SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.

<120> ANTI-ACTIVIN A ANTIBODIES AND USES THEREOF

<130> 8525-WO

<140> To be assigned
<141> Filed herewith

<150> 61/859,926
<151> 2013-07-30

<150> 61/864,036
<151> 2013-08-09

<150> 61/911,834
<151> 2013-12-04

<150> 61/913,855
<151> 2013-12-09

<160> 228

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 366
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 1
caggtacagc tgcagcagtc aggtccagga ctgctgaagc cctcgcagac cctctcactc 60
acctgtgcca tctccgggga cagtgtctct agcaacagtg ctgcttggag ttggatcagg 120
cagtccccat cgagaggcct tgagtggctg ggaaggacat attacagggc caactggttt 180
aatgattatg cactttctgt gaaaagtcga ataaccatca acccagtcac atccacgaac 240
cacttctccc tgcagctgca ctctgtgact cccgaggaca cggctgtgta ttactgtgca 300
agagaagggg ctctgggata ctactttgac tcctggggcc agggaaccct ggtcaccgtc 360
tcctca 366

<210> 2
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 2
Gln Val Gln Leu Gln Gln Ser Gly Pro Gly Leu Leu Lys Pro Ser Gln
 1   5   10   15
Thr Leu Ser Leu Thr Cys Ala Ile Ser Gly Asp Ser Val Ser Ser Asn
            20   25   30

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

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

<220>
<223> Synthetic

<400> 3
ggggacagtg tctctagcaa cagtgctgct 30

<210> 4
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 4

```
Gly Asp Ser Val Ser Ser Asn Ser Ala Ala
 1               5                  10
```

<210> 5
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 5
acatattaca gggccaactg gtttaat 27

<210> 6
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 6

```
Thr Tyr Tyr Arg Ala Asn Trp Phe Asn
 1               5


<210> 7
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 7
gcaagagaag gggctctggg atactacttt gactcc                                  36

<210> 8
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 8
Ala Arg Glu Gly Ala Leu Gly Tyr Tyr Phe Asp Ser
 1               5                   10


<210> 9
<211> 339
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 9
gacatcgtga tgacccagtc tccagactcc ctggctgtgt ctctgggcga gagggccacc 60
atcaactgca agtccagtca aagtgtttta tacagctcca acaataagaa ttatttagct 120
tggtaccaac agaaaccagg gcagcctcct acactgctca tttactgggc atctacccgg 180
gaatccgggg tccctgaccg attcagtggc agcgggtctg ggacagattt cactctcacc 240
atcagcagcc tgcaggcgga agatgtggca atttattact gtcaccaata ttttattact 300
ccactcactt tcggcggagg gaccaaggtg gagatcaaa                          339

<210> 10
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 10
Asp Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly
 1               5                   10                  15
Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
            20                  25                  30
Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
```

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

<210> 11
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 11
caaagtgttt tatacagctc caacaataag aattat 36

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

<220>
<223> Synthetic

<400> 12
```
Gln Ser Val Leu Tyr Ser Ser Asn Asn Lys Asn Tyr
 1               5                  10
```

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

<220>
<223> Synthetic

<400> 13
tgggcatct 9

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

<220>
<223> Synthetic

<400> 14
Trp Ala Ser

1

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

<220>
<223> Synthetic

<400> 15
caccaatatt ttattactcc actcact 27

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

<220>
<223> Synthetic

<400> 16
His Gln Tyr Phe Ile Thr Pro Leu Thr
1 5

<210> 17
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 17
caggtgcagc tggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60
tcctgtgcag cgtctggatt caccttcagt agctatggca tgcactgggt ccgccaggct 120
ccaggcaagg ggctggagtg ggtggcagtt atatggtatg atggaagtaa taaatacaat 180
gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacggtgtat 240
ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagcccgg 300
aattacgata ttttgactgg ttattataac ctcggtatgg acgtctgggg ccaagggacc 360
acggtcaccg tctcctca 378

<210> 18
<211> 126
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 18
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 Ser Tyr
20 25 30
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val

```
        35                  40                  45
Ala Val Ile Trp Tyr Asp Gly Ser Asn Lys Tyr Asn Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val 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 Ala Arg Asn Tyr Asp Ile Leu Thr Gly Tyr Tyr Asn Leu Gly
            100                 105                 110
Met 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
ggattcacct tcagtagcta tggc                                          24

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

<220>
<223> Synthetic

<400> 20
Gly Phe Thr Phe Ser Ser Tyr Gly
 1               5


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

<220>
<223> Synthetic

<400> 21
atatggtatg atggaagtaa taaa                                          24

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

<220>
<223> Synthetic

<400> 22
Ile Trp Tyr Asp Gly Ser Asn Lys
```

1 5

<210> 23
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 23
gcgagagccc ggaattacga tattttgact ggttattata acctcggtat ggacgtc 57

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

<220>
<223> Synthetic

<400> 24
Ala Arg Ala Arg Asn Tyr Asp Ile Leu Thr Gly Tyr Tyr Asn Leu Gly
1 5 10 15
Met Asp Val

<210> 25
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 25
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gggcattaga aatgatttag gctggtatca acagaaacca 120
gggaaagccc ctaagcgcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtctacag cataatagtt acccgtacac ttttggccag 300
gggaccaagc tggagatcaa a 321

<210> 26
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 26
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 Gly Ile Arg Asn Asp
20 25 30

```
Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Arg 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 Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Ser Tyr Pro Tyr
                85                  90                  95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
            100                 105
```

<210> 27
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 27
cagggcatta gaaatgat 18

<210> 28
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 28
```
Gln Gly Ile Arg Asn Asp
 1               5
```

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

<220>
<223> Synthetic

<400> 29
gctgcatcc 9

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

<220>
<223> Synthetic

<400> 30
```
Ala Ala Ser
 1
```

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

<220>
<223> Synthetic

<400> 31
ctacagcata atagttaccc gtacact 27

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

<220>
<223> Synthetic

<400> 32
Leu Gln His Asn Ser Tyr Pro Tyr Thr
 1 5

<210> 33
<211> 375
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 33
gaagtgcagc tggtggagtc tgggggaaac ttggtacagt ctggcaggtc cctgagactc 60
tcctgtacag cctctggatt cgcctttgat gattttgcca tgcactgggt ccggcaagtt 120
ccagggaagg gcctggagtg ggtctcaggt attagttgga atagtgatac catcggctat 180
gcggactctg tgaagggccg attcaccatt tccagagaca acgcccagaa ctccctgttt 240
ctgcaaatgg acagtctgag agctgaggac acggccttgt attactgtgt aaaagatatg 300
gttcggggac ttataggcta ctactactac ggtatggacg tctggggcca agggaccacg 360
gtcaccgtct cctca 375

<210> 34
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 34
Glu Val Gln Leu Val Glu Ser Gly Gly Asn Leu Val Gln Ser Gly Arg
 1 5 10 15
Ser Leu Arg Leu Ser Cys Thr Ala Ser Gly Phe Ala Phe Asp Asp Phe
 20 25 30
Ala Met His Trp Val Arg Gln Val Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

```
Ser Gly Ile Ser Trp Asn Ser Asp Thr Ile Gly Tyr Ala Asp Ser Val
    50                  55                  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Gln Asn Ser Leu Phe
65                  70                  75                  80
Leu Gln Met Asp Ser Leu Arg Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
                85                  90                  95
Val Lys Asp Met Val Arg Gly Leu Ile Gly Tyr Tyr Tyr Tyr Gly Met
            100                 105                 110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125
```

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

<220>
<223> Synthetic

<400> 35
ggattcgcct ttgatgattt tgcc 24

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

<220>
<223> Synthetic

<400> 36
```
Gly Phe Ala Phe Asp Asp Phe Ala
 1               5
```

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

<220>
<223> Synthetic

<400> 37
attagttgga atagtgatac catc 24

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

<220>
<223> Synthetic

<400> 38
```
Ile Ser Trp Asn Ser Asp Thr Ile
 1               5
```

<210> 39
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 39
gtaaaagata tggttcgggg acttataggc tactactact acggtatgga cgtc 54

<210> 40
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 40
Val Lys Asp Met Val Arg Gly Leu Ile Gly Tyr Tyr Tyr Tyr Gly Met
 1   5   10   15
Asp Val

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

<220>
<223> Synthetic

<400> 41
gaaatagtgt tgacgcagtc tccagccatc ctgtctttgt ctccagggga aagagccatc 60
ctctcctgca gggccagtca gagtatttac acctacttat cctggtacca acagacacct 120
ggccgggctc ccaggctcct catctatgag acatccagca gggccactgg catcccagcc 180
aggttcattg gcagtgggtc tgggacagac ttcactctca ccatcagtag cctagagcct 240
gaagattttg cattttatta ctgtcagcac cgtagcgact ggcctcccac ttttggccag 300
gggaccaagc tggagatcaa a 321

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

<220>
<223> Synthetic

<400> 42
Glu Ile Val Leu Thr Gln Ser Pro Ala Ile Leu Ser Leu Ser Pro Gly
 1   5   10   15
Glu Arg Ala Ile Leu Ser Cys Arg Ala Ser Gln Ser Ile Tyr Thr Tyr
            20   25   30
Leu Ser Trp Tyr Gln Gln Thr Pro Gly Arg Ala Pro Arg Leu Leu Ile

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

<210> 43
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 43
cagagtattt acacctac 18

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

<220>
<223> Synthetic

<400> 44
Gln Ser Ile Tyr Thr Tyr
 1   5

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

<220>
<223> Synthetic

<400> 45
gagacatcc 9

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

<220>
<223> Synthetic

<400> 46
Glu Thr Ser
 1

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

<220>
<223> Synthetic

<400> 47
cagcaccgta gcgactggcc tcccact 27

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

<220>
<223> Synthetic

<400> 48
Gln His Arg Ser Asp Trp Pro Pro Thr
 1   5

<210> 49
<211> 351
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 49
caggtgcagc tggtggagtc ggggggaggc gtggtccagc ctgggaggtc cctgagactc 60
tcctgtgtag cgtctggatt caccgtcagt agttatggca ttcactgggt ccgccaggct 120
ccaggcaagg gactggagtg ggtgtcagtt atatggtatg atggaagaaa taaagactat 180
gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacggtgtat 240
ttggaaatga aaggcctgag agccgaggac acggctcttt attattgtgc gagagacaaa 300
actggggatt ttgactcctg gggccaggga accctggtca ccgtctcctc a 351

<210> 50
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

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

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

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

<220>
<223> Synthetic

<400> 51
ggattcaccg tcagtagtta tggc 24

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

<220>
<223> Synthetic

<400> 52
```
Gly Phe Thr Val Ser Ser Tyr Gly
 1               5
```

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

<220>
<223> Synthetic

<400> 53
atatggtatg atggaagaaa taaa 24

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

<220>
<223> Synthetic

<400> 54
```
Ile Trp Tyr Asp Gly Arg Asn Lys
 1               5
```

<210> 55
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 55
gcgagagaca aaactgggga ttttgactcc 30

<210> 56
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 56
Ala Arg Asp Lys Thr Gly Asp Phe Asp Ser
 1   5   10

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

<220>
<223> Synthetic

<400> 57
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggtga cagagtcacc 60
atcacttgcc gggcaagtca gaacattaac agcttttaa gttggtatca gcagaaacca 120
ggaaaagccc ctaagttcct gatctatgat gcttccagta tacaaagtgg ggccccatcg 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagtag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagtt ccccgttcac ttttggccag 300
gggaccaagc 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 Leu Ser Ala Ser Val Gly
 1   5   10   15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Ser Phe
            20   25   30
Leu Ser Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Phe Leu Ile
        35   40   45
Tyr Asp Ala Ser Ser Ile Gln Ser Gly Ala 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 Ser Pro Phe
85 90 95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105

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

<220>
<223> Synthetic

<400> 59
cagaacatta acagcttt 18

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

<220>
<223> Synthetic

<400> 60
Gln Asn Ile Asn Ser Phe
1 5

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

<220>
<223> Synthetic

<400> 61
gatgcttcc 9

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

<220>
<223> Synthetic

<400> 62
Asp Ala Ser
1

<210> 63
<211> 27
<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic

<400> 63
caacagagtt acagttcccc gttcact 27

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

<220>
<223> Synthetic

<400> 64
Gln Gln Ser Tyr Ser Ser Pro Phe Thr
1 5

<210> 65
<211> 375
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 65
gaagtgcagc tggtggagtc tgggggaggc ttggtacagc ctggcaggtc cctgagactc 60
tcctgtaaag cctctggatt cgcctttgat gatttcgcca tgcactgggt ccggcaagct 120
ccagggaagg gcctggagtg ggtctcaggt attgtttgga acagtggtga cataggctat 180
gcggactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctccctgtat 240
ctgcaactga atagtctgag aactgaggac acggccttgt atttctgtgt aaaagatatg 300
gttcggggac ttatgggctt caactattac ggtatggacg tctggggcca agggaccacg 360
gtcaccgtct cctca 375

<210> 66
<211> 125
<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 Arg
1 5 10 15
Ser Leu Arg Leu Ser Cys Lys Ala Ser Gly Phe Ala Phe Asp Asp Phe
20 25 30
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Gly Ile Val Trp Asn Ser Gly Asp Ile Gly 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 Leu Asn Ser Leu Arg Thr Glu Asp Thr Ala Leu Tyr Phe Cys

```
                85                  90                  95
Val Lys Asp Met Val Arg Gly Leu Met Gly Phe Asn Tyr Tyr Gly Met
            100                 105                 110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
        115                 120                 125


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

<220>
<223> Synthetic

<400> 67
ggattcgcct ttgatgattt cgcc                                          24

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

<220>
<223> Synthetic

<400> 68
Gly Phe Ala Phe Asp Asp Phe Ala
 1               5


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

<220>
<223> Synthetic

<400> 69
attgtttgga acagtggtga cata                                          24

<210> 70
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 70
Ile Val Trp Asn Ser Gly Asp Ile
 1               5


<210> 71
<211> 54
<212> DNA
```

<213> Artificial Sequence

<220>
<223> Synthetic

<400> 71
gtaaaagata tggttcgggg acttatgggc ttcaactatt acggtatgga cgtc 54

<210> 72
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 72
Val Lys Asp Met Val Arg Gly Leu Met Gly Phe Asn Tyr Tyr Gly Met
1 5 10 15
Asp Val

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

<220>
<223> Synthetic

<400> 73
gaaattgtgt tgacgcagtc tccagccacc ctgtctttgt ctccagggga aagagccacc 60
ctctcctgca gggccagtca aactattagt acttatttag tctggtaccg acagagacct 120
ggccaggctc ccagtctcct catttatgat gcatccaaca gggccactga catcccagcc 180
aggttcagtg gcagtgggtc tgggacagac ttcactctca ccatcagcag ccttgagcct 240
gaagattttg cagtttatta ctgtcagcag cgtagcaact ggccgatcac cttcggccaa 300
gggacacgac tggagattaa a 321

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

<220>
<223> Synthetic

<400> 74
Glu Ile Val Leu 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 Thr Ile Ser Thr Tyr
20 25 30
Leu Val Trp Tyr Arg Gln Arg Pro Gly Gln Ala Pro Ser Leu Leu Ile
35 40 45
Tyr Asp Ala Ser Asn Arg Ala Thr Asp Ile Pro Ala Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80

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


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

<220>
<223> Synthetic

<400> 75
caaactatta gtacttat                                                  18

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

<220>
<223> Synthetic

<400> 76
Gln Thr Ile Ser Thr Tyr
 1               5


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

<220>
<223> Synthetic

<400> 77
gatgcatcc                                                            9

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

<220>
<223> Synthetic

<400> 78
Asp Ala Ser
 1


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

<220>
<223> Synthetic

<400> 79
cagcagcgta gcaactggcc gatcacc 27

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

<220>
<223> Synthetic

<400> 80
Gln Gln Arg Ser Asn Trp Pro Ile Thr
1 5

<210> 81
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 81
gaagtgcagc tggtggagtc tgggggaggc ttggtacagc ctggcaggtc cctgacactc 60
tcctgtgcag tctctggatt cacctttgat gatcatgcca tgcactgggt ccggcaagct 120
ccagggaagg gcctggagtg ggtctcaggt attagttgga atagtgtaag tataggctat 180
gcggactctg tgaagggccg attcacgatc tccagagaca acgccaagac ctccctctat 240
ctgcaaatga acagtctgag agttgacgac acggccttat attactgtgt gcaagattta 300
aacgatattt tgactggtta tcccctcttt gacttttggg gccagggaac cctggtcacc 360
gtctcctca 369

<210> 82
<211> 123
<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 Arg
1 5 10 15
Ser Leu Thr Leu Ser Cys Ala Val Ser Gly Phe Thr Phe Asp Asp His
20 25 30
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Gly Ile Ser Trp Asn Ser Val Ser Ile Gly Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Thr Ser Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Val Asp Asp Thr Ala Leu Tyr Tyr Cys
85 90 95

Val Gln Asp Leu Asn Asp Ile Leu Thr Gly Tyr Pro Leu Phe Asp Phe
100 105 110
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

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

<220>
<223> Synthetic

<400> 83
ggattcacct ttgatgatca tgcc 24

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

<220>
<223> Synthetic

<400> 84
Gly Phe Thr Phe Asp Asp His Ala
1 5

<210> 85
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 85
attagttgga atagtgtaag tata 24

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

<220>
<223> Synthetic

<400> 86
Ile Ser Trp Asn Ser Val Ser Ile
1 5

<210> 87
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 87
gtgcaagatt taaacgatat tttgactggt tatcccctct ttgacttt 48

<210> 88
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 88
Val Gln Asp Leu Asn Asp Ile Leu Thr Gly Tyr Pro Leu Phe Asp Phe
 1   5   10   15

<210> 89
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 89
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> 90
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 90
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> 91
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 91
cagagcatta gcagctat 18

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

<220>
<223> Synthetic

<400> 92
Gln Ser Ile Ser Ser Tyr
1 5

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

<220>
<223> Synthetic

<400> 93
gctgcatcc 9

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

<220>
<223> Synthetic

<400> 94
Ala Ala Ser
1

<210> 95
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 95
caacagagtt acagtacccc tccgatcacc 30

<210> 96
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 96
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 97
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 97
gaagtgcagc tggtggagtc tgggggaggc ttggtacagg ctggcaggtc cctaagactc 60
tcctgtgaag cctctggatt cacctttgat gattatggca tgcactgggt ccggcaaggt 120
ccagggaagg gcctggagtg ggtctcaggt attagttgga atagtggtaa catagactat 180
gcggactctg tgaagggccg attcaccatc tccagagaca acgccaagac ctccctgtat 240
ctgcaaatga acagtctgaa aactgacgac acggccttgt atttctgtgc aaaagatgct 300
gtggggttta actggaacta ctttctcttt gactactggg gccagggaac cctggtcacc 360
gtctcctca 369

<210> 98
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

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

115 120

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

<220>
<223> Synthetic

<400> 99
ggattcacct ttgatgatta tggc 24

<210> 100
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 100
Gly Phe Thr Phe Asp Asp Tyr Gly
1 5

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

<220>
<223> Synthetic

<400> 101
attagttgga atagtggtaa cata 24

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

<220>
<223> Synthetic

<400> 102
Ile Ser Trp Asn Ser Gly Asn Ile
1 5

<210> 103
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 103
gcaaaagatg ctgtggggtt taactggaac tactttctct ttgactac 48

<210> 104
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 104
Ala Lys Asp Ala Val Gly Phe Asn Trp Asn Tyr Phe Leu Phe Asp Tyr
 1   5   10   15

<210> 105
<211> 351
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 105
caggtgcagc tggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60
acctgtgtag cgtctggatt caccgtcagt agttatggaa tgcactgggt ccgccaggcc 120
ccaggcaagg ggctggagtg ggtggcagtt atgttttatg atgaaagtaa aaaatattat 180
gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaatga acagcctgag agtcgaggac acggctgtgt attactgtgc gagagatgaa 300
cagctcgact ttgaatactg gggccaggga accctggtca ccgtctcctc a 351

<210> 106
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 106
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
 1   5   10   15
Ser Leu Arg Leu Thr Cys Val Ala Ser Gly Phe Thr Val Ser Ser Tyr
            20   25   30
Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35   40   45
Ala Val Met Phe Tyr Asp Glu Ser Lys Lys 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 Arg Asp Glu Gln Leu Asp Phe Glu Tyr Trp Gly Gln Gly Thr Leu
            100   105   110
Val Thr Val Ser Ser
        115

<210> 107
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 107
ggattcaccg tcagtagtta tgga 24

<210> 108
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 108
Gly Phe Thr Val Ser Ser Tyr Gly
 1 5

<210> 109
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 109
atgttttatg atgaaagtaa aaaa 24

<210> 110
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 110
Met Phe Tyr Asp Glu Ser Lys Lys
 1 5

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

<220>
<223> Synthetic

<400> 111
gcgagagatg aacagctcga ctttgaatac 30

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

<220>
<223> Synthetic

<400> 112
Ala Arg Asp Glu Gln Leu Asp Phe Glu Tyr
1 5 10

<210> 113
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 113
gaagtgcagc tggtggagtc tgggggaggc ttggtacagc ctggcaggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttgat gattatgcca tgcactgggt ccggcaagct 120
ccagggaagg gcctggagtg ggtctcaggt attagttgga atagtggtag cataggctat 180
gcggactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctccctgtat 240
ctgcaaatga acagtctgag agctgaggac acggccttgt attactgtgc aaaagatata 300
atggggaact gggactactt ctacggtatg gacgtctggg gccaagggac cacggtcacc 360
gtctcctca 369

<210> 114
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

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

<210> 115
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 115
ggattcacct ttgatgatta tgcc 24

<210> 116
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 116
Gly Phe Thr Phe Asp Asp Tyr Ala
 1 5

<210> 117
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 117
attagttgga atagtggtag cata 24

<210> 118
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 118
Ile Ser Trp Asn Ser Gly Ser Ile
 1 5

<210> 119
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 119
gcaaaagata taatggggaa ctgggactac ttctacggta tggacgtc 48

<210> 120
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 120
Ala Lys Asp Ile Met Gly Asn Trp Asp Tyr Phe Tyr Gly Met Asp Val
 1   5   10   15

<210> 121
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 121
gaagtgcagc tggtggagtc tgggggaggc ttggtacagc ctggcaggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttgat gataatgcca tgcactgggt ccggcaacct 120
ccagggaagg gcctggagtg ggtctcaggt attagttgga atagtggaag cataggctat 180
gcggactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctccctgtat 240
ctgcaaatga acagtctgag agctgaggac acggccttgt attactgtgc aaaagatata 300
aacgatattt tgactggtta tcctcttttt gattactggg gccagggaac cctggtcacc 360
gtctcctca 369

<210> 122
<211> 123
<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 Arg
 1   5   10   15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Asn
            20   25   30
Ala Met His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Val
        35   40   45
Ser Gly Ile Ser Trp Asn Ser Gly Ser Ile Gly 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 Leu Tyr Tyr Cys
                85   90   95
Ala Lys Asp Ile Asn Asp Ile Leu Thr Gly Tyr Pro Leu Phe Asp Tyr
            100   105   110
Trp Gly 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
ggattcacct ttgatgataa tgcc 24

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

<220>
<223> Synthetic

<400> 124
Gly Phe Thr Phe Asp Asp Asn Ala
 1 5

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

<220>
<223> Synthetic

<400> 125
attagttgga atagtggaag cata 24

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

<220>
<223> Synthetic

<400> 126
Ile Ser Trp Asn Ser Gly Ser Ile
 1 5

<210> 127
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 127
gcaaaagata taaacgatat tttgactggt tatcctcttt ttgattac 48

<210> 128
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 128
Ala Lys Asp Ile Asn Asp Ile Leu Thr Gly Tyr Pro Leu Phe Asp Tyr
 1   5   10   15

<210> 129
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 129
gaagtgcagc tggtggagtc tgggggaggc gtggtacagc ctgggggtc cctgagactc 60
tcctgtgcag cctctacatt caccttttgat gattttgcca tgcactgggt ccgtcaagct 120
ccagggaagg gtctggagtg ggtctctctt attactgggg atggtggtag cacatactat 180
gcagaccctg tgaagggccg attcaccatc tccagagaca acagcaaaaa ctccctgtat 240
ctgcaaatga acagtctgag aactgaggac accgccttgt attactgtgt aaaagattgg 300
tggatagcag ctcgtccgga ctactactac tacggtatgg acgtctgggg ccaagggacc 360
acggtcaccg tctcctca 378

<210> 130
<211> 126
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 130
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly
 1   5   10   15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Thr Phe Thr Phe Asp Asp Phe
            20   25   30
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35   40   45
Ser Leu Ile Thr Gly Asp Gly Gly Ser Thr Tyr Tyr Ala Asp Pro Val
    50   55   60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Ser Leu Tyr
65   70   75   80
Leu Gln Met Asn Ser Leu Arg Thr Glu Asp Thr Ala Leu Tyr Tyr Cys
                85   90   95
Val Lys Asp Trp Trp Ile Ala Ala Arg Pro Asp 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> 131
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 131
acattcacct ttgatgattt tgcc 24

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

<220>
<223> Synthetic

<400> 132
Thr Phe Thr Phe Asp Asp Phe Ala
 1 5

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

<220>
<223> Synthetic

<400> 133
attactgggg atggtggtag caca 24

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

<220>
<223> Synthetic

<400> 134
Ile Thr Gly Asp Gly Gly Ser Thr
 1 5

<210> 135
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 135
gtaaaagatt ggtggatagc agctcgtccg gactactact actacggtat ggacgtc 57

<210> 136
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 136
Val Lys Asp Trp Trp Ile Ala Ala Arg Pro Asp Tyr Tyr Tyr Tyr Gly
 1   5   10   15
Met Asp Val

<210> 137
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 137
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cctcggagac cctgtccatc 60
acctgcactg tctctggtgg ctccttcagt agtcacttct ggacctggat ccggcagccc 120
ccaggaaagg gactggaatg gattggatat ctccattata gtgggggcac cagctacaac 180
ccctccctca agagtcgagt catcatatca gtggacacgt ccaagaacca gttctccctg 240
aaactgaact ctgtgaccgc tgcggacacg gccgtgtatt actgtgcgag agctagatcg 300
gggattactt ttgggggact tatcgtccct ggttcttttg atatctgggg ccaagggaca 360
atggtcaccg tctcttca 378

<210> 138
<211> 126
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 138
Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1   5   10   15
Thr Leu Ser Ile Thr Cys Thr Val Ser Gly Gly Ser Phe Ser Ser His
            20   25   30
Phe Trp Thr Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Leu His Tyr Ser Gly Gly Thr Ser Tyr Asn Pro Ser Leu Lys
    50   55   60
Ser Arg Val Ile Ile Ser Val 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 Ala Arg Ser Gly Ile Thr Phe Gly Gly Leu Ile Val Pro Gly Ser
            100   105   110

Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
115 120 125

<210> 139
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 139
ggtggctcct tcagtagtca cttc 24

<210> 140
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 140
Gly Gly Ser Phe Ser Ser His Phe
1 5

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

<220>
<223> Synthetic

<400> 141
ctccattata gtgggggcac c 21

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

<220>
<223> Synthetic

<400> 142
Leu His Tyr Ser Gly Gly Thr
1 5

<210> 143
<211> 60
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 143
gcgagagcta gatcggggat tacttttggg ggacttatcg tccctggttc ttttgatatc 60

<210> 144
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 144
Ala Arg Ala Arg Ser Gly Ile Thr Phe Gly Gly Leu Ile Val Pro Gly
 1   5   10   15
Ser Phe Asp Ile
            20

<210> 145
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 145
gaaatagttt tgacacagag tcccggcaca ctgtcactct ctcccgggga aagagccacc 60
ttgtcatgta gagcaagtca gtcagtctct agctcttatc tcgcctggta ccagcagaag 120
ccgggacagg cccctagact gctgatctac ggggcaagtt ccagggccac cggaatcccc 180
gaccggttca gtggaagcgg aagcggaacc gattttactt tgacgatttc tagactggag 240
ccagaggatt tcgccgttta ctattgtcaa cagtacggaa gcagcccgtg gacgtttggc 300
cagggcacga aggtagaaat caag   324

<210> 146
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 146
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> 147
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 147
cagtcagtct ctagctctta t 21

<210> 148
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 148
Gln Ser Val Ser Ser Ser Tyr
1 5

<210> 149
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 149
ggggcaagt 9

<210> 150
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 150
Gly Ala Ser
1

<210> 151
<211> 27
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 151
caacagtacg gaagcagccc gtggacg 27

<210> 152
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 152
Gln Gln Tyr Gly Ser Ser Pro Trp Thr
1 5

<210> 153
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 153
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
atttgttctg tctctggtgg ctccttcagt agtcacttct ggagttggat ccggcagccc 120
ccagggaagg gactggagtg gattgggtat gtcctttaca gtgggggcac caattacaac 180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaatca gttcttcctg 240
aaactgagct ctgtgaccgc tgcggacacg gccgattatt actgtgcgag agctatatcg 300
gggattacgt ttgggggaat tatcgtccct ggttcttttg atatctgggg ccaagggaca 360
atggtcaccg tctcttca 378

<210> 154
<211> 126
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

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

Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
115 120 125

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

<220>
<223> Synthetic

<400> 155
ggtggctcct tcagtagtca cttc 24

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

<220>
<223> Synthetic

<400> 156
Gly Gly Ser Phe Ser Ser His Phe
1 5

<210> 157
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 157
gtcctttaca gtgggggcac c 21

<210> 158
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 158
Val Leu Tyr Ser Gly Gly Thr
1 5

<210> 159
<211> 60
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 159
gcgagagcta tatcggggat tacgtttggg ggaattatcg tccctggttc ttttgatatc 60

<210> 160
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 160
Ala Arg Ala Ile Ser Gly Ile Thr Phe Gly Gly Ile Ile Val Pro Gly
 1   5   10   15
Ser Phe Asp Ile
            20

<210> 161
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 161
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cctcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccttcagt agtcacttct ggagctggat ccggcagccc 120
ccagggaagg gactggagtg gattggatat atcttataca ctgggggcac cagcttcaac 180
ccctccctca agagtcgagt ctccatgtca gtgggcacgt ccaagaacca gttctccctg 240
aaattgagct ctgtgaccgc tgcggacacg gccgtatatt actgtgcgag agctagatcg 300
gggataacgt ttacgggtat tatcgtccct ggctcttttg atatctgggg ccaagggaca 360
atggtcaccg tctcttca   378

<210> 162
<211> 126
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 162
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 Phe Ser Ser His
            20   25   30
Phe Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile Leu Tyr Thr Gly Gly Thr Ser Phe Asn Pro Ser Leu Lys
    50   55   60
Ser Arg Val Ser Met Ser Val Gly 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 Ala

```
                85                  90                  95
Arg Ala Arg Ser Gly Ile Thr Phe Thr Gly Ile Ile Val Pro Gly Ser
            100                 105                 110
Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
        115                 120                 125


<210> 163
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 163
ggtggctcct tcagtagtca cttc                                          24

<210> 164
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 164
Gly Gly Ser Phe Ser Ser His Phe
 1               5


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

<220>
<223> Synthetic

<400> 165
atcttataca ctgggggcac c                                             21

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

<220>
<223> Synthetic

<400> 166
Ile Leu Tyr Thr Gly Gly Thr
 1               5


<210> 167
<211> 60
<212> DNA
```

<213> Artificial Sequence

<220>
<223> Synthetic

<400> 167
gcgagagcta gatcggggat aacgtttacg ggtattatcg tccctggctc ttttgatatc 60

<210> 168
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 168
Ala Arg Ala Arg Ser Gly Ile Thr Phe Thr Gly Ile Ile Val Pro Gly
 1   5   10   15
Ser Phe Asp Ile
            20

<210> 169
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 169
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acttgttctg tctctggtgg ctccttcagt agtcacttct ggagctggat ccggcagccc 120
ccagggaagg gactggagtg gattggatat atccattaca gtgggggcac caattacaac 180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctt 240
aaactgactt ctgtgaccgc tgcggacacg gccgattatt actgtgcgag agctatatcg 300
gggattacgt ttgggggaat gatcgtccct ggttcttttg atgtctgggg cgaagggaca 360
atggtcaccg tctcttca   378

<210> 170
<211> 126
<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 Phe Ser Ser His
            20   25   30
Phe Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile His Tyr Ser Gly Gly Thr 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 Asp Tyr Tyr Cys Ala
                85                  90                  95
Arg Ala Ile Ser Gly Ile Thr Phe Gly Gly Met Ile Val Pro Gly Ser
            100                 105                 110
Phe Asp Val Trp Gly Glu Gly Thr Met Val Thr Val Ser Ser
        115                 120                 125


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

<220>
<223> Synthetic

<400> 171
ggtggctcct tcagtagtca cttc                                          24

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

<220>
<223> Synthetic

<400> 172
Gly Gly Ser Phe Ser Ser His Phe
 1               5


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

<220>
<223> Synthetic

<400> 173
atccattaca gtgggggcac c                                             21

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

<220>
<223> Synthetic

<400> 174
Ile His Tyr Ser Gly Gly Thr
 1               5
```

<210> 175
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 175
gcgagagcta tatcggggat tacgtttggg ggaatgatcg tccctggttc ttttgatgtc 60

<210> 176
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 176
Ala Arg Ala Ile Ser Gly Ile Thr Phe Gly Gly Met Ile Val Pro Gly
 1   5   10   15
Ser Phe Asp Val
            20

<210> 177
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 177
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg caccttcagt agtcacttct ggagctggat ccggcagccc 120
ccaggaaagg gactggagtg gattggatat atcttttaca ctgggggcac caaccacaac 180
ccctccctca agagtcgagt caccatatca atagacacgt ccaagaacca gttctccctg 240
aaactgacct ctgtgaccgc tgcggacacg gccgtgtatt actgtgcgag agctagatcg 300
gggattacgt ttgggggagt tatcgtccct ggttcttttg atatctgggg ccaagggaca 360
atggtcaccg tctcttca   378

<210> 178
<211> 126
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 178
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 Thr Phe Ser Ser His
            20   25   30
Phe Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile

```
        35                  40                  45
Gly Tyr Ile Phe Tyr Thr Gly Gly Thr Asn His Asn Pro Ser Leu Lys
    50                  55                  60
Ser Arg Val Thr Ile Ser Ile 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 Ala Arg Ser Gly Ile Thr Phe Gly Gly Val Ile Val Pro Gly Ser
            100                 105                 110
Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
        115                 120                 125


<210> 179
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 179
ggtggcacct tcagtagtca cttc                                          24

<210> 180
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 180
Gly Gly Thr Phe Ser Ser His Phe
 1               5


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

<220>
<223> Synthetic

<400> 181
atcttttaca ctgggggcac c                                             21

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

<220>
<223> Synthetic

<400> 182
Ile Phe Tyr Thr Gly Gly Thr
```

```
 1               5
```

<210> 183
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 183
gcgagagcta gatcggggat tacgtttggg ggagttatcg tccctggttc ttttgatatc 60

<210> 184
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 184
```
Ala Arg Ala Arg Ser Gly Ile Thr Phe Gly Gly Val Ile Val Pro Gly
 1               5                  10                  15
Ser Phe Asp Ile
            20
```

<210> 185
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 185
caggtgcagc tgcaggagtc gggcccagga ctggtgaaac cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccttcagc agtcacttct ggaactggat ccggcagtcc 120
ccagggaggg gactggaatg gattggatat atctattaca gtgggggcac caactataac 180
ccctccttca agagtcgagt caccatgtca gtagacacgt ccaagaacca gttctccctg 240
aaactgagct ctgtgaccgc tgcggacacg gccgtgtttt actgtgcgag agctagatcg 300
gggataacgt ttgggggagt tctcgtccct ggttcttttg atatttgggg ccaagggaca 360
atggtcaccg tctcttca   378

<210> 186
<211> 126
<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 Phe Ser Ser His
            20                  25                  30
Phe Trp Asn Trp Ile Arg Gln Ser Pro Gly Arg Gly Leu Glu Trp Ile
        35                  40                  45
Gly Tyr Ile Tyr Tyr Ser Gly Gly Thr Asn Tyr Asn Pro Ser Phe Lys
    50                  55                  60
Ser Arg Val Thr Met 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 Phe Tyr Cys Ala
                85                  90                  95
Arg Ala Arg Ser Gly Ile Thr Phe Gly Gly Val Leu Val Pro Gly Ser
            100                 105                 110
Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
        115                 120                 125


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

<220>
<223> Synthetic

<400> 187
ggtggctcct tcagcagtca cttc                                          24

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

<220>
<223> Synthetic

<400> 188
Gly Gly Ser Phe Ser Ser His Phe
 1               5


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

<220>
<223> Synthetic

<400> 189
atctattaca gtgggggcac c                                             21

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

<220>
<223> Synthetic
```

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

<210> 191
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 191
gcgagagcta gatcggggat aacgtttggg ggagttctcg tccctggttc ttttgatatt 60

<210> 192
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 192
Ala Arg Ala Arg Ser Gly Ile Thr Phe Gly Gly Val Leu Val Pro Gly
 1   5   10   15
Ser Phe Asp Ile
            20

<210> 193
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 193
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccttcagt agtcacttct ggagctggat ccggcagccc 120
ccaggaaagg gactggagtg gattgggtat atctattaca gtgggggcac ccactacaac 180
ccctccctcg agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
aaactgaact ctgtgaccgc tgcggacacg gccgtttatt actgtgcgag agctagatcg 300
gggattactt ttgggggact tatcgtccct ggttcttttg atatctgggg ccaagggaca 360
atggtcaccg tctcttca   378

<210> 194
<211> 126
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 194
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 Phe Ser Ser His
            20   25   30
Phe 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 Gly Thr His Tyr Asn Pro Ser Leu Glu
    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 Asn Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
                85   90   95
Arg Ala Arg Ser Gly Ile Thr Phe Gly Gly Leu Ile Val Pro Gly Ser
            100   105   110
Phe Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
        115   120   125

<210> 195
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 195
ggtggctcct tcagtagtca cttc   24

<210> 196
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 196
Gly Gly Ser Phe Ser Ser His Phe
 1   5

<210> 197
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 197
atctattaca gtgggggcac c   21

<210> 198
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 198
Ile Tyr Tyr Ser Gly Gly Thr
 1   5

<210> 199
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 199
gcgagagcta gatcggggat tacttttggg ggacttatcg tccctggttc ttttgatatc 60

<210> 200
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 200
Ala Arg Ala Arg Ser Gly Ile Thr Phe Gly Gly Leu Ile Val Pro Gly
 1   5   10   15
Ser Phe Asp Ile
            20

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

<220>
<223> Synthetic

<400> 201
cgggtgcaac tggtgcagtc tgggtctgag gtgaagaagc ctggggcctc agtgaaggtc 60
tcctgcaggg cttctggata catcttcacc agttatgata tcaattgggt gcgacaggcc 120
actggacaag ggcttgagtg gatgggatgg atgaacccta ataatggtaa cacagcctat 180
acacagaagt tccagggcag agtcaccatg accaggaaca cctccataag cacagcctac 240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagaaaggga 300
ttactatggt tcgggaagtt attagggtac ggtatggacg tctggggcca agggaccacg 360
gtcaccgtct cctca   375

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

<220>
<223> Synthetic

<400> 202
Arg Val Gln Leu Val Gln Ser Gly Ser Glu Val Lys Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Val Ser Cys Arg Ala Ser Gly Tyr Ile Phe Thr Ser Tyr
            20   25   30
Asp Ile Asn Trp Val Arg Gln Ala Thr Gly Gln Gly Leu Glu Trp Met
        35   40   45
Gly Trp Met Asn Pro Asn Asn Gly Asn Thr Ala Tyr Thr Gln Lys Phe
    50   55   60
Gln Gly Arg Val Thr Met Thr Arg Asn Thr Ser Ile 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 Lys Gly Leu Leu Trp Phe Gly Lys Leu Leu Gly Tyr Gly Met
            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
ggatacatct tcaccagtta tgat   24

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

<220>
<223> Synthetic

<400> 204
Gly Tyr Ile Phe Thr Ser Tyr Asp
 1   5

<210> 205
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 205
atgaacccta ataatggtaa caca   24

<210> 206

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

<220>
<223> Synthetic

<400> 206
Met Asn Pro Asn Asn Gly Asn Thr
 1   5

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

<220>
<223> Synthetic

<400> 207
gcgagaaagg gattactatg gttcgggaag ttattagggt acggtatgga cgtc   54

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

<220>
<223> Synthetic

<400> 208
Ala Arg Lys Gly Leu Leu Trp Phe Gly Lys Leu Leu Gly Tyr Gly Met
 1   5   10   15
Asp Val

<210> 209
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 209
gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60
ctctcctgca gggccagtca gagtgttagc agcagctact tagcctggta ccagcagaaa 120
cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180
gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
cctgaagatt ttgcagtgta ttactgtcag cagtatggta gctcaccttg gacgttcggc 300
caagggacca aggtggaaat caaa   324

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

<220>
<223> Synthetic

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

<220>
<223> Synthetic

<400> 211
cagagtgtta gcagcagcta c   21

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

<220>
<223> Synthetic

<400> 212
Gln Ser Val Ser Ser Ser Tyr
 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> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 215
cagcagtatg gtagctcacc ttggacg 27

<210> 216
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 216
Gln Gln Tyr Gly Ser Ser Pro Trp Thr
 1   5

<210> 217
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 217
Glu Val Gln Val Leu Glu Ser Gly Gly Asp Leu Val Gln Pro Gly Gly
 1   5   10   15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ala 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 Gly Ser Ala Tyr Tyr Ala Asp Ser Val
    50   55   60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Val 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 Ala Trp Lys Met Ser Gly Leu Asp Val Trp Gly Gln
            100   105   110

Gly Thr Thr Val Ile Val Ser Ser
        115   120

<210> 218
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 218
Gly Phe Thr Phe Ser Ala Tyr Ala
 1   5

<210> 219
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 219
Ile Ser Gly Ser Gly Gly Ser Ala
 1   5

<210> 220
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 220
Ala Lys Asp Gly Ala Trp Lys Met Ser Gly Leu Asp Val
 1   5   10

<210> 221
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 221
Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Leu Ser Ala Ser Val Gly
 1   5   10   15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Asp Tyr
            20   25   30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ile Pro Arg Leu Leu Ile
        35   40   45
Tyr Thr Thr Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Arg 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 Val Ala Thr Tyr Tyr Cys Gln Lys Tyr Asp Ser Ala Pro Leu
                85                  90                  95
Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105
```

<210> 222
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 222
Gln Asp Ile Ser Asp Tyr
 1   5

<210> 223
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 223
Thr Thr Ser
 1

<210> 224
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 224
Gln Lys Tyr Asp Ser Ala Pro Leu Thr
 1   5

<210> 225
<211> 109
<212> PRT
<213> Homo sapiens

<400> 225
Asp Phe Gly Leu Asp Cys Asp Glu His Ser Thr Glu Ser Arg Cys Cys
 1   5   10   15
Arg Tyr Pro Leu Thr Val Asp Phe Glu Ala Phe Gly Trp Asp Trp Ile
            20   25   30
Ile Ala Pro Lys Arg Tyr Lys Ala Asn Tyr Cys Ser Gly Glu Cys Glu

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

<210> 226
<211> 426
<212> PRT
<213> Homo sapiens

<400> 226

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

```
Asp Trp Ile Ile Ala Pro Ser Gly Tyr His Ala Asn Tyr Cys Glu Gly
            340                 345                 350
Glu Cys Pro Ser His Ile Ala Gly Thr Ser Gly Ser Ser Leu Ser Phe
        355                 360                 365
His Ser Thr Val Ile Asn His Tyr Arg Met Arg Gly His Ser Pro Phe
    370                 375                 380
Ala Asn Leu Lys Ser Cys Cys Val Pro Thr Lys Leu Arg Pro Met Ser
385                 390                 395                 400
Met Leu Tyr Tyr Asp Asp Gly Gln Asn Ile Ile Lys Lys Asp Ile Gln
                405                 410                 415
Asn Met Ile Val Glu Glu Cys Gly Cys Ser
            420                 425


<210> 227
<211> 340
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 227
Glu Ala Glu Thr Arg Glu Cys Ile Tyr Tyr Asn Ala Asn Trp Glu Leu
 1               5                  10                  15
Glu Arg Thr Asn Gln Ser Gly Leu Glu Arg Cys Glu Gly Glu Gln Asp
            20                  25                  30
Lys Arg Leu His Cys Tyr Ala Ser Trp Ala Asn Ser Ser Gly Thr Ile
        35                  40                  45
Glu Leu Val Lys Lys Gly Cys Trp Leu Asp Asp Phe Asn Cys Tyr Asp
    50                  55                  60
Arg Gln Glu Cys Val Ala Thr Glu Glu Asn Pro Gln Val Tyr Phe Cys
65                  70                  75                  80
Cys Cys Glu Gly Asn Phe Cys Asn Glu Arg Phe Thr His Leu Pro Glu
                85                  90                  95
Ala Gly Gly Pro Glu Val Thr Tyr Glu Pro Pro Pro Thr Ala Pro Ser
            100                 105                 110
Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu
        115                 120                 125
Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu
    130                 135                 140
Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser
145                 150                 155                 160
His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu
                165                 170                 175
Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr
            180                 185                 190
Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn
        195                 200                 205
Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro
    210                 215                 220
Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln
225                 230                 235                 240
Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val
                245                 250                 255
Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val
            260                 265                 270
Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro
```

```
        275                 280                 285
Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr
    290                 295                 300
Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val
305                 310                 315                 320
Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu
                325                 330                 335
Ser Pro Gly Lys
            340


<210> 228
<211> 407
<212> PRT
<213> Homo Sapiens

<400> 228
Met Asp Gly Leu Pro Gly Arg Ala Leu Gly Ala Ala Cys Leu Leu Leu
 1               5                  10                  15
Leu Ala Ala Gly Trp Leu Gly Pro Glu Ala Trp Gly Ser Pro Thr Pro
            20                  25                  30
Pro Pro Thr Pro Ala Ala Gln Pro Pro Pro Pro Pro Pro Gly Ser Pro
        35                  40                  45
Gly Gly Ser Gln Asp Thr Cys Thr Ser Cys Gly Gly Phe Arg Arg Pro
    50                  55                  60
Glu Glu Leu Gly Arg Val Asp Gly Asp Phe Leu Glu Ala Val Lys Arg
65                  70                  75                  80
His Ile Leu Ser Arg Leu Gln Met Arg Gly Arg Pro Asn Ile Thr His
                85                  90                  95
Ala Val Pro Lys Ala Ala Met Val Thr Ala Leu Arg Lys Leu His Ala
            100                 105                 110
Gly Lys Val Arg Glu Asp Gly Arg Val Glu Ile Pro His Leu Asp Gly
        115                 120                 125
His Ala Ser Pro Gly Ala Asp Gly Gln Glu Arg Val Ser Glu Ile Ile
    130                 135                 140
Ser Phe Ala Glu Thr Asp Gly Leu Ala Ser Ser Arg Val Arg Leu Tyr
145                 150                 155                 160
Phe Phe Ile Ser Asn Glu Gly Asn Gln Asn Leu Phe Val Val Gln Ala
                165                 170                 175
Ser Leu Trp Leu Tyr Leu Lys Leu Leu Pro Tyr Val Leu Glu Lys Gly
            180                 185                 190
Ser Arg Arg Lys Val Arg Val Lys Val Tyr Phe Gln Glu Gln Gly His
        195                 200                 205
Gly Asp Arg Trp Asn Met Val Glu Lys Arg Val Asp Leu Lys Arg Ser
    210                 215                 220
Gly Trp His Thr Phe Pro Leu Thr Glu Ala Ile Gln Ala Leu Phe Glu
225                 230                 235                 240
Arg Gly Glu Arg Arg Leu Asn Leu Asp Val Gln Cys Asp Ser Cys Gln
                245                 250                 255
Glu Leu Ala Val Val Pro Val Phe Val Asp Pro Gly Glu Glu Ser His
            260                 265                 270
Arg Pro Phe Val Val Val Gln Ala Arg Leu Gly Asp Ser Arg His Arg
        275                 280                 285
Ile Arg Lys Arg Gly Leu Glu Cys Asp Gly Arg Thr Asn Leu Cys Cys
    290                 295                 300
Arg Gln Gln Phe Phe Ile Asp Phe Arg Leu Ile Gly Trp Asn Asp Trp
305                 310                 315                 320
Ile Ile Ala Pro Thr Ser Tyr Tyr Gly Asn Tyr Cys Glu Gly Ser Cys
```

```
                325                 330                 335
Pro Ala Tyr Leu Ala Gly Val Pro Gly Ser Ala Ser Ser Phe His Thr
            340                 345                 350
Ala Val Val Asn Gln Tyr Arg Met Arg Gly Leu Asn Pro Gly Thr Val
        355                 360                 365
Asn Ser Cys Cys Ile Pro Thr Lys Leu Ser Thr Met Ser Met Leu Tyr
    370                 375                 380
Phe Asp Asp Glu Tyr Asn Ile Val Lys Arg Asp Val Pro Asn Met Ile
385                 390                 395                 400
Val Glu Glu Cys Gly Cys Ala
                405
```