SEQUENCE LISTING

<110> MILLENNIUM PHARMACEUTICALS, INC.
AMGEN BRITISH COLUMBIA

<120> ANTI-GCC ANTIBODY MOLECULES AND RELATED COMPOSITIONS AND METHODS

<130> 35106262-EJH

<140> AU 2010310545
<141> 2012-04-24

<150> PCT/US2010/053686
<151> 2010-10-22

<150> 61/254,474
<151> 2009-10-23

<160> 319

<170> PatentIn version 3.5

<210> 1
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 1
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acatgcactg tctctgggtt ctcattaagc agaaatgcta taagctgggt tcgccagcca 120

ccaggaaagg gtctggagtg gcttggagta atatggactg gtggaggcac aaattataat 180

tcagctctca aatccagact gagcatccgc aaagagaact ccaagagtca agttttctta 240

aaaatgaaca gtctacaaac tgaagacaca gccaggtact tctgtgccag aagtggttac 300

gacgggtttg attactgggg ccaagggact ctggtcactg tctctgca 348

<210> 2
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 2

Gln Val Gln Leu Lys Glu Ser Gly Pro Gly Leu Val Ala Pro Ser Gln
1 5 10 15

Ser Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Arg Asn
20 25 30

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Ala Ile Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
        35                  40                  45

Gly Val Ile Trp Thr Gly Gly Gly Thr Asn Tyr Asn Ser Ala Leu Lys
    50                  55                  60

Ser Arg Leu Ser Ile Arg Lys Glu Asn Ser Lys Ser Gln Val Phe Leu
65                  70                  75                  80

Lys Met Asn Ser Leu Gln Thr Glu Asp Thr Ala Arg Tyr Phe Cys Ala
                85                  90                  95

Arg Ser Gly Tyr Asp Gly Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val
            100                 105                 110

Thr Val Ser Ala
        115
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<210> 3
<211> 318
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 3
cagattgttc tcacccagtc tccagcaatc atgtctgcat ctccagggga gaaggtcacc 60

atgacctgca gtgccagctc aagtgtaaat tacatgcact ggtaccagca gaagtcaggc 120

acctccccca aaagatggat ttatgacaca tccaaactgg cttctggagt ccctgctcgc 180

ttcagtggca gtgggtctgg gacctcttac tctctcacaa tcaccagcat ggaggctgaa 240

gatgctgcca cttattactg ccagcagtgg agtggtaacc cgtacacgtt cggaggggg 300

accaaactgg aaataaaa 318

<210> 4
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 4

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Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly
1               5                   10                  15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Asn Tyr Met
            20                  25                  30
```

```
His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr
        35                  40                  45

Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
    50                  55                  60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Thr Ser Met Glu Ala Glu
65                  70                  75                  80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Gly Asn Pro Tyr Thr
                85                  90                  95

Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
            100                 105
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<210> 5
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 5
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tcctgcaagg cttctggcta caccttcact gactactata taaactgggt gaagcagagg 120

cctggacagg gccttgagtg gattggaaag attggtcctc gaagtggtaa tacttactac 180

aatgagaagt tcaagggcaa ggccacactg actgcagaca aatcgtccag cacagcctac 240

atgcagctca gcagcctgac atctgaggac tctgcagtct atttctgtgc aagatgggat 300

gcttactggg gccaagggac tctggtcact gtctct 336

<210> 6
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 6

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Gln Val Gln Leu Lys Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
1               5                   10                  15

Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
            20                  25                  30

Tyr Ile Asn Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45
```

```
Gly Lys Ile Gly Pro Arg Ser Gly Asn Thr Tyr Tyr Asn Glu Lys Phe
    50                  55                  60

Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr
65                  70                  75                  80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys
                85                  90                  95

Ala Arg Trp Asp Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
            100                 105                 110
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<210> 7
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 7
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atctcttgca agtcaagtca gagcctctta tatagtaatg gaaagacata tttgaattgg 120

ttacaacaga ggcctggcca ggctccaaag cacctaatgt atcaggtgtc caaactggac 180

cctggcatcc ctgacaggtt cagtggcagt ggatcagaaa cagattttac acttaaaatc 240

agcagagtgg aggctgaaga tttgggagtt tattactgct tgcaaggtac atattatccg 300

tacacgttcg gaggggggac caagctggaa ataaag 336

<210> 8
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 8

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Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Ile Gly
1               5                   10                  15

Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
            20                  25                  30

Asn Gly Lys Thr Tyr Leu Asn Trp Leu Gln Gln Arg Pro Gly Gln Ala
        35                  40                  45
```

```
Pro Lys His Leu Met Tyr Gln Val Ser Lys Leu Asp Pro Gly Ile Pro
    50                  55                  60

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

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Leu Gln Gly
                85                  90                  95

Thr Tyr Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
            100                 105                 110
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<210> 9
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 9

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caggtccaac tgcagcagcc tggggctgaa ctggtgaagc ctggggcttc agtgcagatg       60

tcctgtaagg cttctggcta tattttcacc ggctactgga tgtactgggt gaagcagagg      120

cctggccaag gccttgagtg gattggaagg attcatcctt ctgatagtaa tactaactac      180

aatcaaaagt tcaagggcaa ggccacattg actgtagaca aatcctccag cacagcctac      240

atgcaactca gcagcctgac atctgaggac tctgcggtct attactgtac ccatgccctt      300

gcttactggg gccaagggac tctggtcact gtctct                                336
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<210> 10
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 10

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Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala
1               5                   10                  15

Ser Val Gln Met Ser Cys Lys Ala Ser Gly Tyr Ile Phe Thr Gly Tyr
            20                  25                  30

Trp Met Tyr Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45

Gly Arg Ile His Pro Ser Asp Ser Asn Thr Asn Tyr Asn Gln Lys Phe
    50                  55                  60
```

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

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
85 90 95

Thr His Ala Leu Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
100 105 110

<210> 11
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 11
gatgttgtgt tgacccagac tccactcact ttgtcgatta ccattggaca accagcctct 60

atctcttgca agtcaagtca gagcctctta tatagtaatg gaaaaaccta tttgagttgg 120

ttattacaga ggccaggcca gtctccaaag cgcctaatct atctggtgtc tcaactggac 180

tctggagtcc ctgacaggtt cactggcagt ggatcaggaa cagattttac actgaagatc 240

agcagagtgg aggctgagga tttgggagtg tattactgcg tgcaaggtac acatttattc 300

acgttcggct cggggacaaa gttggaaata aaa 333

<210> 12
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 12

Asp Val Val Leu Thr Gln Thr Pro Leu Thr Leu Ser Ile Thr Ile Gly
1 5 10 15

Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
20 25 30

Asn Gly Lys Thr Tyr Leu Ser Trp Leu Leu Gln Arg Pro Gly Gln Ser
35 40 45

Pro Lys Arg Leu Ile Tyr Leu Val Ser Gln Leu Asp Ser Gly Val Pro
50 55 60

Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Val Gln Gly
85 90 95

Thr His Leu Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 13
<211> 339
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 13
caggtccagc tgaagcagtc tggagctgag ctggtgaagc ctggggcttc agtgaagatg 60

tcctgcaagg cttctggcta caccttcaca gactactata taaactgggt gaagcagagg 120

cctggacagg gccttgagtg gattggaaag attggtccta gaagtggtag tacttactac 180

aatgagaagt tcaagggcaa ggccacactg actgcagaca aatcctccag cacagcctac 240

atgcagctca gcagcctgac atctgaggac tctgcagtct atttctgtgc aagatgggat 300

gcttactggg gccaagggac tctggtcact gtctctgca 339

<210> 14
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 14

Gln Val Gln Leu Lys Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

Tyr Ile Asn Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45

Gly Lys Ile Gly Pro Arg Ser Gly Ser Thr Tyr Tyr Asn Glu Lys Phe
50 55 60

Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys
85 90 95

Ala Arg Trp Asp Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
100 105 110

Ala

<210> 15
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 15
gatgttgtga tgacccagac tccactgtct ttgtcggtta ccattggaca accagcctct 60

atctcttgca agtcaagtca gagcctctta tatagtaatg gaaagacata tttgaattgg 120

ttacaacaga ggcctggcca ggctccaaag cacctaatgt atcaggtgtc caaactggac 180

cctggcatcc ctgacaggtt cagtggcagt ggatcagaaa cagattttac acttaaaatc 240

agcagagtgg aggctgaaga tttgggagtt tattactgct tgcaaggtac atattatccg 300

tacacgttcg gaggggggac caagctggaa ataaaa 336

<210> 16
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 16

Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Ile Gly
1 5 10 15

Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
20 25 30

Asn Gly Lys Thr Tyr Leu Asn Trp Leu Gln Gln Arg Pro Gly Gln Ala
35 40 45

Pro Lys His Leu Met Tyr Gln Val Ser Lys Leu Asp Pro Gly Ile Pro
50 55 60

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

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Leu Gln Gly
85 90 95

Thr Tyr Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 17
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 17
caggtgcagc tacagcagtg gggcgcagga ctgttgaagc cttcggagac cctgtccctc 60

acctgcgctg tctttggtgg gtccttcagt ggttactact ggagctggat ccgccagccc 120

ccagggaagg ggctggagtg gattggggaa atcaatcatc gtggaaacac caacgacaac 180

ccgtccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttcgccctg 240

aagctgagtt ctgtgaccgc cgcggacacg gctgtttatt actgtgcgag agaacgtgga 300

tacacctatg gtaactttga ccactggggc cagggaaccc tggtcaccgt ctcctca 357

<210> 18
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 18

Gln Val Gln Leu Gln Gln Trp Gly Ala Gly Leu Leu Lys Pro Ser Glu
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Phe Gly Gly Ser Phe Ser Gly Tyr
20 25 30

Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45

Gly Glu Ile Asn His Arg Gly Asn Thr Asn Asp Asn Pro Ser Leu Lys
50 55 60

Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ala 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 Glu Arg Gly Tyr Thr Tyr Gly Asn Phe Asp His Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 19
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 19
gaaatagtga tgacgcagtc tccagccacc ctgtctgtgt ctccagggga aagagccacc 60

ctctcctgca gggccagtca gagtgttagc agaaacttag cctggtatca gcagaaacct 120

ggccaggctc ccaggctcct catctatggt gcatccacca gggccactgg aatcccagcc 180

aggttcagtg gcagtgggtc tgggacagag ttcactctca ccatcggcag cctgcagtct 240

gaagattttg cagtttatta ctgtcagcag tataaaacct ggcctcggac gttcggccaa 300

gggaccaacg tggaaatcaa a 321

<210> 20
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 20

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Arg 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 Gly Ser Leu Gln Ser
65 70 75 80

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Lys Thr Trp Pro Arg
85 90 95

Thr Phe Gly Gln Gly Thr Asn Val Glu Ile Lys
100 105

<210> 21
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 21
caggtgcagc tggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc 60

tcctgtgcag cctctggatt caccttcagt gactgctaca tgagctggat ccgccagtct 120

ccagggaagg ggctggagtg ggtttcatac attactacta gtggtaatac catttactac 180

gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcactgtat 240

ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gagagactgg 300

ggatggttct acggtatgga cgtctggggc caagggacca cggtcaccgt ctcctca 357

<210> 22
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 22

Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Cys
20 25 30

Tyr Met Ser Trp Ile Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Tyr Ile Thr Thr Ser Gly Asn 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 Asp Trp Gly Trp Phe Tyr Gly Met Asp Val Trp Gly Gln Gly
100 105 110

Thr Thr Val Thr Val Ser Ser
115

<210> 23
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<220>
<221> modified_base
<222> (216)..(217)
<223> a, c, t, g, unknown or other

<220>
<221> misc_feature
<222> (216)..(217)
<223> n is a, c, g, or t

<400> 23
gatattgtga tgacccagac tccactctct ctgtccgtca cccctggaca gccggcctcc 60

atctcctgca agtctagtca gagcctcctg cataatgatg gaaagaccta tttgtattgg 120

tacctgcaga agccaggcca gcctccacaa ctcctgatct atgaagtttc caaccggttc 180

tctggagtgc cagataggtt cagtagcagc gggtcnngga cagatttcac actgaaaatc 240

agccgggtgg aggctgagga tgttggggtt tattactgca tgcaaagtat acagcttcct 300

cggacgttcg gccaagggac caaggtggaa atcaaa 336

<210> 24
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<220>
<221> MOD_RES
<222> (73)..(73)
<223> Any amino acid

<400> 24

Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly
1 5 10 15

Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu His Asn
20 25 30

Asp Gly Lys Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Pro
35 40 45

Pro Gln Leu Leu Ile Tyr Glu Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60

Asp Arg Phe Ser Ser Ser Gly Ser Xaa 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 Ser
85 90 95

Ile Gln Leu Pro Arg Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 25
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 25
caggtgcagc tggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60

tcctgtgcag cgtctggatt caccttcagt agctatggca tgcactgggt ccgccaggct 120

ccaggcaagg ggctggagtg ggtggcagct atatggtatg atggaagtaa taaatactat 180

gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240

ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagggagg 300

agcagctcgt actttgacta ttggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 26
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 26

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 Ala Ile Trp Tyr Asp Gly Ser Asn 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 Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Gly Arg Ser Ser Ser Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 27
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 27
gatattgtga tgacccagac tccactctcc tcacctgtca cccttggaca gccggcctcc 60

atctcctgca ggtctagtca aagcctcgta cacagtgatg gaaacaccta cttgagttgg 120

cttcagcaga ggccaggcca gcctccaaga ctcctaattt ataagacttc taaccgcttc 180

tctggggtcc cagacagatt cagtggcagt ggggcaggga cagatttcac actgaaaatc 240

agcagggtgg gagctgagga tgtcggggtt tattactgca tgcaagctac gcaatttcca 300

accttcggcc aagggacacg actggagatt aaa 333

<210> 28
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 28

Asp Ile Val Met Thr Gln Thr Pro Leu Ser Ser Pro Val Thr Leu Gly
1 5 10 15

Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30

Asp Gly Asn Thr Tyr Leu Ser Trp Leu Gln Gln Arg Pro Gly Gln Pro
35 40 45

Pro Arg Leu Leu Ile Tyr Lys Thr Ser Asn Arg Phe Ser Gly Val Pro
50 55 60

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

Ser Arg Val Gly Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ala
85 90 95

Thr Gln Phe Pro Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105 110

<210> 29
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 29
caggtgcagc tggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60

tcctgtgtag cgtctggatt caccttcagt agctatggca tgcactgggt ccgccaggct 120

ccaggcaagg ggctggagtg ggtgggagct atatggtatg atggaagtaa taaatactat 180

gcagcctccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240

ctgcaaatga acagcctgag agccgaggac acggctgtat tttactgtgc gagagggagg 300

agcagctcgt attttgacta ctggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 30
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 30

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 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

Gly Ala Ile Trp Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Ala 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 Phe Tyr Cys
85 90 95

Ala Arg Gly Arg Ser Ser Ser Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 31
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 31
gatattgtga tgacccagac tccactctcc tcacctgtca cccttggaca gccggcctcc 60

atctcctgca ggtctagtca aagcctcgta cacagtgatg gaaacaccta cttgagttgg 120

cttcagcaga ggccaggcca gcctccaaga ctcctaattt ataagacttc taaccgcttc 180

tctggggtcc cagacagatt cagtggcagt ggggcaggga cagatttcac actgaaaatc 240

agcagggtgg gagctgagga tgtcggggtt tattactgca tgcaagctac gcaatttcca 300

accttcggcc aagggacacg actggagatt aaa 333

<210> 32
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 32

Asp Ile Val Met Thr Gln Thr Pro Leu Ser Ser Pro Val Thr Leu Gly
1 5 10 15

Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30

Asp Gly Asn Thr Tyr Leu Ser Trp Leu Gln Gln Arg Pro Gly Gln Pro
35 40 45

Pro Arg Leu Leu Ile Tyr Lys Thr Ser Asn Arg Phe Ser Gly Val Pro
50 55 60

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

Ser Arg Val Gly Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ala
85 90 95

Thr Gln Phe Pro Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105 110

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

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 33
caggtgcagc tggtggagtc tgggggaggc gtggtccagc ctgggaggtc cctgagactc 60

tcctgtgcag cgtctggatt caccttcagt agctatggca tgcactgggt ccgccaggct 120

ccaggcaagg ggctggagtg ggtggcagct atatggtatg atggaagtaa taaatactat 180

gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240

ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagggagg 300

agcagctcgt actttgacta ttggggccag ggaaccctgg tcaccgtctc ctca 354

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

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 34

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 Ala Ile Trp Tyr Asp Gly Ser Asn 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 Ala Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Arg Gly Arg Ser Ser Ser Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
            100                 105                 110

Leu Val Thr Val Ser Ser
        115
```

<210> 35
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 35
gatattgtga tgacccagac tccactctcc tcacctgtca cccttggaca gccggcctcc 60

ttctcctgca ggtctagtca aagcctcgta cacagtgatg gaaacacgta cttgagttgg 120

cttcagcaga ggccaggcca gcctccaaga ctcctaattt ataagatttc taaccggttc 180

tctggggtcc cagacagatt cagtggcagt ggggcaggga cagatttcac actgaaaatc 240

agcagggtgg aagctgagga tgtcggggtt tattactgca tgcaagctac acaatttcca 300

accttcggcc aagggacacg actggagatt aaa 333

<210> 36
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 36

```
Asp Ile Val Met Thr Gln Thr Pro Leu Ser Ser Pro Val Thr Leu Gly
1               5                   10                  15

Gln Pro Ala Ser Phe Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
            20                  25                  30
```

Asp Gly Asn Thr Tyr Leu Ser Trp Leu Gln Gln Arg Pro Gly Gln Pro
35 40 45

Pro Arg Leu Leu Ile Tyr Lys Ile Ser Asn Arg Phe Ser Gly Val Pro
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ala 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

Thr Gln Phe Pro Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105 110

<210> 37
<211> 363
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 37
caggtgcagc tggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc 60

tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct 120

ccagggaagg ggctggagtg gatttcatac attactagta gtggtagtac catatactac 180

tcagcctctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcactgtat 240

ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gagagatttc 300

agtggctggt tcggagtcca ctttgactac tggggccagg gaaccctggt caccgtctcc 360

tcg 363

<210> 38
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 38

Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30

```
Tyr Met Ser Trp Ile Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile
        35                  40                  45

Ser Tyr Ile Thr Ser Ser Gly Ser Thr Ile Tyr Tyr Ser Ala 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 Asp Phe Ser Gly Trp Phe Gly Val His Phe Asp Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 39
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 39
gatattgtga tgacccagac tccactctct ctgtccgtca cccctggaca gccggcctcc 60

atctcctgta agtctagtca gagcctcctg catagtgatg gaaagaccta tttgtattgg 120

tacctgcaga agccaggcca gcctccacag ctcctgatct atgaagtttc caaccggttc 180

tctggagtgc caaataggtt cagtggcagc gggtcaggga cagatttcac actgaaaatc 240

agccgggtgg aggctgagga tgttggggtt tattactgca tgcaaagtat acaacttacg 300

tggacgttcg gccaagggac caaggtggaa atcaaa 336

<210> 40
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 40

```
Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly
1               5                   10                  15

Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu His Ser
            20                  25                  30
```

```
Asp Gly Lys Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Pro
        35                  40                  45

Pro Gln Leu Leu Ile Tyr Glu Val Ser Asn Arg Phe Ser Gly Val Pro
    50                  55                  60

Asn 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 Ser
                85                  90                  95

Ile Gln Leu Thr Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105                 110
```

<210> 41
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 41
gaggtgcagc tgttggagtc tgggggaggc ttggtacagc ctgggggtc cctgagactc 60

tcctgtgcag cctctggatt cacctttagc agctatgcca tgagctgggt ccgccaggct 120

ccagggaagg ggctggactg ggtctcagat attagtggta gtggtggtag cacatactac 180

gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240

ctgcaaatgc acagcctgag cgccgaggac acggccatat attactgtgc gaaacggcgg 300

tggcaggggt acttcgatct ctggggccgt ggcaccctgg tcactgtctc ctca 354

<210> 42
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 42

```
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 Asp Trp Val
        35                  40                  45
```

Ser Asp 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 Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met His Ser Leu Ser Ala Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95

Ala Lys Arg Arg Trp Gln Gly Tyr Phe Asp Leu Trp Gly Arg Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 43
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 43
gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60

ctctcctgca gggccaggca gcgtgttgac agcaggtact tagcctggta ccagcagaaa 120

cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180

gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240

cctgaagatt ttgcagtgta ttactgtcag cagtatggta gctcaccgct cactttcggc 300

ggagggacca aggtggagat caaa 324

<210> 44
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 44

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 Arg Gln Arg Val Asp Ser Arg
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

Leu Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105

<210> 45
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 45
gaggtgcagc tgttggagtc tgggggaggc ttggtacagc ctgggggggtc cctgagactc 60

tcctgtgcag cctctggatt cacctttagc cgctatgcca tgaactgggt ccgccaggct 120

ccagggaagg ggctggagtg ggtctcaggt attagtggga gtggtggtag gacatactac 180

gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacactatat 240

ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcgc 300

gatttttgga gtggtccatt tgactactgg ggccagggaa ccctggtcac cgtctcctca 360

<210> 46
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 46

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 Arg Tyr
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Gly Ile Ser Gly Ser Gly Gly Arg 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 Arg Asp Phe Trp Ser Gly Pro Phe Asp Tyr Trp Gly Gln
100 105 110

Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 47
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 47
gaaatagtga tgacgccgtc ttcagccacc ctgtctgtgt ctccagggga gagagccacc 60

ctctcctgca gggccagtca gagtgttagt agaaacttag cctggtacca gcagaaacct 120

ggccaggctc ccaggctcct catctatggt gcatccacca gggccactgg tatcccagcc 180

aggttcagtg gcagtgggtc tgggacagaa ttcactctca ccatcagcag cctgcagtct 240

gaagattttg cagtttatta ctgtcaccag tatagtaact ggatgtgcag ttttggccag 300

gggaccaagc tggagatcaa a 321

<210> 48
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 48

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Arg 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 His Gln Tyr Ser Asn Trp Met Cys
85 90 95

Ser Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105

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

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 49
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60

acctgcactg tctctggtgg ctccatcaga agttactact ggagctggat ccggcagccc 120

gccgggaagg gactggagtg gattggacgt atttatatca gtgggaggac caccttcaac 180

ccctccctca agagtcgagt caccatatca gtggacacgt ccaagaacca gttctccctg 240

aagctgagct ctgtgaccgc cgcggacacg gccgtgtatt tctgtgcgag agatagatat 300

tatggctacc ttgactactg gggccaggga accctggtca ccgtctcctc a 351

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

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 50

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 Arg Ser Tyr
20 25 30

Tyr Trp Ser Trp Ile Arg Gln Pro Ala Gly Lys Gly Leu Glu Trp Ile
35 40 45

Gly Arg Ile Tyr Ile Ser Gly Arg Thr Thr Phe 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 Phe Cys Ala
85 90 95

Arg Asp Arg Tyr Tyr Gly Tyr Leu Asp Tyr Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 51
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 51
gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60

ctctcctgca gggccagtca gagtgttagc cgcagttact tagcctggta ccaacagaaa 120

cctggccagg ctcccaggct cctcatctat gatgcatcca gcagggccac tggcatccca 180

gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240

cctgaagatt ttgcagtgta ttactgtcag cagtatggta gttcaccgag caccttcggc 300

caagggacac gactggagat taaa 324

<210> 52
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 52

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 Arg 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 Asp 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

Ser Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105

<210> 53
<211> 342
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 53
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60

acctgcactg tctctggcgg ctccatccgt cattactact ggagctggat ccggcagccc 120

ccagggaagg gactggagtg gattgggtat atctattaca gtgggagcac caactacaac 180

ctctccctca agagtcgagt caccatatca agagacacgt ccaagaatca ggtctccctg 240

aagctgagtt ctgtgaccgc tgcggacacg gccgtgtatt attgtgcggc gggtatgggc 300

tttgactact ggggccaggg aaccctggtc accgtctcct ca 342

<210> 54
<211> 114
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 54

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 Arg His 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 Thr Asn Tyr Asn Leu Ser Leu Lys
50 55 60

Ser Arg Val Thr Ile Ser Arg Asp Thr Ser Lys Asn Gln Val 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

Ala Gly Met Gly Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
100 105 110

Ser Ser

<210> 55
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 55
gacatccaga tgacccagtc tccttcctcc ctgtctgcat ctataggaga cagagtcacc 60

atcacttgcc gggcaagtca ggccattaga aatgatttag gctggtatca gctgaaaccg 120

gggaaagccc ctaagcgcct gatctattct gcatccagtt tgcaaagtgg ggtcccatca 180

aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240

gaggattctg caacttatta ctgtctacag cataatagtt tccctccgac gttcggccaa 300

gggaccaagg tggaaatcaa a 321

<210> 56
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 56

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ala Ile Arg Asn Asp
20 25 30

Leu Gly Trp Tyr Gln Leu Lys Pro Gly Lys Ala Pro Lys Arg Leu Ile
35 40 45

Tyr Ser 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 Ser Ala Thr Tyr Tyr Cys Leu Gln His Asn Ser Phe Pro Pro
85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 57
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 57
agaaatgcta taagc 15

<210> 58
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 58

Arg Asn Ala Ile Ser
1 5

<210> 59
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 59
gtaatatgga ctggtggagg cacaaattat aattcagctc tcaaatcc 48

<210> 60
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 60

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

<210> 61
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 61
agtggttacg acgggtttga ttac 24

<210> 62
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 62

Ser Gly Tyr Asp Gly Phe Asp Tyr
1 5

<210> 63
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 63
agtgccagct caagtgtaaa ttacatgcac 30

<210> 64
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 64

Ser Ala Ser Ser Ser Val Asn Tyr Met His
1 5 10

<210> 65
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 65
gacacatcca aactggcttc t 21

<210> 66
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 66

Asp Thr Ser Lys Leu Ala Ser
1 5

<210> 67
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 67
cagcagtgga gtggtaaccc gtacacg 27

<210> 68
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 68

Gln Gln Trp Ser Gly Asn Pro Tyr Thr
1 5

<210> 69
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 69
gactactata taaac 15

<210> 70
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 70

Asp Tyr Tyr Ile Asn
1 5

<210> 71
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 71
aagattggtc ctcgaagtgg taatacttac tacaatgaga agttcaaggg c 51

<210> 72
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 72

Lys Ile Gly Pro Arg Ser Gly Asn Thr Tyr Tyr Asn Glu Lys Phe Lys
1 5 10 15

Gly

<210> 73
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 73
tgggatgctt ac 12

<210> 74
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 74

Trp Asp Ala Tyr
1

<210> 75
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 75
aagtcaagtc agagcctctt atatagtaat ggaaagacat atttgaat 48

<210> 76
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 76

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

<210> 77
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 77
caggtgtcca aactggaccc t 21

<210> 78
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 78

Gln Val Ser Lys Leu Asp Pro
1 5

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

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 79
ttgcaaggta catattatcc gtacacg 27

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

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 80

Leu Gln Gly Thr Tyr Tyr Pro Tyr Thr
1 5

<210> 81
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 81
ggctactgga tgtac 15

<210> 82
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 82

Gly Tyr Trp Met Tyr
1 5

<210> 83
<211> 51
<212> DNA
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<210> 84
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
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<400> 84

Arg Ile His Pro Ser Asp Ser Asn Thr Asn Tyr Asn Gln Lys Phe Lys
1 5 10 15

Gly

<210> 85
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
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<400> 85
gcccttgctt ac 12

<210> 86
<211> 4
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<220>
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<400> 86

Ala Leu Ala Tyr
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<210> 87
<211> 48
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<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 87
aagtcaagtc agagcctctt atatagtaat ggaaaaacct atttgagt 48

<210> 88
<211> 16
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<220>
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<400> 88

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

<210> 89
<211> 21
<212> DNA
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<220>
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<400> 89
ctggtgtctc aactggactc t 21

<210> 90
<211> 7
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<220>
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<400> 90

Leu Val Ser Gln Leu Asp Ser
1 5

<210> 91
<211> 24
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 91
gtgcaaggta cacatttatt cacg 24

<210> 92
<211> 8
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<213> Artificial Sequence

<220>
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<400> 92

Val Gln Gly Thr His Leu Phe Thr
1 5

<210> 93
<211> 15
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 93
gactactata taaac 15

<210> 94
<211> 5
<212> PRT
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<220>
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<400> 94

Asp Tyr Tyr Ile Asn
1 5

<210> 95
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
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<400> 95
aagattggtc ctagaagtgg tagtacttac tacaatgaga agttcaaggg c 51

<210> 96
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
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<400> 96

Lys Ile Gly Pro Arg Ser Gly Ser Thr Tyr Tyr Asn Glu Lys Phe Lys
1 5 10 15

Gly

<210> 97
<211> 12
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 97
tgggatgctt ac 12

<210> 98
<211> 4
<212> PRT
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<220>
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<400> 98

Trp Asp Ala Tyr
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<210> 99
<211> 48
<212> DNA
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<220>
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<400> 99
aagtcaagtc agagcctctt atatagtaat ggaaagacat atttgaat 48

<210> 100
<211> 15
<212> PRT
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<220>
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<400> 100

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

<210> 101
<211> 21
<212> DNA
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<400> 101
caggtgtcca aactggaccc t 21

<210> 102
<211> 7
<212> PRT
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<220>
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<400> 102

Gln Val Ser Lys Leu Asp Pro
1 5

<210> 103
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 103
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<210> 104
<211> 9
<212> PRT
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<220>
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<400> 104

Leu Gln Gly Thr Tyr Tyr Pro Tyr Thr
1 5

<210> 105
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
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<400> 105
ggttactact ggagc 15

<210> 106
<211> 5
<212> PRT
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<220>
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<400> 106

Gly Tyr Tyr Trp Ser
1 5

<210> 107
<211> 45
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 107
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<210> 108
<211> 16
<212> PRT
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<220>
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<400> 108

Glu Ile Asn His Arg Gly Asn Thr Asn Asp Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 109
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
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<400> 109
gaacgtggat acacctatgg taactttgac cac 33

<210> 110
<211> 11
<212> PRT
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<220>
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<400> 110

Glu Arg Gly Tyr Thr Tyr Gly Asn Phe Asp His
1 5 10

<210> 111
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
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<400> 111
agggccagtc agagtgttag cagaaactta gcc 33

<210> 112
<211> 11
<212> PRT
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<220>
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<400> 112

Arg Ala Ser Gln Ser Val Ser Arg Asn Leu Ala
1 5 10

<210> 113
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 113
ggtgcatcca ccagggccac t 21

<210> 114
<211> 7
<212> PRT
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<220>
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<400> 114

Gly Ala Ser Thr Arg Ala Thr
1 5

<210> 115
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
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<400> 115
cagcagtata aaacctggcc tcggacg 27

<210> 116
<211> 9
<212> PRT
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<220>
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<400> 116

Gln Gln Tyr Lys Thr Trp Pro Arg Thr
1 5

<210> 117
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 117
gactgctaca tgagc 15

<210> 118
<211> 5
<212> PRT
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<220>
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<400> 118

Asp Cys Tyr Met Ser
1 5

<210> 119
<211> 51
<212> DNA
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<220>
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<400> 119
tacattacta ctagtggtaa taccatttac tacgcagact ctgtgaaggg c 51

<210> 120
<211> 17
<212> PRT
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<220>
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<400> 120

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

Gly

<210> 121
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 121
gactggggat ggttctacgg tatggacgtc 30

<210> 122
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
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<400> 122

Asp Trp Gly Trp Phe Tyr Gly Met Asp Val
1 5 10

<210> 123
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 123
aagtctagtc agagcctcct gcataatgat ggaaagacct atttg 45

<210> 124
<211> 16
<212> PRT
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<220>
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<400> 124

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

<210> 125
<211> 21
<212> DNA
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<220>
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<400> 125
gaagtttcca accggttctc t 21

<210> 126
<211> 7
<212> PRT
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<220>
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<400> 126

Glu Val Ser Asn Arg Phe Ser
1 5

<210> 127
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
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<400> 127
atgcaaagta tacagcttcc tcggacg 27

<210> 128
<211> 9
<212> PRT
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<220>
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<400> 128

Met Gln Ser Ile Gln Leu Pro Arg Thr
1 5

<210> 129
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
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<400> 129
agctatggca tgcac 15

<210> 130
<211> 5
<212> PRT
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<220>
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<400> 130

Ser Tyr Gly Met His
1 5

<210> 131
<211> 51
<212> DNA
<213> Artificial Sequence

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<400> 131
gctatatggt atgatggaag taataaatac tatgcagact ccgtgaaggg c 51

<210> 132
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
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<400> 132

Ala Ile Trp Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 133
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
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<400> 133
gggaggagca gctcgtactt tgactat 27

<210> 134
<211> 9
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 134

Gly Arg Ser Ser Ser Tyr Phe Asp Tyr
1 5

<210> 135
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 135
aggtctagtc aaagcctcgt acacagtgat ggaaacacct acttgagt 48

<210> 136
<211> 16
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 136

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

<210> 137
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 137
aagacttcta accgcttctc t 21

<210> 138
<211> 7
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 138

Lys Thr Ser Asn Arg Phe Ser
1 5

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

<220>
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<400> 139
atgcaagcta cgcaatttcc aacc 24

<210> 140
<211> 8
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 140

Met Gln Ala Thr Gln Phe Pro Thr
1 5

<210> 141
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
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<400> 141
agctatggca tgcac 15

<210> 142
<211> 5
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 142

Ser Tyr Gly Met His
1 5

<210> 143
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 143
gctatatggt atgatggaag taataaatac tatgcagcct ccgtgaaggg c 51

<210> 144
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 144

Ala Ile Trp Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Ala Ser Val Lys
1 5 10 15

Gly

<210> 145
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 145
gggaggagca gctcgtattt tgactac 27

<210> 146
<211> 9
<212> PRT
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<220>
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<400> 146

Gly Arg Ser Ser Ser Tyr Phe Asp Tyr
1 5

<210> 147
<211> 48
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 147
aggtctagtc aaagcctcgt acacagtgat ggaaacacct acttgagt 48

<210> 148
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
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<400> 148

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

<210> 149
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
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<400> 149
aagacttcta accgcttctc t 21

<210> 150
<211> 7
<212> PRT
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<220>
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<400> 150

Lys Thr Ser Asn Arg Phe Ser
1 5

<210> 151
<211> 21
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 151
atgcaagcta cgcaatttcc a 21

<210> 152
<211> 8
<212> PRT
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<220>
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<400> 152

Met Gln Ala Thr Gln Phe Pro Thr
1 5

<210> 153
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 153
agctatggca tgcac 15

<210> 154
<211> 5
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 154

Ser Tyr Gly Met His
1 5

<210> 155
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 155
gctatatggt atgatggaag taataaatac tatgcagact ccgtgaaggg c 51

<210> 156
<211> 17
<212> PRT
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<220>
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<400> 156

Ala Ile Trp Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 157
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 157
gggaggagca gctcgtactt tgactat 27

<210> 158
<211> 9
<212> PRT
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<220>
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<400> 158

Gly Arg Ser Ser Ser Tyr Phe Asp Tyr
1 5

<210> 159
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 159
aggtctagtc aaagcctcgt acacagtgat ggaaacacgt acttgagt 48

<210> 160
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
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<400> 160

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

<210> 161
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 161
aagatttcta accggttctc t 21

<210> 162
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 162

Lys Ile Ser Asn Arg Phe Ser
1 5

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

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 163
atgcaagcta cacaatttcc aacc 24

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

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 164

Met Gln Ala Thr Gln Phe Pro Thr
1 5

<210> 165
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 165
gactactaca tgagc 15

<210> 166
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 166

Asp Tyr Tyr Met Ser
1 5

<210> 167
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 167
tacattacta gtagtggtag taccatatac tactcagcct ctgtgaaggg c 51

<210> 168
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 168

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

Gly

<210> 169
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 169
gatttcagtg gctggttcgg agtccacttt gactac 36

<210> 170
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 170

Asp Phe Ser Gly Trp Phe Gly Val His Phe Asp Tyr
1 5 10

<210> 171
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 171
aagtctagtc agagcctcct gcatagtgat ggaaagacct atttgtat 48

<210> 172
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
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<400> 172

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

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

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 173
gaagtttcca accggttctc t 21

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

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 174

Glu Val Ser Asn Arg Phe Ser
1 5

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

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 175
atgcaaagta tacaacttac gtggacg 27

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

<220>
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<400> 176

Met Gln Ser Ile Gln Leu Thr Trp Thr
1 5

<210> 177
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 177
agctatgcca tgagc 15

<210> 178
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 178

Ser Tyr Ala Met Ser
1 5

<210> 179
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 179
gatattagtg gtagtggtgg tagcacatac tacgcagact ccgtgaaggg c 51

<210> 180
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 180

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

Gly

<210> 181
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 181
cggcggtggc aggggtactt cgatctc 27

<210> 182
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 182

Arg Arg Trp Gln Gly Tyr Phe Asp Leu
1 5

<210> 183
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 183
agggccaggc agcgtgttga cagcaggtac ttagcc 36

<210> 184
<211> 12
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 184

Arg Ala Arg Gln Arg Val Asp Ser Arg Tyr Leu Ala
1 5 10

<210> 185
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 185
ggtgcatcca gcagggccac t 21

<210> 186
<211> 7
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 186

Gly Ala Ser Ser Arg Ala Thr
1 5

<210> 187
<211> 27
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 187
cagcagtatg gtagctcacc gctcact 27

<210> 188
<211> 9
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 188

Gln Gln Tyr Gly Ser Ser Pro Leu Thr
1 5

<210> 189
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 189
cgctatgcca tgaac 15

<210> 190
<211> 5
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<220>
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<400> 190

Arg Tyr Ala Met Asn
1 5

<210> 191
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
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<400> 191
ggtattagtg ggagtggtgg taggacatac tacgcagact ccgtgaaggg c 51

<210> 192
<211> 17
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<220>
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<400> 192

Gly Ile Ser Gly Ser Gly Gly Arg Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 193
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 193
gatcgcgatt tttggagtgg tccatttgac tac 33

<210> 194
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
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<400> 194

Asp Arg Asp Phe Trp Ser Gly Pro Phe Asp Tyr
1 5 10

<210> 195
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 195
agggccagtc agagtgttag tagaaactta gcc 33

<210> 196
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 196

Arg Ala Ser Gln Ser Val Ser Arg Asn Leu Ala
1 5 10

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

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 197
ggtgcatcca ccagggccac t 21

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

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 198

Gly Ala Ser Thr Arg Ala Thr
1 5

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

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 199
caccagtata gtaactggat gtgcagt 27

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

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 200

His Gln Tyr Ser Asn Trp Met Cys Ser
1 5

<210> 201
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 201
agttactact ggagc 15

<210> 202
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 202

Ser Tyr Tyr Trp Ser
1 5

<210> 203
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 203
cgtatttata tcagtgggag gaccaccttc aacccctccc tcaagagt 48

<210> 204
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 204

Arg Ile Tyr Ile Ser Gly Arg Thr Thr Phe Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 205
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 205
gatagatatt atggctacct tgactac 27

<210> 206
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 206

Asp Arg Tyr Tyr Gly Tyr Leu Asp Tyr
1 5

<210> 207
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 207
agggccagtc agagtgttag ccgcagttac ttagcc 36

<210> 208
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 208

Arg Ala Ser Gln Ser Val Ser Arg Ser Tyr Leu Ala
1 5 10

<210> 209
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 209
gatgcatcca gcagggccac t 21

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

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 210

Asp Ala Ser Ser Arg Ala Thr
1 5

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

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 211
cagcagtatg gtagttcacc gagcacc 27

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

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 212

Gln Gln Tyr Gly Ser Ser Pro Ser Thr
1 5

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

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 213
cattactact ggagc 15

<210> 214
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 214

His Tyr Tyr Trp Ser
1 5

<210> 215
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 215
tatatctatt acagtgggag caccaactac aacctctccc tcaagagt 48

<210> 216
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 216

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

<210> 217
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 217
ggtatgggct ttgactac 18

<210> 218
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 218

Gly Met Gly Phe Asp Tyr
1 5

<210> 219
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 219
cgggcaagtc aggccattag aaatgattta ggc 33

<210> 220
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 220

Arg Ala Ser Gln Ala Ile Arg Asn Asp Leu Gly
1 5 10

<210> 221
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 221
tctgcatcca gtttgcaaag t 21

<210> 222
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 222

Ser Ala Ser Ser Leu Gln Ser
1 5

<210> 223
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 223
ctacagcata atagtttccc tccgacg 27

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

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 224

Leu Gln His Asn Ser Phe Pro Pro Thr
1 5

<210> 225
<211> 30
<212> PRT
<213> Homo sapiens

<400> 225

Ile Leu Val Asp Leu Phe Asn Asp Gln Tyr Leu Glu Asp Asn Val Thr
1 5 10 15

Ala Pro Asp Tyr Met Lys Asn Val Leu Val Leu Thr Leu Ser
20 25 30

<210> 226
<211> 25
<212> PRT
<213> Homo sapien

<400> 226

Phe Ala His Ala Phe Arg Asn Leu Thr Phe Glu Gly Tyr Asp Gly Pro
1 5 10 15

Val Thr Leu Asp Asp Trp Gly Asp Val
20 25

<210> 227
<211> 3222
<212> DNA
<213> Homo sapiens

<400> 227
atgaagacgt tgctgttgga cttggctttg tggtcactgc tcttccagcc cgggtggctg 60

tcctttagtt cccaggtgag tcagaactgc cacaatggca gctatgaaat cagcgtcctg 120

atgatgggca actcagcctt tgcagagccc ctgaaaaact tggaagatgc ggtgaatgag 180

gggctggaaa tagtgagagg acgtctgcaa aatgctggcc taaatgtgac tgtgaacgct 240

actttcatgt attcggatgg tctgattcat aactcaggcg actgccggag tagcacctgt 300

gaaggcctcg acctactcag gaaaatttca aatgcacaac ggatgggctg tgtcctcata 360

gggccctcat gtacatactc caccttccag atgtaccttg acacagaatt gagctacccc 420

atgatctcag ctggaagttt tggattgtca tgtgactata aagaaacctt aaccaggctg 480

atgtctccag ctagaaagtt gatgtacttc ttggttaact tttggaaaac caacgatctg 540

cccttcaaaa cttattcctg gagcacttcg tatgtttaca agaatggtac agaaactgag 600

gactgtttct ggtaccttaa tgctctggag gctagcgttt cctatttctc ccacgaactc 660

ggctttaagg tggtgttaag acaagataag gagtttcagg atatcttaat ggaccacaac 720

aggaaaagca atgtgattat tatgtgtggt ggtccagagt tcctctacaa gctgaagggt 780

gaccgagcag tggctgaaga cattgtcatt attctagtgg atcttttcaa tgaccagtac 840

tttgaggaca atgtcacagc ccctgactat atgaaaaatg tccttgttct gacgctgtct 900

cctgggaatt cccttctaaa tagctctttc tccaggaatc tatcaccaac aaaacgagac 960

tttgctcttg cctatttgaa tggaatcctg ctctttggac atatgctgaa gatatttctt 1020

gaaaatggag aaaatattac cacccccaaa tttgctcatg ctttcaggaa tctcactttt 1080

gaagggtatg acggtccagt gaccttggat gactgggggg atgttgacag taccatggtg 1140

cttctgtata cctctgtgga caccaagaaa tacaaggttc ttttgaccta tgatacccac 1200

gtaaataaga cctatcctgt ggatatgagc cccacattca cttggaagaa ctctaaactt 1260

cctaatgata ttacaggccg gggccctcag atcctgatga ttgcagtctt caccctcact 1320

ggagctgtgg tgctgctcct gctcgtcgct ctcctgatgc tcagaaaata tagaaaagat 1380

tatgaacttc gtcagaaaaa atggtcccac attcctcctg aaaatatctt tcctctggag 1440

accaatgaga ccaatcatgt tagcctcaag atcgatgatg acaaaagacg agatacaatc 1500

cagagactac gacagtgcaa atacgacaaa aagcgagtga ttctcaaaga tctcaagcac 1560

aatgatggta atttcactga aaaacagaag atagaattga acaagttgct tcagattgac 1620

tattacaacc tgaccaagtt ctacggcaca gtgaaacttg ataccatgat cttcggggtg 1680

atagaatact gtgagagagg atccctccgg gaagttttaa atgacacaat ttcctaccct 1740

gatggcacat tcatggattg ggagtttaag atctctgtct tgtatgacat tgctaaggga 1800

atgtcatatc tgcactccag taagacagaa gtccatggtc gtctgaaatc taccaactgc 1860

gtagtggaca gtagaatggt ggtgaagatc actgattttg gctgcaattc cattttacct 1920

ccaaaaaagg acctgtggac agctccagag cacctccgcc aagccaacat ctctcagaaa 1980

ggagatgtgt acagctatgg gatcatcgca caggagatca tcctgcggaa agaaaccttc 2040

tacactttga gctgtcggga ccggaatgag aagattttca gagtggaaaa ttccaatgga 2100

atgaaaccct tccgcccaga tttattcttg gaaacagcag aggaaaaaga gctagaagtg 2160

tacctacttg taaaaaactg ttgggaggaa gatccagaaa agagaccaga tttcaaaaaa 2220

attgagacta cacttgccaa gatatttgga ctttttcatg accaaaaaaa tgaaagctat 2280

atggatacct tgatccgacg tctacagcta tattctcgaa acctggaaca tctggtagag 2340

gaaaggacac agctgtacaa ggcagagagg gacagggctg acagacttaa ctttatgttg 2400

cttccaaggc tagtggtaaa gtctctgaag gagaaaggct ttgtggagcc ggaactatat 2460

gaggaagtta caatctactt cagtgacatt gtaggtttca ctactatctg caaatacagc 2520

acccccatgg aagtggtgga catgcttaat gacatctata agagttttga ccacattgtt 2580

gatcatcatg atgtctacaa ggtggaaacc atcggtgatg cgtacatggt ggctagtggt 2640

ttgcctaaga gaaatggcaa tcggcatgca atagacattg ccaagatggc cttggaaatc 2700

ctcagcttca tggggacctt tgagctggag catcttcctg gcctcccaat atggattcgc 2760

attggagttc actctggtcc ctgtgctgct ggagttgtgg gaatcaagat gcctcgttat 2820

tgtctatttg gagatacggt caacacagcc tctaggatgg aatccactgg cctccctttg 2880

agaattcacg tgagtggctc caccatagcc atcctgaaga gaactgagtg ccagttcctt 2940

tatgaagtga gaggagaaac atacttaaag ggaagaggaa atgagactac ctactggctg 3000

actgggatga aggaccagaa attcaacctg ccaacccctc ctactgtgga gaatcaacag 3060

cgtttgcaag cagaattttc agacatgatt gccaactctt tacagaaaag acaggcagca 3120

gggataagaa gccaaaaacc cagacgggta gccagctata aaaaaggcac tctggaatac 3180

ttgcagctga ataccacaga caaggagagc acctatttt aa 3222

<210> 228
<211> 1073
<212> PRT
<213> Homo sapiens

<400> 228

Met Lys Thr Leu Leu Leu Asp Leu Ala Leu Trp Ser Leu Leu Phe Gln
1 5 10 15

Pro Gly Trp Leu Ser Phe Ser Ser Gln Val Ser Gln Asn Cys His Asn
20 25 30

Gly Ser Tyr Glu Ile Ser Val Leu Met Met Gly Asn Ser Ala Phe Ala
35 40 45

Glu Pro Leu Lys Asn Leu Glu Asp Ala Val Asn Glu Gly Leu Glu Ile
50 55 60

Val Arg Gly Arg Leu Gln Asn Ala Gly Leu Asn Val Thr Val Asn Ala
65 70 75 80

Thr Phe Met Tyr Ser Asp Gly Leu Ile His Asn Ser Gly Asp Cys Arg
85 90 95

```
Ser Ser Thr Cys Glu Gly Leu Asp Leu Leu Arg Lys Ile Ser Asn Ala
            100                 105                 110

Gln Arg Met Gly Cys Val Leu Ile Gly Pro Ser Cys Thr Tyr Ser Thr
        115                 120                 125

Phe Gln Met Tyr Leu Asp Thr Glu Leu Ser Tyr Pro Met Ile Ser Ala
    130                 135                 140

Gly Ser Phe Gly Leu Ser Cys Asp Tyr Lys Glu Thr Leu Thr Arg Leu
145                 150                 155                 160

Met Ser Pro Ala Arg Lys Leu Met Tyr Phe Leu Val Asn Phe Trp Lys
                165                 170                 175

Thr Asn Asp Leu Pro Phe Lys Thr Tyr Ser Trp Ser Thr Ser Tyr Val
            180                 185                 190

Tyr Lys Asn Gly Thr Glu Thr Glu Asp Cys Phe Trp Tyr Leu Asn Ala
        195                 200                 205

Leu Glu Ala Ser Val Ser Tyr Phe Ser His Glu Leu Gly Phe Lys Val
    210                 215                 220

Val Leu Arg Gln Asp Lys Glu Phe Gln Asp Ile Leu Met Asp His Asn
225                 230                 235                 240

Arg Lys Ser Asn Val Ile Ile Met Cys Gly Gly Pro Glu Phe Leu Tyr
                245                 250                 255

Lys Leu Lys Gly Asp Arg Ala Val Ala Glu Asp Ile Val Ile Ile Leu
            260                 265                 270

Val Asp Leu Phe Asn Asp Gln Tyr Phe Glu Asp Asn Val Thr Ala Pro
        275                 280                 285

Asp Tyr Met Lys Asn Val Leu Val Leu Thr Leu Ser Pro Gly Asn Ser
    290                 295                 300

Leu Leu Asn Ser Ser Phe Ser Arg Asn Leu Ser Pro Thr Lys Arg Asp
305                 310                 315                 320

Phe Ala Leu Ala Tyr Leu Asn Gly Ile Leu Leu Phe Gly His Met Leu
                325                 330                 335

Lys Ile Phe Leu Glu Asn Gly Glu Asn Ile Thr Thr Pro Lys Phe Ala
            340                 345                 350
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```
His Ala Phe Arg Asn Leu Thr Phe Glu Gly Tyr Asp Gly Pro Val Thr
        355                 360                 365

Leu Asp Asp Trp Gly Asp Val Asp Ser Thr Met Val Leu Leu Tyr Thr
    370                 375                 380

Ser Val Asp Thr Lys Lys Tyr Lys Val Leu Leu Thr Tyr Asp Thr His
385                 390                 395                 400

Val Asn Lys Thr Tyr Pro Val Asp Met Ser Pro Thr Phe Thr Trp Lys
                405                 410                 415

Asn Ser Lys Leu Pro Asn Asp Ile Thr Gly Arg Gly Pro Gln Ile Leu
            420                 425                 430

Met Ile Ala Val Phe Thr Leu Thr Gly Ala Val Val Leu Leu Leu Leu
        435                 440                 445

Val Ala Leu Leu Met Leu Arg Lys Tyr Arg Lys Asp Tyr Glu Leu Arg
    450                 455                 460

Gln Lys Lys Trp Ser His Ile Pro Pro Glu Asn Ile Phe Pro Leu Glu
465                 470                 475                 480

Thr Asn Glu Thr Asn His Val Ser Leu Lys Ile Asp Asp Asp Lys Arg
                485                 490                 495

Arg Asp Thr Ile Gln Arg Leu Arg Gln Cys Lys Tyr Asp Lys Lys Arg
            500                 505                 510

Val Ile Leu Lys Asp Leu Lys His Asn Asp Gly Asn Phe Thr Glu Lys
        515                 520                 525

Gln Lys Ile Glu Leu Asn Lys Leu Leu Gln Ile Asp Tyr Tyr Asn Leu
    530                 535                 540

Thr Lys Phe Tyr Gly Thr Val Lys Leu Asp Thr Met Ile Phe Gly Val
545                 550                 555                 560

Ile Glu Tyr Cys Glu Arg Gly Ser Leu Arg Glu Val Leu Asn Asp Thr
                565                 570                 575

Ile Ser Tyr Pro Asp Gly Thr Phe Met Asp Trp Glu Phe Lys Ile Ser
            580                 585                 590
```

```
Val Leu Tyr Asp Ile Ala Lys Gly Met Ser Tyr Leu His Ser Ser Lys
        595                 600                 605

Thr Glu Val His Gly Arg Leu Lys Ser Thr Asn Cys Val Val Asp Ser
    610                 615                 620

Arg Met Val Val Lys Ile Thr Asp Phe Gly Cys Asn Ser Ile Leu Pro
625                 630                 635                 640

Pro Lys Lys Asp Leu Trp Thr Ala Pro Glu His Leu Arg Gln Ala Asn
                645                 650                 655

Ile Ser Gln Lys Gly Asp Val Tyr Ser Tyr Gly Ile Ile Ala Gln Glu
            660                 665                 670

Ile Ile Leu Arg Lys Glu Thr Phe Tyr Thr Leu Ser Cys Arg Asp Arg
        675                 680                 685

Asn Glu Lys Ile Phe Arg Val Glu Asn Ser Asn Gly Met Lys Pro Phe
    690                 695                 700

Arg Pro Asp Leu Phe Leu Glu Thr Ala Glu Glu Lys Glu Leu Glu Val
705                 710                 715                 720

Tyr Leu Leu Val Lys Asn Cys Trp Glu Glu Asp Pro Glu Lys Arg Pro
                725                 730                 735

Asp Phe Lys Lys Ile Glu Thr Thr Leu Ala Lys Ile Phe Gly Leu Phe
            740                 745                 750

His Asp Gln Lys Asn Glu Ser Tyr Met Asp Thr Leu Ile Arg Arg Leu
        755                 760                 765

Gln Leu Tyr Ser Arg Asn Leu Glu His Leu Val Glu Glu Arg Thr Gln
    770                 775                 780

Leu Tyr Lys Ala Glu Arg Asp Arg Ala Asp Arg Leu Asn Phe Met Leu
785                 790                 795                 800

Leu Pro Arg Leu Val Val Lys Ser Leu Lys Glu Lys Gly Phe Val Glu
                805                 810                 815

Pro Glu Leu Tyr Glu Glu Val Thr Ile Tyr Phe Ser Asp Ile Val Gly
            820                 825                 830

Phe Thr Thr Ile Cys Lys Tyr Ser Thr Pro Met Glu Val Val Asp Met
        835                 840                 845
```

```
Leu Asn Asp Ile Tyr Lys Ser Phe Asp His Ile Val Asp His His Asp
    850                 855                 860

Val Tyr Lys Val Glu Thr Ile Gly Asp Ala Tyr Met Val Ala Ser Gly
865                 870                 875                 880

Leu Pro Lys Arg Asn Gly Asn Arg His Ala Ile Asp Ile Ala Lys Met
                885                 890                 895

Ala Leu Glu Ile Leu Ser Phe Met Gly Thr Phe Glu Leu Glu His Leu
            900                 905                 910

Pro Gly Leu Pro Ile Trp Ile Arg Ile Gly Val His Ser Gly Pro Cys
        915                 920                 925

Ala Ala Gly Val Val Gly Ile Lys Met Pro Arg Tyr Cys Leu Phe Gly
    930                 935                 940

Asp Thr Val Asn Thr Ala Ser Arg Met Glu Ser Thr Gly Leu Pro Leu
945                 950                 955                 960

Arg Ile His Val Ser Gly Ser Thr Ile Ala Ile Leu Lys Arg Thr Glu
                965                 970                 975

Cys Gln Phe Leu Tyr Glu Val Arg Gly Glu Thr Tyr Leu Lys Gly Arg
            980                 985                 990

Gly Asn Glu Thr Thr Tyr Trp Leu  Thr Gly Met Lys Asp  Gln Lys Phe
        995                 1000                1005

Asn Leu  Pro Thr Pro Pro Thr  Val Glu Asn Gln Gln  Arg Leu Gln
    1010                1015                1020

Ala Glu  Phe Ser Asp Met Ile  Ala Asn Ser Leu Gln  Lys Arg Gln
    1025                1030                1035

Ala Ala  Gly Ile Arg Ser Gln  Lys Pro Arg Arg Val  Ala Ser Tyr
    1040                1045                1050

Lys Lys  Gly Thr Leu Glu Tyr  Leu Gln Leu Asn Thr  Thr Asp Lys
    1055                1060                1065

Glu Ser  Thr Tyr Phe
    1070
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<210> 229
<211> 420
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 229

Met Lys Thr Leu Leu Leu Asp Leu Ala Leu Trp Ser Leu Leu Phe Gln
1 5 10 15

Pro Gly Trp Leu Ser Phe Ser Ser Gln Val Ser Gln Asn Cys His Asn
20 25 30

Gly Ser Tyr Glu Ile Ser Val Leu Met Met Gly Asn Ser Ala Phe Ala
35 40 45

Glu Pro Leu Lys Asn Leu Glu Asp Ala Val Asn Glu Gly Leu Glu Ile
50 55 60

Val Arg Gly Arg Leu Gln Asn Ala Gly Leu Asn Val Thr Val Asn Ala
65 70 75 80

Thr Phe Met Tyr Ser Asp Gly Leu Ile His Asn Ser Gly Asp Cys Arg
85 90 95

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

Gln Arg Met Gly Cys Val Leu Ile Gly Pro Ser Cys Thr Tyr Ser Thr
115 120 125

Phe Gln Met Tyr Leu Asp Thr Glu Leu Ser Tyr Pro Met Ile Ser Ala
130 135 140

Gly Ser Phe Gly Leu Ser Cys Asp Tyr Lys Glu Thr Leu Thr Arg Leu
145 150 155 160

Met Ser Pro Ala Arg Lys Leu Met Tyr Phe Leu Val Asn Phe Trp Lys
165 170 175

Thr Asn Asp Leu Pro Phe Lys Thr Tyr Ser Trp Ser Thr Ser Tyr Val
180 185 190

Tyr Lys Asn Gly Thr Glu Thr Glu Asp Cys Phe Trp Tyr Leu Asn Ala
195 200 205

```
Leu Glu Ala Ser Val Ser Tyr Phe Ser His Glu Leu Gly Phe Lys Val
    210                 215                 220

Val Leu Arg Gln Asp Lys Glu Phe Gln Asp Ile Leu Met Asp His Asn
225                 230                 235                 240

Arg Lys Ser Asn Val Ile Ile Met Cys Gly Gly Pro Glu Phe Leu Tyr
                245                 250                 255

Lys Leu Lys Gly Asp Arg Ala Val Ala Glu Asp Ile Val Ile Ile Leu
            260                 265                 270

Val Asp Leu Phe Asn Asp Gln Tyr Phe Glu Asp Asn Val Thr Ala Pro
        275                 280                 285

Asp Tyr Met Lys Asn Val Leu Val Leu Thr Leu Ser Pro Gly Asn Ser
    290                 295                 300

Leu Leu Asn Ser Ser Phe Ser Arg Asn Leu Ser Pro Thr Lys Arg Asp
305                 310                 315                 320

Phe Ala Leu Ala Tyr Leu Asn Gly Ile Leu Leu Phe Gly His Met Leu
                325                 330                 335

Lys Ile Phe Leu Glu Asn Gly Glu Asn Ile Thr Thr Pro Lys Phe Ala
            340                 345                 350

His Ala Phe Arg Asn Leu Thr Phe Glu Gly Tyr Asp Gly Pro Val Thr
        355                 360                 365

Leu Asp Asp Trp Gly Asp Val Asp Ser Thr Met Val Leu Leu Tyr Thr
    370                 375                 380

Ser Val Asp Thr Lys Lys Tyr Lys Val Leu Leu Thr Tyr Asp Thr His
385                 390                 395                 400

Val Asn Lys Thr Tyr Pro Val Asp Met Ser Pro Thr Phe Thr Trp Lys
                405                 410                 415

Asn Ser Lys Leu
            420
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<210> 230
<211> 1444
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 230
gaattcctca ccatgggatg gagctgtatc atcctcttct tggtagcaac agctacaggt 60

gtccactccc aggtgcagct acagcagtgg ggcgcaggac tgttgaagcc ttcggagacc 120

ctgtccctca cctgcgctgt ctttggtggg tctttcagtg gttactactg gagctggatc 180

cgccagcccc cagggaaggg gctggagtgg attggggaaa tcaatcatcg tggaaacacc 240

aacgacaacc cgtccctcaa gagtcgagtc accatatcag tagacacgtc caagaaccag 300

ttcgccctga agctgagttc tgtgaccgcc gcggacacgg ctgtttatta ctgtgcgaga 360

gaacgtggat acacctatgg taactttgac cactggggcc agggaaccct ggtcaccgtc 420

agctcagcct ccaccaaggg cccatcggtc ttcccctgg caccctcctc caagagcacc 480

tctgggggca cagcggccct gggctgcctg gtcaaggact acttccccga accggtgacg 540

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tcctcaggac tctactccct cagcagcgtg gtgaccgtgc cctccagcag cttgggcacc 660

cagacctaca tctgcaacgt gaatcacaag cccagcaaca ccaaggtgga caagaaagtt 720

gagcccaaat cttgtgacaa aactcacaca tgcccaccgt gcccagcacc tgaactcctg 780

gggggaccgt cagtcttcct cttccccca aaacccaagg acaccctcat gatctcccgg 840

acccctgagg tcacatgcgt ggtggtggac gtgagccacg aagaccctga ggtcaagttc 900

aactggtacg tggacggcgt ggaggtgcat aatgccaaga caaagccgcg ggaggagcag 960

tacaacagca cgtaccgtgt ggtcagcgtc ctcaccgtcc tgcaccagga ctggctgaat 1020

ggcaaggagt acaagtgcaa ggtctccaac aaagccctcc cagccccat cgagaaaacc 1080

atctccaaag ccaaagggca gccccgagaa ccacaggtgt acaccctgcc cccatcccgg 1140

gatgagctga ccaagaacca ggtcagcctg acctgcctgg tcaaaggctt ctatcccagc 1200

gacatcgccg tggagtggga gagcaatggg cagccggaga acaactacaa gaccacgcct 1260

cccgtgctgg actccgacgg ctccttcttc ctctacagca agctcaccgt ggacaagagc 1320

aggtggcagc aggggaacgt cttctcatgc tccgtgatgc atgaggctct gcacaaccac 1380

tacacgcaga agagcctctc cctgtctccg ggtaaataat agggataaca gggtaatact 1440

agag 1444

<210> 231
<211> 468
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 231

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

Val His Ser Gln Val Gln Leu Gln Gln Trp Gly Ala Gly Leu Leu Lys
20 25 30

Pro Ser Glu Thr Leu Ser Leu Thr Cys Ala Val Phe Gly Gly Ser Phe
35 40 45

Ser Gly Tyr Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu
50 55 60

Glu Trp Ile Gly Glu Ile Asn His Arg Gly Asn Thr Asn Asp Asn Pro
65 70 75 80

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

Phe Ala Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr
100 105 110

Tyr Cys Ala Arg Glu Arg Gly Tyr Thr Tyr Gly Asn Phe Asp His Trp
115 120 125

Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
130 135 140

Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr
145 150 155 160

Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr
165 170 175

Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro
180 185 190

Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr
195 200 205

```
Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn
    210                 215                 220

His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser
225                 230                 235                 240

Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu
                245                 250                 255

Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu
            260                 265                 270

Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser
        275                 280                 285

His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu
    290                 295                 300

Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr
305                 310                 315                 320

Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn
                325                 330                 335

Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro
            340                 345                 350

Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln
        355                 360                 365

Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val
    370                 375                 380

Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val
385                 390                 395                 400

Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro
                405                 410                 415

Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr
            420                 425                 430

Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val
        435                 440                 445

Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu
    450                 455                 460
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Ser Pro Gly Lys
465

<210> 232
<211> 722
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 232
gcggccgcct caccatggga tggagctgta tcatcctctt cttggtagca acagctacag 60

gtgtccactc cgaaatagtg atgacgcagt ctccagccac cctgtctgtg tctccagggg 120

aaagagccac cctctcctgc agggccagtc agagtgttag cagaaactta gcctggtatc 180

agcagaaacc tggccaggct cccaggctcc tcatctatgg tgcatccacc agggccactg 240

gaatcccagc caggttcagt ggcagtgggt ctgggacaga gttcactctc accatcggca 300

gcctgcagtc tgaagatttt gcagtttatt actgtcagca gtataaaacc tggcctcgga 360

cgttcggcca agggaccaac gtggaaatca aacgtacggt ggctgcacca tctgtcttca 420

tcttcccgcc atctgatgag cagttgaaat ctggaactgc ctctgttgtg tgcctgctga 480

ataacttcta tcccagagag gccaaagtac agtggaaggt ggataacgcc ctccaatcgg 540

gtaactccca ggagagtgtc acagagcagg acagcaagga cagcacctac agcctcagca 600

gcaccctgac cctgagcaaa gcagactacg agaaacacaa agtctacgcc tgcgaagtca 660

cccatcaggg cctgagctcg cccgtcacaa agagcttcaa caggggagag tgttagtcta 720

ga 722

<210> 233
<211> 233
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 233

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

Val His Ser Glu Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Val
20 25 30

Ser Pro Gly Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val
35 40 45

```
Ser Arg Asn Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg
    50                  55                  60

Leu Leu Ile Tyr Gly Ala Ser Thr Arg Ala Thr Gly Ile Pro Ala Arg
65                  70                  75                  80

Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Gly Ser
                85                  90                  95

Leu Gln Ser Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Lys Thr
            100                 105                 110

Trp Pro Arg Thr Phe Gly Gln Gly Thr Asn Val Glu Ile Lys Arg Thr
        115                 120                 125

Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu
    130                 135                 140

Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro
145                 150                 155                 160

Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly
                165                 170                 175

Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr
            180                 185                 190

Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His
        195                 200                 205

Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val
    210                 215                 220

Thr Lys Ser Phe Asn Arg Gly Glu Cys
225                 230
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<210> 234
<211> 112
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 234
ataagaatgc ggccgcctca ccatgggatg gagctgtatc atcctcttct tggtagcaac 60

agctacaggt gtccactccg aaatagtgat gacgcagtct ccagccaccc tg 112

<210> 235
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 235
gccaccgtac gtttgatttc cacgttggtc ccttggccga acgtc 45

<210> 236
<211> 103
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 236
ccggaattcc tcaccatggg atggagctgt atcatcctct tcttggtagc aacagctaca 60

ggtgtccact cccaggtgca gctacagcag tggggcgcag gac 103

<210> 237
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 237
ggaggctgag ctgacggtga ccagggttcc ctggccccag tggtc 45

<210> 238
<211> 352
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 238
caggtgcagt tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60

acctgcactg tctctggtgc ctccatcagt cattactact ggagctggat ccggcagccc 120

gccgggaagg gactggaatg gattgggcgt atctatatca gtgggaggac cagctacaac 180

ccctccctca agagtcgagt caccgtgtca gtagacacgt ccaagaacca gttctccctg 240

aagctgagct ctgtgaccgc cgcggacacg gccgtgtatt actgtgcgag agatcggcta 300

actgggtact ttgactactg gggccaggga accctggtca ccgtctcctc ag 352

<210> 239
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 239

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 Ala Ser Ile Ser His Tyr
20 25 30

Tyr Trp Ser Trp Ile Arg Gln Pro Ala Gly Lys Gly Leu Glu Trp Ile
35 40 45

Gly Arg Ile Tyr Ile Ser Gly Arg Thr Ser Tyr Asn Pro Ser Leu Lys
50 55 60

Ser Arg Val Thr Val 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 Ala
85 90 95

Arg Asp Arg Leu Thr Gly Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 240
<211> 322
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 240
gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60

ctctcctgca gggccagtca gagtgttagc agcagctact tagcctggta ccagcagaaa 120

cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccgc tggcatccca 180

gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240

cctgaagatt ttgcagtgta ttactgtcag cagtatggta gctccctcac tttcggcgga 300

gggaccaagg tggagatcaa ac 322

<210> 241
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 241

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 Ala 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 Leu
85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105

<210> 242
<211> 353
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 242
caggtgcagt tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60

acctgcactg tctctggtgc ctccatcagt cattactact ggagctggat ccggcagccc 120

gccgggaagg gactggaatg gattgggcgt atctatatca gtgggaggac cagctacaac 180

ccctccctca agagtcgagt caccgtgtca gtagacacgt ccaagaacca gttctccctg 240

aagctgagct ctgtgaccgc cgcggacacg gccgtgtatt actgtgcgag agatcggcta 300

actgggtact ttgactactg gggccaggga accctggtca ccgtctcctc agc 353

<210> 243
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 243

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 Ala Ser Ile Ser His Tyr
20 25 30

Tyr Trp Ser Trp Ile Arg Gln Pro Ala Gly Lys Gly Leu Glu Trp Ile
35 40 45

Gly Arg Ile Tyr Ile Ser Gly Arg Thr Ser Tyr Asn Pro Ser Leu Lys
50 55 60

Ser Arg Val Thr Val 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 Ala
85 90 95

Arg Asp Arg Leu Thr Gly Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 244
<211> 329
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 244
gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60

ctctcctgca gggccagtca gagtgttagc agcagctact tagcctggta ccagcagaaa 120

cctggccagg ctcccaggct cctcatctat ggtacatcca gcagggccac tggcatccca 180

gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240

cctgaagact ttgcagtgta ttactgtcag cagtatggta gctcacccat gtgcagtttt 300

ggccagggga ccaagctgga gatcaaacg 329

<210> 245
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 245

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 Thr 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

Met Cys Ser Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 246
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 246
gaggtgcagc tgttggagtc tgggggaggc ttggtacagc ctgggggtc cctgagactc 60

tcctgtgcag cctctggatt cacctttagc cgctatgcca tgaactgggt ccgccaggct 120

ccagggaagg ggctggagtg ggtctcaggt attagtggta gtggtggtag cacatactac 180

gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240

ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcgc 300

gatttttgga gtggtccatt tgactactgg ggccagggaa ccctggtcac cgtctcctca 360

gc 362

<210> 247
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 247

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 Arg Tyr
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Gly 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 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 Arg Asp Phe Trp Ser Gly Pro Phe Asp Tyr Trp Gly Gln
100 105 110

Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 248
<211> 323
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 248
gaaatagtga tgacgccgtc ttcagccacc ctgtctgtgt ctccagggga aagagccacc 60

ctctcctgta gggccagtca gagtgttagt agaagcttag cctggtacca gcagaaacct 120

ggccaggctc ccaggctcct catctacggt gcatccacca gggccactgg gatcccagcc 180

aggttcagtg gcagtgggtc tgggacagaa ttcactctca ccatcagcag cctgcagtct 240

gaagatgttg cagtttatta ctgtcagcag tataataact ggatgtgcag ttttggccag 300

gggaccaagc tggagatcaa acg 323

<210> 249
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 249

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Arg Ser
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 Val Ala Val Tyr Tyr Cys Gln Gln Tyr Asn Asn Trp Met Cys
85 90 95

Ser Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 250
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 250
cattactact ggagc 15

<210> 251
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 251

His Tyr Tyr Trp Ser
1 5

<210> 252
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 252
cgtatctata tcagtgggag gaccagctac aacccctccc tcaagagt 48

<210> 253
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 253

Arg Ile Tyr Ile Ser Gly Arg Thr Ser Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 254
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 254
gatcggctaa ctgggtactt tgactac 27

<210> 255
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 255

Asp Arg Leu Thr Gly Tyr Phe Asp Tyr
1 5

<210> 256
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 256
agggccagtc agagtgttag cagcagctac ttagcc 36

<210> 257
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 257

Arg Ala Ser Gln Ser Val Ser Ser Ser Tyr Leu Ala
1 5 10

<210> 258
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 258
ggtgcatcca gcagggccgc t 21

<210> 259
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 259

Gly Ala Ser Ser Arg Ala Ala
1 5

<210> 260
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 260
cagcagtatg gtagctccct cact 24

<210> 261
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 261

Gln Gln Tyr Gly Ser Ser Leu Thr
1 5

<210> 262
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 262
cattactact ggagc 15

<210> 263
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 263

His Tyr Tyr Trp Ser
1 5

<210> 264
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 264
cgtatctata tcagtgggag gaccagctac aacccctccc tcaagagt 48

<210> 265
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 265

Arg Ile Tyr Ile Ser Gly Arg Thr Ser Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 266
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 266
gatcggctaa ctgggtactt tgactac 27

<210> 267
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 267

Asp Arg Leu Thr Gly Tyr Phe Asp Tyr
1 5

<210> 268
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 268
agggccagtc agagtgttag cagcagctac ttagcc 36

<210> 269
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 269

Arg Ala Ser Gln Ser Val Ser Ser Ser Tyr Leu Ala
1 5 10

<210> 270
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 270
ggtacatcca gcagggccac t 21

<210> 271
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 271

Gly Thr Ser Ser Arg Ala Thr
1 5

<210> 272
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 272
cagcagtatg gtagctcacc catgtgcagt 30

<210> 273
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 273

Gln Gln Tyr Gly Ser Ser Pro Met Cys Ser
1 5 10

<210> 274
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 274
cgctatgcca tgaac 15

<210> 275
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 275

Arg Tyr Ala Met Asn
1 5

<210> 276
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 276
ggtattagtg gtagtggtgg tagcacatac tacgcagact ccgtgaaggg c 51

<210> 277
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 277

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

Gly

<210> 278
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 278
gatcgcgatt tttggagtgg tccatttgac tac 33

<210> 279
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 279

Asp Arg Asp Phe Trp Ser Gly Pro Phe Asp Tyr
1 5 10

<210> 280
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 280
agggccagtc agagtgttag tagaagctta gcc 33

<210> 281
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 281

Arg Ala Ser Gln Ser Val Ser Arg Ser Leu Ala
1 5 10

<210> 282
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 282
ggtgcatcca ccagggccac t 21

<210> 283
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 283

Gly Ala Ser Thr Arg Ala Thr
1 5

<210> 284
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 284
cagcagtata ataactggat gtgcagt 27

<210> 285
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 285

Gln Gln Tyr Asn Asn Trp Met Cys Ser
1 5

<210> 286
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 286
caggtgcagc tacagcagtg gggcgcagga ctgttgaagc cttcggagac cctgtccctc 60

acctgcgctg tctttggtgg gtccttcagt ggttactact ggagctggat ccgccagccc 120

ccagggaagg ggctggagtg gattggggaa atcaatcatc gtggaaacac caacgacaac 180

ccgtccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttcgccctg 240

aagctgagtt ctgtgaccgc cgcggacacg gctgtttatt actgtgcgag agaacgtgga 300

tacacctatg gtaactttga ccactggggc cagggaaccc tggtcaccgt ctcctca 357

<210> 287
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 287

Gln Val Gln Leu Gln Gln Trp Gly Ala Gly Leu Leu Lys Pro Ser Glu
1 5 10 15

Thr Leu Ser Leu Thr Cys Ala Val Phe Gly Gly Ser Phe Ser Gly Tyr
20 25 30

Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45

Gly Glu Ile Asn His Arg Gly Asn Thr Asn Asp Asn Pro Ser Leu Lys
50 55 60

Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ala 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 Glu Arg Gly Tyr Thr Tyr Gly Asn Phe Asp His Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 288
<211> 315
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 288
gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60

ctctcctgca gggccagtca gagtgttagc agcaggtact tagcctggta ccagcagaaa 120

cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcacccca 180

gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240

cctgaagatt ttgcagtgta tttctgtcag cagtatgaaa ggtcattcac tttcggccct 300

gggaccaaag tggat 315

<210> 289
<211> 105
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 289

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 Arg
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 Thr 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 Phe Cys Gln Gln Tyr Glu Arg Ser Phe
85 90 95

Thr Phe Gly Pro Gly Thr Lys Val Asp
100 105

<210> 290
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 290
ggttactact ggagc 15

<210> 291
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 291

Gly Tyr Tyr Trp Ser
1 5

<210> 292
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 292
gaaatcaatc atcgtggaaa caccaacgac aacccgtccc tcaag 45

<210> 293
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 293

Glu Ile Asn His Arg Gly Asn Thr Asn Asp Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 294
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 294
gaacgtggat acacctatgg taactttgac cac 33

<210> 295
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 295

Glu Arg Gly Tyr Thr Tyr Gly Asn Phe Asp His
1 5 10

<210> 296
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 296
agggccagtc agagtgttag cagcaggtac ttagcct 37

<210> 297
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 297

Arg Ala Ser Gln Ser Val Ser Ser Arg Tyr Leu Ala
1 5 10

<210> 298
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 298
ggtgcatcca gcagggccac tg 22

<210> 299
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 299

Gly Ala Ser Ser Arg Ala Thr
1 5

<210> 300
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 300
cagcagtatg aaaggtcatt cactt 25

<210> 301
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 301

Gln Gln Tyr Glu Arg Ser Phe Thr
1 5

<210> 302
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic consensus sequence

<220>
<221> MOD_RES
<222> (1)..(3)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (4)..(4)
<223> Met or Trp

<220>
<221> MOD_RES
<222> (5)..(5)
<223> Ser or Asn

<400> 302

Xaa Xaa Xaa Xaa Xaa
1 5

<210> 303
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic consensus sequence

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (3)..(4)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (7)..(7)
<223> Any amino acid or not present

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Thr or Ile

<220>
<221> MOD_RES
<222> (10)..(10)
<223> Tyr, Thr, or Ser

<220>
<221> MOD_RES
<222> (11)..(12)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (13)..(13)
<223> Leu or Val

<220>
<221> MOD_RES
<222> (15)..(15)
<223> Ser or Gly

<400> 303

Xaa Ile Xaa Xaa Ser Gly Xaa Xaa Xaa Xaa Xaa Xaa Xaa Lys Xaa
1 5 10 15

<210> 304
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic consensus sequence

<220>
<221> MOD_RES
<222> (1)..(6)
<223> Any amino acid and this region may encompass 4 to 6 residues

<220>
<221> MOD_RES
<222> (8)..(10)
<223> Any amino acid and this region may encompass 2 to 3 residues

<400> 304

Xaa Xaa Xaa Xaa Xaa Xaa Gly Xaa Xaa Xaa Asp Tyr
1 5 10

<210> 305
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic consensus sequence

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Arg or Lys

<220>
<221> MOD_RES
<222> (2)..(2)
<223> Ala or Ser

<220>
<221> MOD_RES
<222> (6)..(6)
<223> Val or Leu

<220>
<221> MOD_RES
<222> (7)..(7)
<223> Ser or Leu

<220>
<221> MOD_RES
<222> (8)..(16)
<223> Any amino acid and this region may encompass 5 to 9 residues

<400> 305

Xaa Xaa Ser Gln Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

<210> 306
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic consensus sequence

<220>
<221> MOD_RES
<222> (1)..(2)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (4)..(4)
<223> Any amino acid

<220>
<221> MOD_RES
<222> (6)..(7)
<223> Any amino acid

<400> 306

Xaa Xaa Ser Xaa Arg Xaa Xaa
1 5

<210> 307
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic consensus sequence

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Gln, His, or Met

<220>
<221> MOD_RES
<222> (3)..(3)
<223> Tyr or Ser

<220>
<221> MOD_RES
<222> (4)..(10)
<223> Any amino acid and this region may encompass 5 to 7 residues

<400> 307

Xaa Gln Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 308
<211> 702
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 308
atgggatgga gctgtatcat cctcttcttg gtagcaacag ctacaggtgt ccactccgaa 60

atagtgatga cgcagtctcc agccaccctg tctgtgtctc caggggaaag agccaccctc 120

tcctgcaggg ccagtcagag tgttagcaga aacttagcct ggtatcagca gaaacctggc 180

caggctccca ggctcctcat ctatggtgca tccaccaggg ccactggaat cccagccagg 240

ttcagtggca gtgggtctgg gacagagttc actctcacca tcggcagcct gcagtctgaa 300

gattttgcag tttattactg tcagcagtat aaaacctggc ctcggacgtt cggccaaggg 360

accaacgtgg aaatcaaacg tacggtggct gcaccatctg tcttcatctt cccgccatct 420

gatgagcagt tgaaatctgg aactgcctct gttgtgtgcc tgctgaataa cttctatccc 480

agagaggcca aagtacagtg gaaggtggat aacgccctcc aatcgggtaa ctcccaggag 540

agtgtcacag agcaggacag caaggacagc acctacagcc tcagcagcac cctgaccctg 600

agcaaagcag actacgagaa acacaaagtc tacgcctgcg aagtcaccca tcagggcctg 660

agctcgcccg tcacaaagag cttcaacagg ggagagtgtt ag 702

<210> 309
<211> 1407
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 309
atgggatgga gctgtatcat cctcttcttg gtagcaacag ctacaggtgt ccactcccag 60

gtgcagctac agcagtgggg cgcaggactg ttgaagcctt cggagaccct gtccctcacc 120

tgcgctgtct ttggtgggtc tttcagtggt tactactgga gctggatccg ccagccccca 180

gggaaggggc tggagtggat tggggaaatc aatcatcgtg gaaacaccaa cgacaacccg 240

tccctcaaga gtcgagtcac catatcagta gacacgtcca agaaccagtt cgccctgaag 300

ctgagttctg tgaccgccgc ggacacggct gtttattact gtgcgagaga acgtggatac 360

acctatggta actttgacca ctggggccag ggaaccctgg tcaccgtcag ctcagcctcc 420

accaagggcc catcggtctt ccccctggca ccctcctcca agagcacctc tgggggcaca 480

gcggccctgg gctgcctggt caaggactac ttccccgaac cggtgacggt gtcgtggaac 540

tcaggcgccc tgaccagcgg cgtgcacacc ttcccggctg tcctacagtc ctcaggactc 600

tactccctca gcagcgtggt gaccgtgccc tccagcagct tgggcaccca gacctacatc 660

tgcaacgtga atcacaagcc cagcaacacc aaggtggaca agaaagttga gcccaaatct 720

tgtgacaaaa ctcacacatg cccaccgtgc ccagcacctg aactcctggg gggaccgtca 780

gtcttcctct tccccccaaa acccaaggac accctcatga tctcccggac ccctgaggtc 840

acatgcgtgg tggtggacgt gagccacgaa gaccctgagg tcaagttcaa ctggtacgtg 900

gacggcgtgg aggtgcataa tgccaagaca aagccgcggg aggagcagta caacagcacg 960

taccgtgtgg tcagcgtcct caccgtcctg caccaggact ggctgaatgg caaggagtac 1020

aagtgcaagg tctccaacaa agccctccca gcccccatcg agaaaaccat ctccaaagcc 1080

aaagggcagc cccgagaacc acaggtgtac accctgcccc catcccggga tgagctgacc 1140

aagaaccagg tcagcctgac ctgcctggtc aaaggcttct atcccagcga catcgccgtg 1200

gagtgggaga gcaatgggca gccggagaac aactacaaga ccacgcctcc cgtgctggac 1260

tccgacggct ccttcttcct ctacagcaag ctcaccgtgg acaagagcag gtggcagcag 1320

gggaacgtct tctcatgctc cgtgatgcat gaggctctgc acaaccacta cacgcagaag 1380

agcctctccc tgtctccggg taaataa 1407

<210> 310
<211> 1410
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 310
atggagtttg ggctgagctg gctttttctt gtggctattt taaaaggtgt ccagtgtgag 60

gtgcagctgt tggagtctgg gggaggcttg gtacagcctg gggggtccct gagactctcc 120

tgtgcagcct ctggattcac ctttagccgc tatgccatga actgggtccg ccaggctcca 180

gggaaggggc tggagtgggt ctcaggtatt agtgggagtg gtggtaggac atactacgca 240

gactccgtga agggccggtt caccatctcc agagacaatt ccaagaacac actatatctg 300

caaatgaaca gcctgagagc cgaggacacg gccgtatatt actgtgcgaa agatcgcgat 360

ttttggagtg gtccatttga ctactggggc cagggaaccc tggtcaccgt cagctcagcc 420

tccaccaagg gcccatcggt cttccccctg gcaccctcct ccaagagcac ctctgggggc 480

acagcggccc tgggctgcct ggtcaaggac tacttccccg aaccggtgac ggtgtcgtgg 540

aactcaggcg ccctgaccag cggcgtgcac accttcccgg ctgtcctaca gtcctcagga 600

ctctactccc tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac ccagacctac 660

atctgcaacg tgaatcacaa gcccagcaac accaaggtgg acaagaaagt tgagcccaaa 720

tcttgtgaca aaactcacac atgcccaccg tgcccagcac ctgaactcct gggggggaccg 780

tcagtcttcc tcttcccccc aaaacccaag gacaccctca tgatctcccg gacccctgag 840

gtcacatgcg tggtggtgga cgtgagccac gaagaccctg aggtcaagtt caactggtac 900

gtggacggcg tggaggtgca taatgccaag acaaagccgc gggaggagca gtacaacagc 960

acgtaccgtg tggtcagcgt cctcaccgtc ctgcaccagg actggctgaa tggcaaggag 1020

tacaagtgca aggtctccaa caaagccctc ccagccccca tcgagaaaac catctccaaa 1080

gccaaagggc agccccgaga accacaggtg tacaccctgc ccccatcccg ggatgagctg 1140

accaagaacc aggtcagcct gacctgcctg gtcaaaggct tctatcccag cgacatcgcc 1200

gtggagtggg agagcaatgg gcagccggag aacaactaca agaccacgcc tcccgtgctg 1260

gactccgacg gctccttctt cctctacagc aagctcaccg tggacaagag caggtggcag 1320

caggggaacg tcttctcatg ctccgtgatg catgaggctc tgcacaacca ctacacgcag 1380

aagagcctct ccctgtctcc gggtaaataa 1410

<210> 311
<211> 705
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 311
atgaggctcc ctgctcagct tctcttcctc ctgctactct ggctcccaga taccactgga 60

gaaatagtga tgacgccgtc ttcagccacc ctgtctgtgt ctccagggga gagagccacc 120

ctctcctgca gggccagtca gagtgttagt agaaacttag cctggtacca gcagaaacct 180

ggccaggctc ccaggctcct catctatggt gcatccacca gggccactgg tatcccagcc 240

aggttcagtg gcagtgggtc tgggacagaa ttcactctca ccatcagcag cctgcagtct 300

gaagattttg cagtttatta ctgtcaccag tatagtaact ggatgtgcag ttttggccag 360

gggaccaagc tggagatcaa acgtacggtg gctgcaccat ctgtcttcat cttcccgcca 420

tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 480

cccagagagg ccaaagtaca gtggaaggtg gataacgccc tccaatcggg taactcccag 540

gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacc 600

ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 660

ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag 705

<210> 312
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<220>
<221> MOD_RES
<222> (2)..(2)
<223> Leu or Val

<220>
<221> MOD_RES
<222> (4)..(4)
<223> Ser or Gly

<400> 312

Ser Xaa Lys Xaa
1

<210> 313
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys or Arg

<220>
<221> MOD_RES
<222> (2)..(2)
<223> Ala or Ser

<220>
<221> MOD_RES
<222> (6)..(6)
<223> Val or Leu

<220>
<221> MOD_RES
<222> (7)..(7)
<223> Ser or Leu

<400> 313

Xaa Xaa Ser Gln Ser Xaa Xaa
1 5

<210> 314
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 314

Leu Glu Asp Asn Val Thr Ala Pro Asp Tyr
1 5 10

<210> 315
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 315

Arg Asn Leu Thr Phe Glu Gly Tyr Asp Gly Pro Val Thr Leu Asp
1 5 10 15

<210> 316
<211> 18
<212> PRT
<213> Escherichia coli

<400> 316

Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Ala Gly
1 5 10 15

Cys Tyr

<210> 317
<211> 638
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 317

Ser Gln Val Ser Gln Asn Cys His Asn Gly Ser Tyr Glu Ile Ser Val
1 5 10 15

Leu Met Met Gly Asn Ser Ala Phe Ala Glu Pro Leu Lys Asn Leu Glu
20 25 30

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

Ala Gly Leu Asn Val Thr Val Asn Ala Thr Phe Met Tyr Ser Asp Gly
50 55 60

Leu Ile His Asn Ser Gly Asp Cys Arg Ser Ser Thr Cys Glu Gly Leu
65 70 75 80

Asp Leu Leu Arg Lys Ile Ser Asn Ala Gln Arg Met Gly Cys Val Leu
85 90 95

Ile Gly Pro Ser Cys Thr Tyr Ser Thr Phe Gln Met Tyr Leu Asp Thr
100 105 110

Glu Leu Ser Tyr Pro Met Ile Ser Ala Gly Ser Phe Gly Leu Ser Cys
115 120 125

Asp Tyr Lys Glu Thr Leu Thr Arg Leu Met Ser Pro Ala Arg Lys Leu
130 135 140

Met Tyr Phe Leu Val Asn Phe Trp Lys Thr Asn Asp Leu Pro Phe Lys
145 150 155 160

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Thr Tyr Ser Trp Ser Thr Ser Tyr Val Tyr Lys Asn Gly Thr Glu Thr
                165                 170                 175

Glu Asp Cys Phe Trp Tyr Leu Asn Ala Leu Glu Ala Ser Val Ser Tyr
            180                 185                 190

Phe Ser His Glu Leu Gly Phe Lys Val Val Leu Arg Gln Asp Lys Glu
        195                 200                 205

Phe Gln Asp Ile Leu Met Asp His Asn Arg Lys Ser Asn Val Ile Ile
    210                 215                 220

Met Cys Gly Gly Pro Glu Phe Leu Tyr Lys Leu Lys Gly Asp Arg Ala
225                 230                 235                 240

Val Ala Glu Asp Ile Val Ile Ile Leu Val Asp Leu Phe Asn Asp Gln
                245                 250                 255

Tyr Leu Glu Asp Asn Val Thr Ala Pro Asp Tyr Met Lys Asn Val Leu
            260                 265                 270

Val Leu Thr Leu Ser Pro Gly Asn Ser Leu Leu Asn Ser Ser Phe Ser
        275                 280                 285

Arg Asn Leu Ser Pro Thr Lys Arg Asp Phe Ala Leu Ala Tyr Leu Asn
    290                 295                 300

Gly Ile Leu Leu Phe Gly His Met Leu Lys Ile Phe Leu Glu Asn Gly
305                 310                 315                 320

Glu Asn Ile Thr Thr Pro Lys Phe Ala His Ala Phe Arg Asn Leu Thr
                325                 330                 335

Phe Glu Gly Tyr Asp Gly Pro Val Thr Leu Asp Asp Trp Gly Asp Val
            340                 345                 350

Asp Ser Thr Met Val Leu Leu Tyr Thr Ser Val Asp Thr Lys Lys Tyr
        355                 360                 365

Lys Val Leu Leu Thr Tyr Asp Thr His Val Asn Lys Thr Tyr Pro Val
    370                 375                 380

Asp Met Ser Pro Thr Phe Thr Trp Lys Asn Ser Lys Leu Pro Asn Asp
385                 390                 395                 400
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Ile Thr Gly Arg Gly Pro Gln Pro Lys Ser Ser Asp Lys Thr His Thr
                405                 410                 415

Cys Pro Pro Cys Pro Ala Pro Glu Leu Ala Gly Ala Pro Ser Val Phe
            420                 425                 430

Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
        435                 440                 445

Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
    450                 455                 460

Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
465                 470                 475                 480

Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
                485                 490                 495

Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys
            500                 505                 510

Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
        515                 520                 525

Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
    530                 535                 540

Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val
545                 550                 555                 560

Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
                565                 570                 575

Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
            580                 585                 590

Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
        595                 600                 605

Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
    610                 615                 620

Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
625                 630                 635
```

<210> 318
<211> 707
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 318

Ser Gln Val Ser Gln Asn Cys His Asn Gly Ser Tyr Glu Ile Ser Val
1 5 10 15

Leu Met Met Gly Asn Ser Ala Phe Ala Glu Pro Leu Lys Asn Leu Glu
20 25 30

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

Ala Gly Leu Asn Val Thr Val Asn Ala Thr Phe Met Tyr Ser Asp Gly
50 55 60

Leu Ile His Asn Ser Gly Asp Cys Arg Ser Ser Thr Cys Glu Gly Leu
65 70 75 80

Asp Leu Leu Arg Lys Ile Ser Asn Ala Gln Arg Met Gly Cys Val Leu
85 90 95

Ile Gly Pro Ser Cys Thr Tyr Ser Thr Phe Gln Met Tyr Leu Asp Thr
100 105 110

Glu Leu Ser Tyr Pro Met Ile Ser Ala Gly Ser Phe Gly Leu Ser Cys
115 120 125

Asp Tyr Lys Glu Thr Leu Thr Arg Leu Met Ser Pro Ala Arg Lys Leu
130 135 140

Met Tyr Phe Leu Val Asn Phe Trp Lys Thr Asn Asp Leu Pro Phe Lys
145 150 155 160

Thr Tyr Ser Trp Ser Thr Ser Tyr Val Tyr Lys Asn Gly Thr Glu Thr
165 170 175

Glu Asp Cys Phe Trp Tyr Leu Asn Ala Leu Glu Ala Ser Val Ser Tyr
180 185 190

Phe Ser His Glu Leu Gly Phe Lys Val Val Leu Arg Gln Asp Lys Glu
195 200 205

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Phe Gln Asp Ile Leu Met Asp His Asn Arg Lys Ser Asn Val Ile Ile
    210                 215                 220

Met Cys Gly Gly Pro Glu Phe Leu Tyr Lys Leu Lys Gly Asp Arg Ala
225                 230                 235                 240

Val Ala Glu Asp Ile Val Ile Ile Leu Val Asp Leu Phe Asn Asp Gln
                245                 250                 255

Tyr Leu Glu Asp Asn Val Thr Ala Pro Asp Tyr Met Lys Asn Val Leu
            260                 265                 270

Val Leu Thr Leu Ser Pro Gly Asn Ser Leu Leu Asn Ser Ser Phe Ser
        275                 280                 285

Arg Asn Leu Ser Pro Thr Lys Arg Asp Phe Ala Leu Ala Tyr Leu Asn
    290                 295                 300

Gly Ile Leu Leu Phe Gly His Met Leu Lys Ile Phe Leu Glu Asn Gly
305                 310                 315                 320

Glu Asn Ile Thr Thr Pro Lys Phe Ala His Ala Phe Arg Asn Leu Thr
                325                 330                 335

Phe Glu Gly Tyr Asp Gly Pro Val Thr Leu Asp Asp Trp Gly Asp Val
            340                 345                 350

Asp Ser Thr Met Val Leu Leu Tyr Thr Ser Val Asp Thr Lys Lys Tyr
        355                 360                 365

Lys Val Leu Leu Thr Tyr Asp Thr His Val Asn Lys Thr Tyr Pro Val
    370                 375                 380

Asp Met Ser Pro Thr Phe Thr Trp Lys Asn Ser Lys Leu Pro Asn Asp
385                 390                 395                 400

Ile Thr Gly Arg Gly Pro Gln Pro Lys Ser Ser Asp Lys Thr His Thr
                405                 410                 415

Cys Pro Pro Cys Pro Ala Pro Glu Leu Ala Gly Ala Pro Ser Val Phe
            420                 425                 430

Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
        435                 440                 445

Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
    450                 455                 460
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Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
465                 470                 475                 480

Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
                485                 490                 495

Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys
            500                 505                 510

Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
        515                 520                 525

Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
    530                 535                 540

Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val
545                 550                 555                 560

Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
                565                 570                 575

Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
            580                 585                 590

Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
        595                 600                 605

Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
    610                 615                 620

Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Leu Asp Leu
625                 630                 635                 640

Asp Asp Val Cys Ala Glu Ala Gln Asp Gly Glu Leu Asp Gly Leu Trp
                645                 650                 655

Thr Thr Ile Thr Ile Phe Ile Ser Leu Phe Leu Leu Ser Val Cys Tyr
            660                 665                 670

Ser Ala Ser Val Thr Leu Phe Lys Val Lys Trp Ile Phe Ser Ser Val
        675                 680                 685

Val Glu Leu Lys Gln Thr Ile Ser Pro Asp Tyr Arg Asn Met Ile Gly
    690                 695                 700

Gln Gly Ala
705
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Gly Phe Leu Gly
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