<210> 176
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 176
Ala Arg Leu Glu Leu Leu Phe Asp Tyr
 1               5


<210> 177
<211> 363
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 177
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcagtg tctctggtgg ctccatcaac aataataatt actactgggg ctggatccgc 120
cagcccccag ggaggggggct ggagtggatt gggagtttct tttatagtgg gcccacctac 180
tacaacccgt ccctcaggag tcgagtcacc atatccgtag acacgtccaa gaaccagttc 240
tccctgaagc tgaactctgt aaccgccgca gacacggcta tatattactg tgcgagacag 300
gatgggaact actacccccct ctttgactac tggggccagg gaaccctggt caccgtctcc 360
tca 363

<210> 178
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 178
Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1               5                  10                  15
Thr Leu Ser Leu Thr Cys Ser Val Ser Gly Gly Ser Ile Asn Asn Asn
            20                  25                  30
Asn Tyr Tyr Trp Gly Trp Ile Arg Gln Pro Pro Gly Arg Gly Leu Glu
        35                  40                  45
Trp Ile Gly Ser Phe Phe Tyr Ser Gly Pro Thr Tyr Tyr Asn Pro Ser
    50                  55                  60
Leu Arg Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe
65                  70                  75                  80

```
Ser Leu Lys Leu Asn Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr
                85                  90                  95
Cys Ala Arg Gln Asp Gly Asn Tyr Tyr Pro Leu Phe Asp Tyr Trp Gly
            100                 105                 110
Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 179
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 179
ggtggctcca tcaacaataa taattactac 30

<210> 180
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 180

```
Gly Gly Ser Ile Asn Asn Asn Asn Tyr Tyr
 1               5                  10
```

<210> 181
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 181
ttcttttata gtgggcccac c 21

<210> 182
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 182

```
Phe Phe Tyr Ser Gly Pro Thr
 1               5
```

<210> 183
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 183
gcgagacagg atgggaacta ctacccccctc tttgactac 39

<210> 184
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 184
Ala Arg Gln Asp Gly Asn Tyr Tyr Pro Leu Phe Asp Tyr
 1  5  10

<210> 185
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 185
caggtgcagc tgcaggagtc gggcccaggg ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagt agttactact ggagctggat ccggcagccc 120
ccagggaagg gactggagtg gattgggtat atctattaca gtgggagccc caactacaac 180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
aagctgacct ctgtgaccgc tgcggacacg gccgtgtatt actgtgcgag atcccttaac 300
tggggacccc cttttgacta ctggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 186
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 186
Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1  5  10  15
Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Tyr

```
            20                  25                  30
Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
        35                  40                  45
Gly Tyr Ile Tyr Tyr Ser Gly Ser Pro Asn Tyr Asn Pro Ser Leu Lys
    50                  55                  60
Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu
65                  70                  75                  80
Lys Leu Thr Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
                85                  90                  95
Arg Ser Leu Asn Trp Gly Pro Pro Phe Asp Tyr Trp Gly Gln Gly Thr
            100                 105                 110
Leu Val Thr Val Ser Ser
        115
```

<210> 187
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 187
ggtggctcca tcagtagtta ctac 24

<210> 188
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 188
```
Gly Gly Ser Ile Ser Ser Tyr Tyr
 1               5
```

<210> 189
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 189
atctattaca gtgggagccc c 21

<210> 190
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 190
Ile Tyr Tyr Ser Gly Ser Pro
 1               5


<210> 191
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 191
gcgagatccc ttaactgggg acccccttt gactac                                36

<210> 192
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 192
Ala Arg Ser Leu Asn Trp Gly Pro Pro Phe Asp Tyr
 1               5                   10


<210> 193
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 193
gaaatagtga tgacgcagtc tccagccacc ctgtctctgt ctccagggga aagagccacc 60
ctctcctgca gggccagtca gagtgttagc agcaacttag cctggtacca gcaaaaacct 120
ggccaggctc ccaggctcct catctatggt gcatccacca gggccactgg tatcccagcc 180
aggttcagtg gcagtgggtc tgggacagag ttcactctca ccatcagcag cctgcagtct 240
gaagattttg cagtttatta ctgtcagcag tttaataact ggccgtacac ttttggccag 300
gggaccaagc tggagatcaa a                                            321

<210> 194
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 194
Glu Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
 1               5                  10                  15
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Asn
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
        35                  40                  45
Tyr Gly Ala Ser Thr Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Ser
65                  70                  75                  80
Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Phe Asn Asn Trp Pro Tyr
                85                  90                  95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
            100                 105


<210> 195
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 195
cagagtgtta gcagcaac 18

<210> 196
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 196
Gln Ser Val Ser Ser Asn
 1               5


<210> 197
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 197
ggtgcatcc 9

<210> 198
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 198
Gly Ala Ser
 1


<210> 199
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 199
cagcagttta ataactggcc gtacact 27

<210> 200
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 200
Gln Gln Phe Asn Asn Trp Pro Tyr Thr
 1               5


<210> 201
<211> 375
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 201
gaggtgcagc tgttggagtc tgggggaggc ttggtacagc ctgggggtc cctgagactc 60
tcctgtccag cctctggatt cacctttagc aactatgcca tgacctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtgctac cacaaagtac 180
gcagactccg tgaagggccg gttcaccatt tccagagaca attccaggaa tacgctatat 240
ctgcaaatga acagtctgag agccgaggac acggccgtat attactgtgc gaaggggggt 300
tcggggagtt atttccctta ctactactac ggtttggacg tctggggcca agggaccacg 360
gtcaccgtct cctca 375

<210> 202
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 202
Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Pro Ala Ser Gly Phe Thr Phe Ser Asn Tyr
            20                  25                  30
Ala Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Ala Ile Ser Gly Ser Gly Ala Thr Thr Lys Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Arg Asn Thr Leu Tyr
65                  70                  75                  80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Lys Gly Gly Ser Gly Ser Tyr Phe Pro Tyr Tyr Tyr Tyr Gly Leu
            100                 105                 110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125


<210> 203
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 203
ggattcacct ttagcaacta tgcc                                          24

<210> 204
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 204
Gly Phe Thr Phe Ser Asn Tyr Ala
 1               5


<210> 205
<211> 24

<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 205
attagtggta gtggtgctac caca 24

<210> 206
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 206
Ile Ser Gly Ser Gly Ala Thr Thr
1 5

<210> 207
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 207
gcgaaggggg gttcggggag ttatttccct tactactact acggtttgga cgtc 54

<210> 208
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 208
Ala Lys Gly Gly Ser Gly Ser Tyr Phe Pro Tyr Tyr Tyr Tyr Gly Leu
1 5 10 15
Asp Val

<210> 209
<211> 318
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetic

<400> 209
gaaatagtga tgacgcagtc tccagccacc ctgtctgtgt ctccagggga tagtgccacc 60
ctctcctgca gggccagtca gactgttagc agcaacttag cctggtacca gcagaaacct 120
ggccaggctc ccaggctcct catctatggt gcatccacca gggccactgg tatcccagcc 180
aggttcagtg gcagtggctc tgggacagag ttcactctca ccatcagcag cctgcagtct 240
gaagattttg cagtttatta ctgtcagcag tattataact ggtggacgtt cggccaaggg 300
accaaggtgg aaatcaaa 318

<210> 210
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 210
Glu Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Val Ser Pro Gly
 1               5                  10                  15
Asp Ser Ala Thr Leu Ser Cys Arg Ala Ser Gln Thr Val Ser Ser Asn
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
        35                  40                  45
Tyr Gly Ala Ser Thr Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Ser
65                  70                  75                  80
Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Tyr Asn Trp Trp Thr
                85                  90                  95
Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105


<210> 211
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 211
cagactgtta gcagcaac 18

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

<220>
<223> synthetic

<400> 212
Gln Thr Val Ser Ser Asn
 1               5


<210> 213
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 213
ggtgcatcc                                                                9

<210> 214
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 214
Gly Ala Ser
 1


<210> 215
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 215
cagcagtatt ataactggtg gacg                                               24

<210> 216
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 216
Gln Gln Tyr Tyr Asn Trp Trp Thr
 1               5


<210> 217

<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 217
gaggtgcagc tgttggagtc tgggggaggc ttggtacagc ctgggggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttagc agctatgcca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtggtc gtggtggtaa cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgttt 240
ctgcaaatga acaccctgag agccgaggac acggccgtat attactgtgc gaaagatagg 300
ggttttgggt tcttcgatat ctggggccgt ggcaccctgg ccactgtctc ctca 354

<210> 218
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 218
Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
            20                  25                  30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Ala Ile Ser Gly Arg Gly Gly Asn Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe
65                  70                  75                  80
Leu Gln Met Asn Thr Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Lys Asp Arg Gly Phe Gly Phe Phe Asp Ile Trp Gly Arg Gly Thr
            100                 105                 110
Leu Ala Thr Val Ser Ser
        115


<210> 219
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 219
ggattcacct ttagcagcta tgcc 24

<210> 220

<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 220
Gly Phe Thr Phe Ser Ser Tyr Ala
 1               5


<210> 221
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 221
attagtggtc gtggtggtaa caca                                          24

<210> 222
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 222
Ile Ser Gly Arg Gly Gly Asn Thr
 1               5


<210> 223
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 223
gcgaaagata ggggttttgg gttcttcgat atc                                33

<210> 224
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 224
Ala Lys Asp Arg Gly Phe Gly Phe Phe Asp Ile
 1               5                  10


<210> 225
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 225
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc aggcgagtca ggacattagt aactatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagttcct gatctacgat gcatccaatt tggaaacagg ggtcccatca 180
aggttcagtg gaagtggatc tgggacagat tttactttca ccatcagcag cctgcagcct 240
gaagatattg caacatatta ctgtcaacag tatgataatc tcccattcac tttcggccct 300
gggaccaaaa taaatatcaa a                                          321

<210> 226
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 226
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Asp Ile Ser Asn Tyr
            20                  25                  30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Phe Leu Ile
        35                  40                  45
Tyr Asp Ala Ser Asn Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Tyr Asp Asn Leu Pro Phe
                85                  90                  95
Thr Phe Gly Pro Gly Thr Lys Ile Asn Ile Lys
            100                 105


<210> 227
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 227
caggacatta gtaactat 18

<210> 228
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 228
Gln Asp Ile Ser Asn Tyr
 1               5


<210> 229
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 229
gatgcatcc 9

<210> 230
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 230
Asp Ala Ser
 1


<210> 231
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 231
caacagtatg ataatctccc attcact 27

<210> 232
<211> 9

<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 232
Gln Gln Tyr Asp Asn Leu Pro Phe Thr
 1               5


<210> 233
<211> 351
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 233
gaggtgcagc tgttggagtc tgggggaggc ttggtacagc ctgggggGTC cctgagactc 60
tcctgtgcag cctctggatt cacctttagc agctatgcca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtggta gtggtagtag cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgttt 240
ctgcaaatga acagcctgag agccgaggac acggccgtct attactgtgc ggaaggggga 300
gacgtggatt ttgactactg gggccaggga accctggtca ccgtctcctc a          351

<210> 234
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 234
Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
            20                  25                  30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Ala Ile Ser Gly Ser Gly Ser Ser Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe
65                  70                  75                  80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Glu Gly Gly Asp Val Asp Phe Asp Tyr Trp Gly Gln Gly Thr Leu
            100                 105                 110
Val Thr Val Ser Ser
        115

<210> 235
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 235
ggattcacct ttagcagcta tgcc 24

<210> 236
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 236
Gly Phe Thr Phe Ser Ser Tyr Ala
 1 5

<210> 237
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 237
attagtggta gtggtagtag caca 24

<210> 238
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 238
Ile Ser Gly Ser Gly Ser Ser Thr
 1 5

<210> 239
<211> 30
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetic

<400> 239
gcggaagggg gagacgtgga ttttgactac 30

<210> 240
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 240
Ala Glu Gly Gly Asp Val Asp Phe Asp Tyr
1 5 10

<210> 241
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 241
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaa 324

<210> 242
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 242
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
20 25 30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro

85 90 95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105

<210> 243
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 243
cagagcatta gcagctat 18

<210> 244
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 244
Gln Ser Ile Ser Ser Tyr
1 5

<210> 245
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 245
gctgcatcc 9

<210> 246
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 246
Ala Ala Ser
1

<210> 247

<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 247
caacagagtt acagtacccc tccgatcacc 30

<210> 248
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 248
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
 1               5                  10


<210> 249
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 249
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagt agttactact ggagctggat ccggcagccc 120
ccagggaagg gactggaatg gattgggtac atctattaca gtgggagcgc caactacaac 180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
aagctaagct ctgtgaccgc tgcggacacg gccgtgtatt actgtgtgag agaccgggac 300
ctactccttg accactgggg ccagggaacc ctggtcaccg tctcctca 348

<210> 250
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 250
Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1               5                  10                  15
Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Tyr
            20                  25                  30
Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
        35                  40                  45

```
Gly Tyr Ile Tyr Tyr Ser Gly Ser Ala Asn Tyr Asn Pro Ser Leu Lys
    50                  55                  60
Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu
65                  70                  75                  80
Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Val
                85                  90                  95
Arg Asp Arg Asp Leu Leu Leu Asp His Trp Gly Gln Gly Thr Leu Val
            100                 105                 110
Thr Val Ser Ser
        115
```

<210> 251
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 251
ggtggctcca tcagtagtta ctac 24

<210> 252
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 252
```
Gly Gly Ser Ile Ser Ser Tyr Tyr
 1               5
```

<210> 253
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 253
atctattaca gtgggagcgc c 21

<210> 254
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 254
Ile Tyr Tyr Ser Gly Ser Ala
 1               5


<210> 255
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 255
gtgagagacc gggacctact ccttgaccac                                    30

<210> 256
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 256
Val Arg Asp Arg Asp Leu Leu Leu Asp His
 1               5                   10


<210> 257
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 257
gaaatagtga tgacgcagtc tccagccacc ctgtctgtgt ctccagggaa aagagccacc 60
ctctcctgca gggccagtca gagtgttagc agcaacttag cctggtacca gcagaaacct 120
ggccaggctc ccaggctcct catctatggt gcatccacca ggaccactgg tttcccagcc 180
aggttcagtg gcagtgggtc tgggacagac ttcactctca ccatcagcag cctgcagtct 240
gaagattttg cagtttatta ctgtcagcag tataataact ggccgtacac ttttggccag 300
gggaccatgc tggagatcaa a                                            321

<210> 258
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 258
Glu Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Val Ser Pro Gly
 1               5                  10                  15
Lys Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Asn
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
        35                  40                  45
Tyr Gly Ala Ser Thr Arg Thr Thr Gly Phe Pro Ala Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Ser
65                  70                  75                  80
Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Asn Asn Trp Pro Tyr
                85                  90                  95
Thr Phe Gly Gln Gly Thr Met Leu Glu Ile Lys
            100                 105


<210> 259
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 259
cagagtgtta gcagcaac                                                  18

<210> 260
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 260
Gln Ser Val Ser Ser Asn
 1               5


<210> 261
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 261
ggtgcatcc                                                            9

<210> 262
<211> 3

<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 262
Gly Ala Ser
 1


<210> 263
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 263
cagcagtata ataactggcc gtacact 27

<210> 264
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 264
Gln Gln Tyr Asn Asn Trp Pro Tyr Thr
 1               5


<210> 265
<211> 387
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 265
caggtccagc tggtgcagtc tggggctgag gtgaagaagc ctgggtcctc ggtgaaggtc 60
tcctgcaagg cttctggagg caccttcagc acttatgcta tcagctgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggaggg atcatccctt tctttggtac agcaaactac 180
gcacagaagt tccagggcag agtcacgatt accacggacg aatccacgag cacagcctac 240
atggagttga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagaggga 300
acgtattacg attctttgac tggttattac acccactact accgtatgga cgtctggggc 360
caagggacca cggtcaccgt ctcctca 387

<210> 266
<211> 129

<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 266
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1               5                  10                  15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
            20                  25                  30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
Gly Gly Ile Ile Pro Phe Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
    50                  55                  60
Gln Gly Arg Val Thr Ile Thr Thr Asp Glu Ser Thr Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Glu Gly Thr Tyr Tyr Asp Ser Leu Thr Gly Tyr Tyr Thr His
            100                 105                 110
Tyr Tyr Arg Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser
        115                 120                 125
Ser

<210> 267
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 267
ggaggcacct tcagcactta tgct                                          24

<210> 268
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 268
Gly Gly Thr Phe Ser Thr Tyr Ala
 1               5

<210> 269
<211> 24
<212> DNA

<213> Artificial Sequence

<220>
<223> synthetic

<400> 269
atcatccctt tctttggtac agca 24

<210> 270
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 270
Ile Ile Pro Phe Phe Gly Thr Ala
 1 5

<210> 271
<211> 66
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 271
gcgagagagg gaacgtatta cgattctttg actggttatt acacccacta ctaccgtatg 60
gacgtc 66

<210> 272
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 272
Ala Arg Glu Gly Thr Tyr Tyr Asp Ser Leu Thr Gly Tyr Tyr Thr His
 1 5 10 15
Tyr Tyr Arg Met Asp Val
 20

<210> 273
<211> 324
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetic

<400> 273
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtgggaga cagagtcacc 60
atcacttgcc gggcaagtca gaccattagc agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtgggtc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg cgacttacta ctgtcaacag agttacagta ccctccgat caccttcggc 300
caagggacac gactggagat taaa 324

<210> 274
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 274
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Thr Ile Ser Ser Tyr
            20                  25                  30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
                85                  90                  95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
            100                 105


<210> 275
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 275
cagaccatta gcagctat 18

<210> 276
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 276
Gln Thr Ile Ser Ser Tyr
 1               5


<210> 277
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 277
gctgcatcc                                                                9

<210> 278
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 278
Ala Ala Ser
 1


<210> 279
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 279
caacagagtt acagtacccc tccgatcacc                                         30

<210> 280
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 280
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
 1               5                   10


<210> 281

<211> 381
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 281
caggtccagc tggtgcagtc tggggctgag gtgaagaagc ctgggtcctc ggtgaaggtc 60
tcctgcaagg tttctggagt caccttcagc agctatgcta tcagctgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggaggg atcatccctt tctttggtac agcaagctac 180
gcacagaagt tccagggcag agtcacggtt accacggacg aatccacgag cacagcctac 240
atggaggtga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagataat 300
ccggaactaa ctaaggaggg gtactaccac tactacgcta tggacgtctg gggccaaggg 360
accacggtca ccgtctcctc a 381

<210> 282
<211> 127
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 282
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1               5                  10                  15
Ser Val Lys Val Ser Cys Lys Val Ser Gly Val Thr Phe Ser Ser Tyr
            20                  25                  30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
Gly Gly Ile Ile Pro Phe Phe Gly Thr Ala Ser Tyr Ala Gln Lys Phe
    50                  55                  60
Gln Gly Arg Val Thr Val Thr Thr Asp Glu Ser Thr Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Val Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Asp Asn Pro Glu Leu Thr Lys Glu Gly Tyr Tyr His Tyr Tyr
            100                 105                 110
Ala Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125


<210> 283
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 283
ggagtcacct tcagcagcta tgct 24

<210> 284
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 284
Gly Val Thr Phe Ser Ser Tyr Ala
 1               5


<210> 285
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 285
atcatccctt tctttggtac agca                                          24

<210> 286
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 286
Ile Ile Pro Phe Phe Gly Thr Ala
 1               5


<210> 287
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 287
gcgagagata atccggaact aactaaggag gggtactacc actactacgc tatggacgtc 60


<210> 288
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 288
Ala Arg Asp Asn Pro Glu Leu Thr Lys Glu Gly Tyr Tyr His Tyr Tyr
 1               5                  10                  15
Ala Met Asp Val
            20


<210> 289
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 289
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaa                                        324

<210> 290
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 290
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
            20                  25                  30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
                85                  90                  95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
            100                 105


<210> 291
<211> 18
<212> DNA

<213> Artificial Sequence

<220>
<223> synthetic

<400> 291
cagagcatta gcagctat 18

<210> 292
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 292
Gln Ser Ile Ser Ser Tyr
 1               5


<210> 293
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 293
gctgcatcc 9

<210> 294
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 294
Ala Ala Ser
 1


<210> 295
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 295

caacagagtt acagtacccc tccgatcacc 30

<210> 296
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 296
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 297
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 297
gaggtgcagc tgttggagtc tgggggagtc ttggtacagc cgggggggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttagc agctttgcca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtggta gaggtggtac tacatactac 180
gcagactccg tgatgggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
gtgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatagg 300
gggttcgggg tctttgacta ctggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 298
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 298
Glu Val Gln Leu Leu Glu Ser Gly Gly Val Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe
20 25 30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Gly Arg Gly Gly Thr Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Met Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
Val Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Lys Asp Arg Gly Phe Gly Val Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
        115

<210> 299
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 299
ggattcacct ttagcagctt tgcc 24

<210> 300
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 300
Gly Phe Thr Phe Ser Ser Phe Ala
 1               5

<210> 301
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 301
attagtggta gaggtggtac taca 24

<210> 302
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 302
Ile Ser Gly Arg Gly Gly Thr Thr
 1               5

<210> 303
<211> 33

<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 303
gcgaaagata gggggttcgg ggtctttgac tac 33

<210> 304
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 304
Ala Lys Asp Arg Gly Phe Gly Val Phe Asp Tyr
 1  5  10

<210> 305
<211> 315
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 305
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagggtcacc 60
atcacttgcc aggcgagtca ggtcattaac aattatttaa attcgtatca gcagaaacca 120
gggaaagccc ctaaggtcct gatctgcgat gcatccaatg tggaaacagg ggtcccgtca 180
aggttcagtg gaagtggatc tgggacagat tttactttca ccatcagcag cctgcagact 240
gaagatattg caacatatta ctgtcaacag tatgataatc tcactttcgg cggagggacc 300
aaggtggagg tcaaa 315

<210> 306
<211> 105
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 306
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1  5  10  15
Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Val Ile Asn Asn Tyr
            20  25  30
Leu Asn Ser Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Val Leu Ile
        35  40  45
Cys Asp Ala Ser Asn Val Glu Thr Gly Val Pro Ser Arg Phe Ser Gly

```
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Thr
65                  70                  75                  80
Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Tyr Asp Asn Leu Thr Phe
                85                  90                  95
Gly Gly Gly Thr Lys Val Glu Val Lys
            100                 105
```

<210> 307
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 307
caggtcatta acaattat 18

<210> 308
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 308
```
Gln Val Ile Asn Asn Tyr
 1               5
```

<210> 309
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 309
gatgcatcc 9

<210> 310
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 310
```
Asp Ala Ser
```

1

<210> 311
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 311
caacagtatg ataatctcac t 21

<210> 312
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 312
Gln Gln Tyr Asp Asn Leu Thr
1 5

<210> 313
<211> 381
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 313
gaggtgcagc tgttggagtc tgggggaggc ttggaacagc ctgggggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttagc agctatgcca tgatctgggt ccgccaggct 120
ccagggaagg gactggagtg ggtctcaact attagtggga gtggtgttaa cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgcat 240
ctacaaatga acagcctgag agccgaggac acggccgttt atcactgtgc gaaagaggga 300
ttggattgtg ctaatggtgt atgctataac tactacggta tggacgtctg gggccaaggg 360
accacggtca ccgtctcctc a 381

<210> 314
<211> 127
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 314
Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Glu Gln Pro Gly Gly

```
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
            20                  25                  30
Ala Met Ile Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Thr Ile Ser Gly Ser Gly Val Asn Thr Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu His
65                  70                  75                  80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr His Cys
                85                  90                  95
Ala Lys Glu Gly Leu Asp Cys Ala Asn Gly Val Cys Tyr Asn Tyr Tyr
            100                 105                 110
Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 315
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 315
ggattcacct ttagcagcta tgcc 24

<210> 316
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 316
```
Gly Phe Thr Phe Ser Ser Tyr Ala
 1               5
```

<210> 317
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 317
attagtggga gtggtgttaa caca 24

<210> 318
<211> 8

<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 318
Ile Ser Gly Ser Gly Val Asn Thr
 1               5


<210> 319
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 319
gcgaaagagg gattggattg tgctaatggt gtatgctata actactacgg tatggacgtc 60


<210> 320
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 320
Ala Lys Glu Gly Leu Asp Cys Ala Asn Gly Val Cys Tyr Asn Tyr Tyr
 1               5                  10                  15
Gly Met Asp Val
            20


<210> 321
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 321
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattaac agcttttaa attggtatca tcagaaacca 120
gggaaagccc ctaaattcct gatctatagt gcatccaatt tgcaaagtgg ggtcccgtca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccattagcag tctgcaacct 240
gaagattttt caacttacta ctgtcaacag agttacagta tcccgctcac tttcggcgga 300
gggaccaagg tggagatcaa a                                          321

<210> 322
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 322
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Asn Ser Phe
            20                  25                  30
Leu Asn Trp Tyr His Gln Lys Pro Gly Lys Ala Pro Lys Phe Leu Ile
        35                  40                  45
Tyr Ser Ala Ser Asn Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ser Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Ile Pro Leu
                85                  90                  95
Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105


<210> 323
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 323
cagagcatta acagcttt                                                 18

<210> 324
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 324
Gln Ser Ile Asn Ser Phe
 1               5


<210> 325
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 325
agtgcatcc 9

<210> 326
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 326
Ser Ala Ser
1

<210> 327
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 327
caacagagtt acagtatccc gctcact 27

<210> 328
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 328
Gln Gln Ser Tyr Ser Ile Pro Leu Thr
1 5

<210> 329
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 329
gaggtgcagc tggtggagtc tgggggagcc ttggtacagc ctggagggtc cctgagactc 60
tcctgtgcag cctctggatt catcttcggt agttatgaga tgaactgggt ccgccaggct 120

ccagggaagg ggctggagtg gctttcatac attagtagta gtggtagtac catatactac 180
gcagactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctcactgtat 240
ctgcaaatga acagcctgag agccgaggac acggctgttt attactgtgc gagagaacgg 300
gggcagctcg gccggggagg gtattactac tacggtatgg acgtctgggg ccaagggacc 360
acggtcaccg tctcctca 378

<210> 330
<211> 126
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 330
Glu Val Gln Leu Val Glu Ser Gly Gly Ala Leu Val Gln Pro Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ile Phe Gly Ser Tyr
            20                  25                  30
Glu Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Leu
        35                  40                  45
Ser Tyr Ile Ser Ser Ser Gly Ser Thr Ile Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65                  70                  75                  80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Glu Arg Gly Gln Leu Gly Arg Gly Gly Tyr Tyr Tyr Tyr Gly
            100                 105                 110
Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125


<210> 331
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 331
ggattcatct tcggtagtta tgag 24

<210> 332
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 332
Gly Phe Ile Phe Gly Ser Tyr Glu

1 5

<210> 333
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 333
attagtagta gtggtagtac cata 24

<210> 334
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 334
Ile Ser Ser Ser Gly Ser Thr Ile
1 5

<210> 335
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 335
gcgagagaac gggggcagct cggccgggga gggtattact actacggtat ggacgtc 57

<210> 336
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 336
Ala Arg Glu Arg Gly Gln Leu Gly Arg Gly Gly Tyr Tyr Tyr Tyr Gly
1 5 10 15
Met Asp Val

<210> 337

<211> 327
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 337
gaaattgtgt tgacgcggtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60
ctctcctgca gggccagtca gagtgttagc agcagctact tagcctggta ccatcagaaa 120
cctggccagg ctcccaggct cctcatgtat ggtacatcca tcagggccac tggcatccca 180
gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
cctgaagatt ttgcagtgta ttactgtcag cagtatggta gctcacctcc gtggacgttc 300
ggccaaggga ccaaggtgga aatcaaa 327

<210> 338
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 338
Glu Ile Val Leu Thr Arg Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
 1               5                  10                  15
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
            20                  25                  30
Tyr Leu Ala Trp Tyr His Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
        35                  40                  45
Met Tyr Gly Thr Ser Ile Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
    50                  55                  60
Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65                  70                  75                  80
Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
                85                  90                  95
Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105


<210> 339
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 339
cagagtgtta gcagcagcta c 21

<210> 340
<211> 7
<212> PRT

<213> Artificial Sequence

<220>
<223> synthetic

<400> 340
Gln Ser Val Ser Ser Ser Tyr
 1               5


<210> 341
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 341
ggtacatcc                                                                9

<210> 342
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 342
Gly Thr Ser
 1


<210> 343
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 343
cagcagtatg gtagctcacc tccgtggacg                                         30

<210> 344
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 344

```
Gln Gln Tyr Gly Ser Ser Pro Pro Trp Thr
 1               5                  10


<210> 345
<211> 384
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 345
caggtccggc tggtgcagtc tggggctgag gtgaagaagc ctgggtcctc ggtgaaggtc 60
tcctgcaagg cttctggaga caccttcagc agctatgcta tcagctgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggaggg atcatccctt tctttgttac aactacctac 180
gcacagaatt tccagggcag agtcacgatt accacggacg aatccacgcg cacagcctac 240
atggagctga gcagtctgag atctgaggac tcggccgtgt attactgtgc gagagatcgg 300
ccgtgtatca gctcggctgg tacacgctac cactactgcg ttatggacgt ctggggccaa 360
gggacaacgg tcaccgtctc ctca                                        384

<210> 346
<211> 128
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 346
Gln Val Arg Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1               5                  10                  15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Asp Thr Phe Ser Ser Tyr
            20                  25                  30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
Gly Gly Ile Ile Pro Phe Phe Val Thr Thr Thr Tyr Ala Gln Asn Phe
    50                  55                  60
Gln Gly Arg Val Thr Ile Thr Thr Asp Glu Ser Thr Arg Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Asp Arg Pro Cys Ile Ser Ser Ala Gly Thr Arg Tyr His Tyr
            100                 105                 110
Cys Val Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125


<210> 347
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
```

<223> synthetic

<400> 347
ggagacacct tcagcagcta tgct 24

<210> 348
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 348
Gly Asp Thr Phe Ser Ser Tyr Ala
1 5

<210> 349
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 349
atcatccctt tctttgttac aact 24

<210> 350
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 350
Ile Ile Pro Phe Phe Val Thr Thr
1 5

<210> 351
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 351
gcgagagatc ggccgtgtat cagctcggct ggtacacgct accactactg cgttatggac 60
gtc 63

<210> 352
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 352
Ala Arg Asp Arg Pro Cys Ile Ser Ser Ala Gly Thr Arg Tyr His Tyr
 1               5                  10                  15
Cys Val Met Asp Val
            20


<210> 353
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 353
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agttatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaa                                        324

<210> 354
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 354
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
            20                  25                  30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
                85                  90                  95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
            100                 105

<210> 355
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 355
cagagcatta gcagttat 18

<210> 356
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 356
Gln Ser Ile Ser Ser Tyr
1 5

<210> 357
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 357
gctgcatcc 9

<210> 358
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 358
Ala Ala Ser
1

<210> 359
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 359
caacagagtt acagtacccc tccgatcacc 30

<210> 360
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 360
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 361
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 361
caggttcaac tggtgcagtc tggagctgag gtgaagaagc ctggggcctc agtgaaggtc 60
tcctgcaagg cttctggtta cacctttacc agccatggta tcagctgggt gcgacaggcc 120
cctggacagg ggtttgagtg gatgggatgg atcggcactt acaatagtaa cacagactat 180
gcacagaact tccagggcag agtcaccatg accacagaca catccacgag cacggcctac 240
atggagctga ggaacctgag atctgacgac acggccgtat attattgtgc gagagaaagg 300
ggtccctatt acggtatgga cgtctggggc caagggacca cggtcaccgt ctcctca 357

<210> 362
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 362
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser His
20 25 30
Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Phe Glu Trp Met
35 40 45
Gly Trp Ile Gly Thr Tyr Asn Ser Asn Thr Asp Tyr Ala Gln Asn Phe
50 55 60
Gln Gly Arg Val Thr Met Thr Thr Asp Thr Ser Thr Ser Thr Ala Tyr

65 70 75 80
Met Glu Leu Arg Asn Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Glu Arg Gly Pro Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly
100 105 110
Thr Thr Val Thr Val Ser Ser
115

<210> 363
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 363
ggttacacct ttaccagcca tggt 24

<210> 364
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 364
Gly Tyr Thr Phe Thr Ser His Gly
1 5

<210> 365
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 365
atcggcactt acaatagtaa caca 24

<210> 366
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 366
Ile Gly Thr Tyr Asn Ser Asn Thr

1 5

<210> 367
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 367
gcgagagaaa ggggtcccta ttacggtatg gacgtc 36

<210> 368
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 368
Ala Arg Glu Arg Gly Pro Tyr Tyr Gly Met Asp Val
1 5 10

<210> 369
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 369
gaaattgtgt tggcgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60
ctctcctgca gggccagtca gagtgttaac agcaactact tagcctggta tcagcagaaa 120
cctggccagg ctcccaggct cctcatctat ggtgcatcca gtagggccac tggcatccca 180
gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
cctgaagatt ttgcagtgta ttactgtcaa cagtatggta actcactcac tttcggccct 300
gggaccaaag tggatttcaa a 321

<210> 370
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 370
Glu Ile Val Leu Ala Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

```
Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Asn Ser Asn
            20                  25                  30
Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
        35                  40                  45
Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
    50                  55                  60
Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65                  70                  75                  80
Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Asn Ser Leu
                85                  90                  95
Thr Phe Gly Pro Gly Thr Lys Val Asp Phe Lys
            100                 105
```

<210> 371
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 371
cagagtgtta acagcaacta c 21

<210> 372
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 372
```
Gln Ser Val Asn Ser Asn Tyr
 1               5
```

<210> 373
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 373
ggtgcatcc 9

<210> 374
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 374
Gly Ala Ser
 1


<210> 375
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 375
caacagtatg gtaactcact cact 24

<210> 376
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 376
Gln Gln Tyr Gly Asn Ser Leu Thr
 1               5


<210> 377
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 377
gaggtgcagc tgttggagtc tgggggaggc ttggtacaga ctgggggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttagc aattatgcca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtgata gaggtggtag tatatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgaagtat 240
ctgcaaatgg acagcctgag agccgaggac acggccgtat attactgtgc gcaagatagg 300
gggttcgggg tctttgacta ctggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 378
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<223> synthetic

<400> 378
Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Thr Gly Gly
 1               5                  10                  15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
            20                  25                  30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35                  40                  45
Ser Ala Ile Ser Asp Arg Gly Gly Ser Ile Tyr Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Lys Tyr
65                  70                  75                  80
Leu Gln Met Asp Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Gln Asp Arg Gly Phe Gly Val Phe Asp Tyr Trp Gly Gln Gly Thr
            100                 105                 110
Leu Val Thr Val Ser Ser
        115


<210> 379
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 379
ggattcacct ttagcaatta tgcc                                          24

<210> 380
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 380
Gly Phe Thr Phe Ser Asn Tyr Ala
 1               5


<210> 381
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 381

attagtgata gaggtggtag tata 24

<210> 382
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 382
Ile Ser Asp Arg Gly Gly Ser Ile
1 5

<210> 383
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 383
gcgcaagata gggggttcgg ggtctttgac tac 33

<210> 384
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 384
Ala Gln Asp Arg Gly Phe Gly Val Phe Asp Tyr
1 5 10

<210> 385
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 385
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc aggcgagtca ggacattggc aactatttaa attggtttca gcagagacca 120
gggaaagccc ctaatctcct gatctacggt gcatccaatt tggaaacagg ggtcccatca 180
aggttcagtg gaggtggatc tgggacagat tttactttca ccatcagcag cctgcagcct 240
gaagatattg caacatattt ctgtcaacag tatgataatc tccctttcac tttcggccct 300
gggaccaaag tggaaatcaa a 321

<210> 386
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 386
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Gln Ala Ser Gln Asp Ile Gly Asn Tyr
            20                  25                  30
Leu Asn Trp Phe Gln Gln Arg Pro Gly Lys Ala Pro Asn Leu Leu Ile
        35                  40                  45
Tyr Gly Ala Ser Asn Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Gly Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Ile Ala Thr Tyr Phe Cys Gln Gln Tyr Asp Asn Leu Pro Phe
                85                  90                  95
Thr Phe Gly Pro Gly Thr Lys Val Glu Ile Lys
            100                 105


<210> 387
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 387
caggacattg gcaactat                                                 18

<210> 388
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 388
Gln Asp Ile Gly Asn Tyr
 1               5


<210> 389
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 389
ggtgcatcc 9

<210> 390
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 390
Gly Ala Ser
1

<210> 391
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 391
caacagtatg ataatctccc tttcact 27

<210> 392
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 392
Gln Gln Tyr Asp Asn Leu Pro Phe Thr
1 5

<210> 393
<211> 384
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 393
caggtccagc tggtgcagtc tggggctgag gtgaagaagc ctgggtcctc ggtgaaggtc 60

tcctgcaagg cttctaaaga caccttcagc agctatgcta tcagctgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggaggg atcatccctt tctttggtac aactacctac 180
gaacagaagt tccagggcag agtcacgatt accacggacg aatccacgcg cacagcctac 240
atggagctga gcagcctgag atctgaggac tcggccgtgt attactgtgc gagagatcgg 300
ccgtgtatca gctcggctgg tacacgctac cactactgcg ttatggacgt ctggggccaa 360
gggacaacgg tcaccgtctc ctca 384

<210> 394
<211> 128
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 394
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1               5                  10                  15
Ser Val Lys Val Ser Cys Lys Ala Ser Lys Asp Thr Phe Ser Ser Tyr
            20                  25                  30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
Gly Gly Ile Ile Pro Phe Phe Gly Thr Thr Thr Tyr Glu Gln Lys Phe
    50                  55                  60
Gln Gly Arg Val Thr Ile Thr Thr Asp Glu Ser Thr Arg Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Asp Arg Pro Cys Ile Ser Ser Ala Gly Thr Arg Tyr His Tyr
            100                 105                 110
Cys Val Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125


<210> 395
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 395
aaagacacct tcagcagcta tgct 24

<210> 396
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 396

Lys Asp Thr Phe Ser Ser Tyr Ala
 1               5


<210> 397
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 397
atcatccctt tctttggtac aact                                          24

<210> 398
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 398
Ile Ile Pro Phe Phe Gly Thr Thr
 1               5


<210> 399
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 399
gcgagagatc ggccgtgtat cagctcggct ggtacacgct accactactg cgttatggac 60
gtc                                                                 63

<210> 400
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 400
Ala Arg Asp Arg Pro Cys Ile Ser Ser Ala Gly Thr Arg Tyr His Tyr
 1               5                  10                  15
Cys Val Met Asp Val
            20

<210> 401
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 401
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagtattagc agttatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaa 324

<210> 402
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 402
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
            20                  25                  30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
                85                  90                  95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
            100                 105


<210> 403
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 403
cagagtatta gcagttat 18

<210> 404

<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 404
Gln Ser Ile Ser Ser Tyr
 1               5


<210> 405
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 405
gctgcatcc                                                                9

<210> 406
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 406
Ala Ala Ser
 1


<210> 407
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 407
caacagagtt acagtacccc tccgatcacc                                         30

<210> 408
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 408
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
 1               5                  10


<210> 409
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 409
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagc agtggtaatt actactgggg ctggatccgc 120
cagccccccg ggaaggggct ggagtggttt gggactatct attatagtgg gagcacctac 180
tacaacccgt ccctcaagag tcgagtcacc atatccgtag acacgtccaa gaaccagttc 240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattactg tgcgagacgg 300
gcagcagttg gtcactttga ctactggggc cagggaaccc tggtcaccgt ctcctca    357

<210> 410
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 410
Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1               5                  10                  15
Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly
            20                  25                  30
Asn Tyr Tyr Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
        35                  40                  45
Trp Phe Gly Thr Ile Tyr Tyr Ser Gly Ser Thr Tyr Tyr Asn Pro Ser
    50                  55                  60
Leu Lys Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe
65                  70                  75                  80
Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
                85                  90                  95
Cys Ala Arg Arg Ala Ala Val Gly His Phe Asp Tyr Trp Gly Gln Gly
            100                 105                 110
Thr Leu Val Thr Val Ser Ser
        115


<210> 411
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 411
ggtggctcca tcagcagtgg taattactac 30

<210> 412
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 412
Gly Gly Ser Ile Ser Ser Gly Asn Tyr Tyr
1 5 10

<210> 413
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 413
atctattata gtgggagcac c 21

<210> 414
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 414
Ile Tyr Tyr Ser Gly Ser Thr
1 5

<210> 415
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 415
gcgagacggg cagcagttgg tcactttgac tac 33

<210> 416
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 416
Ala Arg Arg Ala Ala Val Gly His Phe Asp Tyr
 1               5                  10


<210> 417
<211> 318
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 417
gacatccaga tgacccagtc tccttccacc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggccagtca gagtattagt acctggttgg cctggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgag gcgtctagtt tagaaagtgg ggtcccatca 180
aggttcagcg gcagtggatt tgggacagaa ttcactctca ccatcagccg cctgcagcct 240
gatgattttg caacttattt ctgccaacag tataatactt attggacgtt cggccaaggg 300
accaaggtgg aaatcaaa                                               318

<210> 418
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 418
Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Thr Trp
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Phe Gly Thr Glu Phe Thr Leu Thr Ile Ser Arg Leu Gln Pro
65                  70                  75                  80
Asp Asp Phe Ala Thr Tyr Phe Cys Gln Gln Tyr Asn Thr Tyr Trp Thr
                85                  90                  95
Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105

<210> 419
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 419
cagagtatta gtacctgg 18

<210> 420
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 420
Gln Ser Ile Ser Thr Trp
 1               5


<210> 421
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 421
gaggcgtct 9

<210> 422
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 422
Glu Ala Ser
 1


<210> 423
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetic

<400> 423
caacagtata atacttattg gacg 24

<210> 424
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 424
Gln Gln Tyr Asn Thr Tyr Trp Thr
 1               5


<210> 425
<211> 381
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 425
caggtccagc tggtgcagtc tggggctgag gtgaagaagc ctgggtcctc ggtgaaggtc 60
tcctgcaagg cttctggaga caccttcagc acctatgctg tcagctgggt acgtcaggcc 120
cctggacaag ggcttgagtg gatgggaggg atcatccctt tctttggtac atcaaactac 180
gcacagaagt tccagggcag agtcacgatt accacggacg aatccacgac cacagcctac 240
atggaactga acagcctgag atctgaggac acggccgtat attactgtgc gagagaaatt 300
actatggttc ggggacttac caactaccac ttctacggta tggacgtctg gggccaaggg 360
accacggtca ccgtctcctc a 381

<210> 426
<211> 127
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 426
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1               5                  10                  15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Asp Thr Phe Ser Thr Tyr
            20                  25                  30
Ala Val Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
Gly Gly Ile Ile Pro Phe Phe Gly Thr Ser Asn Tyr Ala Gln Lys Phe
    50                  55                  60
Gln Gly Arg Val Thr Ile Thr Thr Asp Glu Ser Thr Thr Thr Ala Tyr
65                  70                  75                  80

```
Met Glu Leu Asn Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Glu Ile Thr Met Val Arg Gly Leu Thr Asn Tyr His Phe Tyr
            100                 105                 110
Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

<210> 427
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 427
ggagacacct tcagcaccta tgct 24

<210> 428
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 428
Gly Asp Thr Phe Ser Thr Tyr Ala
 1               5

<210> 429
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 429
atcatccctt tctttggtac atca 24

<210> 430
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 430
Ile Ile Pro Phe Phe Gly Thr Ser
 1               5

<210> 431
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 431
gcgagagaaa ttactatggt tcggggactt accaactacc acttctacgg tatggacgtc 60


<210> 432
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 432
Ala Arg Glu Ile Thr Met Val Arg Gly Leu Thr Asn Tyr His Phe Tyr
 1               5                  10                  15
Gly Met Asp Val
            20


<210> 433
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 433
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta tttccccgat caccttcggc 300
caggggacac gactggagat taaa                                        324

<210> 434
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 434

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
            20                  25                  30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Ile Ser Pro
                85                  90                  95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
            100                 105
```

<210> 435
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 435
cagagcatta gcagctat 18

<210> 436
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 436
```
Gln Ser Ile Ser Ser Tyr
 1               5
```

<210> 437
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 437
gctgcatcc 9

<210> 438
<211> 3
<212> PRT

<213> Artificial Sequence

<220>
<223> synthetic

<400> 438
Ala Ala Ser
 1


<210> 439
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 439
caacagagtt acagtatttc cccgatcacc 30

<210> 440
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 440
Gln Gln Ser Tyr Ser Ile Ser Pro Ile Thr
 1               5                  10


<210> 441
<211> 381
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 441
caggtccagc tggttcagtc tggggctgag gtgaagaagc ctggttcctc ggtgaaggtc 60
tcctgcaagg cttctggggg caccttcaac aactatgcta tcagctgggt gcgacaggcc 120
cctggacaag ggcttgaatg gatgggaggg atcatccctt tctttggtac aacaaactac 180
gcacagaagt tccaggacag agtcacgatt acctcggacg actcaacgat aacagcctac 240
atggaactga gtcgcctgag atctgaggac acggccgtgt attactgtgc gagagatgaa 300
ccccgtagag atggctacaa ttactaccac tactactata tggacgtctg gggccaaggg 360
accacggtca ccgtctcctc a 381

<210> 442
<211> 127
<212> PRT

<213> Artificial Sequence

<220>
<223> synthetic

<400> 442
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1               5                  10                  15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Asn Asn Tyr
            20                  25                  30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
Gly Gly Ile Ile Pro Phe Phe Gly Thr Thr Asn Tyr Ala Gln Lys Phe
    50                  55                  60
Gln Asp Arg Val Thr Ile Thr Ser Asp Asp Ser Thr Ile Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Arg Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Asp Glu Pro Arg Arg Asp Gly Tyr Asn Tyr Tyr His Tyr Tyr
            100                 105                 110
Tyr Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125


<210> 443
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 443
gggggcacct tcaacaacta tgct                                          24

<210> 444
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 444
Gly Gly Thr Phe Asn Asn Tyr Ala
 1               5


<210> 445
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetic

<400> 445
atcatccctt tctttggtac aaca 24

<210> 446
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 446
Ile Ile Pro Phe Phe Gly Thr Thr
 1 5

<210> 447
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 447
gcgagagatg aaccccgtag agatggctac aattactacc actactacta tatggacgtc 60

<210> 448
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 448
Ala Arg Asp Glu Pro Arg Arg Asp Gly Tyr Asn Tyr Tyr His Tyr Tyr
 1 5 10 15
Tyr Met Asp Val
 20

<210> 449
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 449

gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattaac agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaacctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcatcct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaa 324

<210> 450
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 450
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Asn Ser Tyr
20 25 30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Asn Leu Leu Ile
35 40 45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu His Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
85 90 95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105

<210> 451
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 451
cagagcatta acagctat 18

<210> 452
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 452
Gln Ser Ile Asn Ser Tyr
1 5

<210> 453
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 453
gctgcatcc 9

<210> 454
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 454
Ala Ala Ser
1

<210> 455
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 455
caacagagtt acagtacccc tccgatcacc 30

<210> 456
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 456
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 457
<211> 1353
<212> PRT
<213> Artificial Sequence

<220>
<223> MERS-CoV-S
aa 367-606: RBD

<400> 457

```
Met Ile His Ser Val Phe Leu Leu Met Phe Leu Leu Thr Pro Thr Glu
 1               5                  10                  15
Ser Tyr Val Asp Val Gly Pro Asp Ser Val Lys Ser Ala Cys Ile Glu
            20                  25                  30
Val Asp Ile Gln Gln Thr Phe Phe Asp Lys Thr Trp Pro Arg Pro Ile
        35                  40                  45
Asp Val Ser Lys Ala Asp Gly Ile Ile Tyr Pro Gln Gly Arg Thr Tyr
    50                  55                  60
Ser Asn Ile Thr Ile Thr Tyr Gln Gly Leu Phe Pro Tyr Gln Gly Asp
65                  70                  75                  80
His Gly Asp Met Tyr Val Tyr Ser Ala Gly His Ala Thr Gly Thr Thr
                85                  90                  95
Pro Gln Lys Leu Phe Val Ala Asn Tyr Ser Gln Asp Val Lys Gln Phe
            100                 105                 110
Ala Asn Gly Phe Val Val Arg Ile Gly Ala Ala Ala Asn Ser Thr Gly
        115                 120                 125
Thr Val Ile Ile Ser Pro Ser Thr Ser Ala Thr Ile Arg Lys Ile Tyr
    130                 135                 140
Pro Ala Phe Met Leu Gly Ser Ser Val Gly Asn Phe Ser Asp Gly Lys
145                 150                 155                 160
Met Gly Arg Phe Phe Asn His Thr Leu Val Leu Leu Pro Asp Gly Cys
                165                 170                 175
Gly Thr Leu Leu Arg Ala Phe Tyr Cys Ile Leu Glu Pro Arg Ser Gly
            180                 185                 190
Asn His Cys Pro Ala Gly Asn Ser Tyr Thr Ser Phe Ala Thr Tyr His
        195                 200                 205
Thr Pro Ala Thr Asp Cys Ser Asp Gly Asn Tyr Asn Arg Asn Ala Ser
    210                 215                 220
Leu Asn Ser Phe Lys Glu Tyr Phe Asn Leu Arg Asn Cys Thr Phe Met
225                 230                 235                 240
Tyr Thr Tyr Asn Ile Thr Glu Asp Glu Ile Leu Glu Trp Phe Gly Ile
                245                 250                 255
Thr Gln Thr Ala Gln Gly Val His Leu Phe Ser Ser Arg Tyr Val Asp
            260                 265                 270
Leu Tyr Gly Gly Asn Met Phe Gln Phe Ala Thr Leu Pro Val Tyr Asp
        275                 280                 285
Thr Ile Lys Tyr Tyr Ser Ile Ile Pro His Ser Ile Arg Ser Ile Gln
    290                 295                 300
Ser Asp Arg Lys Ala Trp Ala Ala Phe Tyr Val Tyr Lys Leu Gln Pro
305                 310                 315                 320
Leu Thr Phe Leu Leu Asp Phe Ser Val Asp Gly Tyr Ile Arg Arg Ala
                325                 330                 335
Ile Asp Cys Gly Phe Asn Asp Leu Ser Gln Leu His Cys Ser Tyr Glu
            340                 345                 350
Ser Phe Asp Val Glu Ser Gly Val Tyr Ser Val Ser Ser Phe Glu Ala
        355                 360                 365
Lys Pro Ser Gly Ser Val Val Glu Gln Ala Glu Gly Val Glu Cys Asp
    370                 375                 380
```

```
Phe Ser Pro Leu Leu Ser Gly Thr Pro Pro Gln Val Tyr Asn Phe Lys
385                 390                 395                 400
Arg Leu Val Phe Thr Asn Cys Asn Tyr Asn Leu Thr Lys Leu Leu Ser
                405                 410                 415
Leu Phe Ser Val Asn Asp Phe Thr Cys Ser Gln Ile Ser Pro Ala Ala
            420                 425                 430
Ile Ala Ser Asn Cys Tyr Ser Ser Leu Ile Leu Asp Tyr Phe Ser Tyr
        435                 440                 445
Pro Leu Ser Met Lys Ser Asp Leu Ser Val Ser Ser Ala Gly Pro Ile
    450                 455                 460
Ser Gln Phe Asn Tyr Lys Gln Ser Phe Ser Asn Pro Thr Cys Leu Ile
465                 470                 475                 480
Leu Ala Thr Val Pro His Asn Leu Thr Thr Ile Thr Lys Pro Leu Lys
                485                 490                 495
Tyr Ser Tyr Ile Asn Lys Cys Ser Arg Leu Leu Ser Asp Asp Arg Thr
            500                 505                 510
Glu Val Pro Gln Leu Val Asn Ala Asn Gln Tyr Ser Pro Cys Val Ser
        515                 520                 525
Ile Val Pro Ser Thr Val Trp Glu Asp Gly Asp Tyr Tyr Arg Lys Gln
    530                 535                 540
Leu Ser Pro Leu Glu Gly Gly Gly Trp Leu Val Ala Ser Gly Ser Thr
545                 550                 555                 560
Val Ala Met Thr Glu Gln Leu Gln Met Gly Phe Gly Ile Thr Val Gln
                565                 570                 575
Tyr Gly Thr Asp Thr Asn Ser Val Cys Pro Lys Leu Glu Phe Ala Asn
            580                 585                 590
Asp Thr Lys Ile Ala Ser Gln Leu Gly Asn Cys Val Glu Tyr Ser Leu
        595                 600                 605
Tyr Gly Val Ser Gly Arg Gly Val Phe Gln Asn Cys Thr Ala Val Gly
    610                 615                 620
Val Arg Gln Gln Arg Phe Val Tyr Asp Ala Tyr Gln Asn Leu Val Gly
625                 630                 635                 640
Tyr Tyr Ser Asp Asp Gly Asn Tyr Tyr Cys Leu Arg Ala Cys Val Ser
                645                 650                 655
Val Pro Val Ser Val Ile Tyr Asp Lys Glu Thr Lys Thr His Ala Thr
            660                 665                 670
Leu Phe Gly Ser Val Ala Cys Glu His Ile Ser Ser Thr Met Ser Gln
        675                 680                 685
Tyr Ser Arg Ser Thr Arg Ser Met Leu Lys Arg Arg Asp Ser Thr Tyr
    690                 695                 700
Gly Pro Leu Gln Thr Pro Val Gly Cys Val Leu Gly Leu Val Asn Ser
705                 710                 715                 720
Ser Leu Phe Val Glu Asp Cys Lys Leu Pro Leu Gly Gln Ser Leu Cys
                725                 730                 735
Ala Leu Pro Asp Thr Pro Ser Thr Leu Thr Pro Arg Ser Val Arg Ser
            740                 745                 750
Val Pro Gly Glu Met Arg Leu Ala Ser Ile Ala Phe Asn His Pro Ile
        755                 760                 765
Gln Val Asp Gln Leu Asn Ser Ser Tyr Phe Lys Leu Ser Ile Pro Thr
    770                 775                 780
Asn Phe Ser Phe Gly Val Thr Gln Glu Tyr Ile Gln Thr Thr Ile Gln
785                 790                 795                 800
Lys Val Thr Val Asp Cys Lys Gln Tyr Val Cys Asn Gly Phe Gln Lys
                805                 810                 815
```

```
Cys Glu Gln Leu Leu Arg Glu Tyr Gly Gln Phe Cys Ser Lys Ile Asn
            820                 825                 830
Gln Ala Leu His Gly Ala Asn Leu Arg Gln Asp Asp Ser Val Arg Asn
        835                 840                 845
Leu Phe Ala Ser Val Lys Ser Ser Gln Ser Ser Pro Ile Ile Pro Gly
    850                 855                 860
Phe Gly Gly Asp Phe Asn Leu Thr Leu Leu Glu Pro Val Ser Ile Ser
865                 870                 875                 880
Thr Gly Ser Arg Ser Ala Arg Ser Ala Ile Glu Asp Leu Leu Phe Asp
                885                 890                 895
Lys Val Thr Ile Ala Asp Pro Gly Tyr Met Gln Gly Tyr Asp Asp Cys
            900                 905                 910
Met Gln Gln Gly Pro Ala Ser Ala Arg Asp Leu Ile Cys Ala Gln Tyr
        915                 920                 925
Val Ala Gly Tyr Lys Val Leu Pro Pro Leu Met Asp Val Asn Met Glu
    930                 935                 940
Ala Ala Tyr Thr Ser Ser Leu Leu Gly Ser Ile Ala Gly Val Gly Trp
945                 950                 955                 960
Thr Ala Gly Leu Ser Ser Phe Ala Ala Ile Pro Phe Ala Gln Ser Ile
                965                 970                 975
Phe Tyr Arg Leu Asn Gly Val Gly Ile Thr Gln Gln Val Leu Ser Glu
            980                 985                 990
Asn Gln Lys Leu Ile Ala Asn Lys Phe Asn Gln Ala Leu Gly Ala Met
        995                 1000                1005
Gln Thr Gly Phe Thr Thr Thr Asn Glu Ala Phe Gln Lys Val Gln Asp
    1010                1015                1020
Ala Val Asn Asn Asn Ala Gln Ala Leu Ser Lys Leu Ala Ser Glu Leu
1025                1030                1035                1040
Ser Asn Thr Phe Gly Ala Ile Ser Ala Ser Ile Gly Asp Ile Ile Gln
                1045                1050                1055
Arg Leu Asp Val Leu Glu Gln Asp Ala Gln Ile Asp Arg Leu Ile Asn
            1060                1065                1070
Gly Arg Leu Thr Thr Leu Asn Ala Phe Val Ala Gln Gln Leu Val Arg
        1075                1080                1085
Ser Glu Ser Ala Ala Leu Ser Ala Gln Leu Ala Lys Asp Lys Val Asn
    1090                1095                1100
Glu Cys Val Lys Ala Gln Ser Lys Arg Ser Gly Phe Cys Gly Gln Gly
1105                1110                1115                1120
Thr His Ile Val Ser Phe Val Val Asn Ala Pro Asn Gly Leu Tyr Phe
                1125                1130                1135
Met His Val Gly Tyr Tyr Pro Ser Asn His Ile Glu Val Val Ser Ala
            1140                1145                1150
Tyr Gly Leu Cys Asp Ala Ala Asn Pro Thr Asn Cys Ile Ala Pro Val
        1155                1160                1165
Asn Gly Tyr Phe Ile Lys Thr Asn Asn Thr Arg Ile Val Asp Glu Trp
    1170                1175                1180
Ser Tyr Thr Gly Ser Ser Phe Tyr Ala Pro Glu Pro Ile Thr Ser Leu
1185                1190                1195                1200
Asn Thr Lys Tyr Val Ala Pro Gln Val Thr Tyr Gln Asn Ile Ser Thr
                1205                1210                1215
Asn Leu Pro Pro Pro Leu Leu Gly Asn Ser Thr Gly Ile Asp Phe Gln
            1220                1225                1230
Asp Glu Leu Asp Glu Phe Phe Lys Asn Val Ser Thr Ser Ile Pro Asn
        1235                1240                1245
```

```
Phe Gly Ser Leu Thr Gln Ile Asn Thr Thr Leu Leu Asp Leu Thr Tyr
    1250                1255                1260
Glu Met Leu Ser Leu Gln Gln Val Val Lys Ala Leu Asn Glu Ser Tyr
1265                1270                1275                1280
Ile Asp Leu Lys Glu Leu Gly Asn Tyr Thr Tyr Tyr Asn Lys Trp Pro
                1285                1290                1295
Trp Tyr Ile Trp Leu Gly Phe Ile Ala Gly Leu Val Ala Leu Ala Leu
            1300                1305                1310
Cys Val Phe Phe Ile Leu Cys Cys Thr Gly Cys Gly Thr Asn Cys Met
        1315                1320                1325
Gly Lys Leu Lys Cys Asn Arg Cys Cys Asp Arg Tyr Glu Glu Tyr Asp
    1330                1335                1340
Leu Glu Pro His Lys Val His Val His
1345                1350


<210> 458
<211> 467
<212> PRT
<213> Artificial Sequence

<220>
<223> MERS RBD-hFc
      aa1-240: MERS RBD
      aa241-467: hFc

<400> 458
Glu Ala Lys Pro Ser Gly Ser Val Val Glu Gln Ala Glu Gly Val Glu
 1                5                  10                  15
Cys Asp Phe Ser Pro Leu Leu Ser Gly Thr Pro Pro Gln Val Tyr Asn
            20                  25                  30
Phe Lys Arg Leu Val Phe Thr Asn Cys Asn Tyr Asn Leu Thr Lys Leu
        35                  40                  45
Leu Ser Leu Phe Ser Val Asn Asp Phe Thr Cys Ser Gln Ile Ser Pro
    50                  55                  60
Ala Ala Ile Ala Ser Asn Cys Tyr Ser Ser Leu Ile Leu Asp Tyr Phe
65                  70                  75                  80
Ser Tyr Pro Leu Ser Met Lys Ser Asp Leu Ser Val Ser Ser Ala Gly
                85                  90                  95
Pro Ile Ser Gln Phe Asn Tyr Lys Gln Ser Phe Ser Asn Pro Thr Cys
            100                 105                 110
Leu Ile Leu Ala Thr Val Pro His Asn Leu Thr Thr Ile Thr Lys Pro
        115                 120                 125
Leu Lys Tyr Ser Tyr Ile Asn Lys Cys Ser Arg Leu Leu Ser Asp Asp
    130                 135                 140
Arg Thr Glu Val Pro Gln Leu Val Asn Ala Asn Gln Tyr Ser Pro Cys
145                 150                 155                 160
Val Ser Ile Val Pro Ser Thr Val Trp Glu Asp Gly Asp Tyr Tyr Arg
                165                 170                 175
Lys Gln Leu Ser Pro Leu Glu Gly Gly Gly Trp Leu Val Ala Ser Gly
            180                 185                 190
Ser Thr Val Ala Met Thr Glu Gln Leu Gln Met Gly Phe Gly Ile Thr
        195                 200                 205
Val Gln Tyr Gly Thr Asp Thr Asn Ser Val Cys Pro Lys Leu Glu Phe
```

```
    210                 215                 220
Ala Asn Asp Thr Lys Ile Ala Ser Gln Leu Gly Asn Cys Val Glu Tyr
225                 230                 235                 240
Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
                245                 250                 255
Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
            260                 265                 270
Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
        275                 280                 285
Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
    290                 295                 300
His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
305                 310                 315                 320
Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
                325                 330                 335
Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
            340                 345                 350
Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
        355                 360                 365
Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser
    370                 375                 380
Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
385                 390                 395                 400
Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
                405                 410                 415
Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
            420                 425                 430
Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
        435                 440                 445
His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
    450                 455                 460
Pro Gly Lys
465
```