

SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.

<120> Human Antibodies to Ebola Virus
Glycoprotein

<130> 10139WO01

<150> 62/107,581

<151> 2015-01-26

<150> 62/161,356

<151> 2015-05-14

<150> 62/245,703

<151> 2015-10-23

<160> 318

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 342

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 1

```
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgactg tctctggtgg ctccatcagc agtagtagtt actactgggg ctggatccgc 120
cagcccccag ggaaggggct ggagtggatt gggagtatct attatgatgg ggacacctac 180
tacaaccgt ccctcaagag tcgagtcacc atatccgtag acacgtccaa gaaccagttc 240
tccctgaggc tgagctctgt gaccgcccga gacacggcag tgtattactg tgcgagacag 300
tttgactact ggggccaggg aaccctggtc accgtctcct ca 342
```

<210> 2

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 2

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

				85						90					95				
Cys	Ala	Arg	Gln	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val				
			100					105					110						
Ser	Ser																		

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

<220>
 <223> synthetic

<400> 3
 ggtggctcca tcagcagtag tagttactac

30

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

<220>
 <223> synthetic

Gly	Gly	Ser	Ile	Ser	Ser	Ser	Ser	Tyr	Tyr										
1				5					10										

<210> 5
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 5
 atctattatg atggggacac c

21

<210> 6
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

Ile	Tyr	Tyr	Asp	Gly	Asp	Thr													
1				5															

<210> 7
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
<223> synthetic

<400> 7
gcgagacagt ttgactac

18

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

<220>
<223> synthetic

<400> 8
Ala Arg Gln Phe Asp Tyr
1 5

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

<220>
<223> synthetic

<400> 9
gaaatagtga tgacgcagtc tccagccacc ctgtctgtgt ctccagggga aagagccacc 60
ctctcctgca gggccagtca gagtgttagt agcaacttag cctggtacca gcagaaacct 120
ggccaggctc ccaggctcct catctatggt gcatccacca gggccactgg tatcccagcc 180
agggttcagtg gcagtgggtc tgggacagag ttcactctca ccatcagcag cctgcagtct 240
gaagattttg cagtttatta ctgtcagcag tataaaaact ggccgatcac cttcggccaa 300
gggacacgac tggagattaa a 321

<210> 10
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

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

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

<220>
<223> synthetic

<400> 11
cagagtgtta gtagcaac

18

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

<220>
<223> synthetic

<400> 12
Gln Ser Val Ser Ser Asn
1 5

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

<220>
<223> synthetic

<400> 13
ggtgcatcc

9

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

<220>
<223> synthetic

<400> 14
Gly Ala Ser
1

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

<220>
<223> synthetic

<400> 15

cagcagtata aaaactggcc gatcacc

27

<210> 16

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 16

Gln Gln Tyr Lys Asn Trp Pro Ile Thr

1

5

<210> 17

<211> 354

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 17

gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctgggggggtc cctgagactc 60
tcctgtgcag cctctggatt caccttcagt agctacgaca tgcactgggt ccgccaagct 120
acaggaaaag gtctggagtg ggtctcagct attggtactg ctggtgacac atactatcca 180
ggctccgtga agggccgatt caccatctcc agagaaaatg ccaaaaactc cttgtatctt 240
caaatgaaca gcctgagagc cggggacacg gctgtgtatt actgtgcaag aacatgggtc 300
ggggagcttt actttgacta ctgggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 18

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 18

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

<210> 19

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

 <220>
 <223> synthetic

 <400> 19
 ggattcacct tcagtagcta cgac 24

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

 <220>
 <223> synthetic

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

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

 <220>
 <223> synthetic

 <400> 21
 attggtactg ctggtgacac a 21

 <210> 22
 <211> 7
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 22
 Ile Gly Thr Ala Gly Asp Thr
 1 5

 <210> 23
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 23
 gcaagaacat gggtcgggga gctttacttt gactac 36

 <210> 24

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

<220>
 <223> synthetic

<400> 24
 Ala Arg Thr Trp Phe Gly Glu Leu Tyr Phe Asp Tyr
 1 5 10

<210> 25
 <211> 339
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 25
 gacatcgtga tgaccagtc tccagactcc ctggctgtgt ctctgggcga gagggccacc 60
 atcaactgca agtccagcca gagtgtttta tacagctcca acaataagaa ctacttagct 120
 tgggtaccagc agaaaccagg acagcctcct aagctgctca tttactgggc atctaccgg 180
 gaatccggggg tccctgaccg attcagtggc agcgggtctg ggacagaatt cactctcacc 240
 atcaccagcc tgcaggctga agatgtggca gtttattact gtcagcaata ttatagtagt 300
 ccgctcactt tcggcggagg gaccaaggtg gagatcaaa 339

<210> 26
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

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

<210> 27
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
<223> synthetic

<400> 27
cagagtgttt tatacagctc caacaataag aactac

36

<210> 28
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 28
Gln Ser Val Leu Tyr Ser Ser Asn Asn Lys Asn Tyr
1 5 10

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

<220>
<223> synthetic

<400> 29
tgggcatct

9

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

<220>
<223> synthetic

<400> 30
Trp Ala Ser
1

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

<220>
<223> synthetic

<400> 31
cagcaatatt atagtagtcc gctcact

27

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

<220>
<223> synthetic

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

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

<220>
<223> synthetic

<400> 33
gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctgggggggtc cctgagactc 60
tcctgtgcag cctctggatt caccttttagc agctatgcca tgacctgggt ccgccaggct 120
ccaggaagg gctctggagt ggtctcaagt attagtggta gtggtactag cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacactgtat 240
ctgcaaatac acagcctgag agccgaggac acggccctat attactgttc gagagatata 300
tatacctgga acttcctctc actaattggc ggtatggacg tctggggcca agggaccacg 360
gtcacccgtc cctca 375

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

<220>
<223> synthetic

<400> 34
Glu Val Gln Leu Val Glu Ser Gly Gly 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 Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ser Ile Ser Gly Ser Gly Thr 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 Leu Tyr Tyr Cys
85 90 95
Ser Arg Asp Ile Tyr Thr Trp Asn Phe Leu Ser Leu Ile Gly Gly Met
100 105 110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

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

<220>

<223> synthetic

<400> 35

ggattcacct ttagcagcta tgcc

24

<210> 36

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 36

Gly Phe Thr Phe Ser Ser Tyr Ala

1

5

<210> 37

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 37

attagtggta gtggtactag caca

24

<210> 38

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 38

Ile Ser Gly Ser Gly Thr Ser Thr

1

5

<210> 39

<211> 54

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 39

tcgagagata tatatacctg gaacttcctc tcactaattg gcggtatgga cgtc

54

<210> 40

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 40

Ser Arg Asp Ile Tyr Thr Trp Asn Phe Leu Ser Leu Ile Gly Gly Met
1 5 10 15
Asp Val

<210> 41

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 41

gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gggcattaga attgatttag gctggatatca gcagaaacca 120
gggaaagccc ctaaccgcct gatctatgct gcatccagtt tgcaagggtgg ggtcccatca 180
agggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtctacag caaaatagtt acccgtggac gttcggccaa 300
gggaccaagg tggaatcaa a 321

<210> 42

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 42

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

<210> 43

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 43

cagggcatta gaattgat

18

<210> 44

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 44

Gln Gly Ile Arg Ile Asp

1

5

<210> 45

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 45

gctgcatcc

9

<210> 46

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 46

Ala Ala Ser

1

<210> 47

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 47

ctacagcaaa atagttaccc gtggacg

27

<210> 48

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 48

Leu Gln Gln Asn Ser Tyr Pro Trp Thr
 1 5

<210> 49
 <211> 387
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 49
 gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctgggggggtc cctgagactc 60
 tcctgtgcag cctctggatt caccttttagc agctatgcc a tgaactgggt ccgccaggct 120
 ccagggaagg ggctggagtg ggtctcagtt attagtggta gtgggtgggtg gagaaactac 180
 gcagactccg tgaagggccg gatcaccatc tccagagaca attccaagaa cgcgtgtat 240
 ctgcaaataa acaacctgag agccgaggac acggccgtat attattgtgc gaaagatcgg 300
 ggtgcgactt ttggagtggg tattttggga cccccctatt acggtatgga cgtctggggc 360
 caagggacca cggtcaccgt ctctca 387

<210> 50
 <211> 129
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

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

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

<220>
 <223> synthetic

<400> 51

ggattcacct ttagcagcta tgcc

24

<210> 52

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 52

Gly Phe Thr Phe Ser Ser Tyr Ala

1

5

<210> 53

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 53

attagtggta gtggtggttg gaga

24

<210> 54

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 54

Ile Ser Gly Ser Gly Gly Trp Arg

1

5

<210> 55

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 55

gcgaaagatc ggggtgcgac ttttgagtg gttattttgg gaccccccta ttacggtatg 60
gacgtc 66

<210> 56

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 56
 Ala Lys Asp Arg Gly Ala Thr Phe Gly Val Val Ile Leu Gly Pro Pro
 1 5 10 15
 Tyr Tyr Gly Met Asp Val
 20

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

<220>
 <223> synthetic

<400> 57
 gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaagaga cagagtcacc 60
 atcacttgcc gggcaagtca gagcattagc acttatttaa attggtatca gcagaaacca 120
 gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacaggt ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagta tcccgtacac ttttggccag 300
 gggaccaagc tggagatcaa a 321

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

<220>
 <223> synthetic

<400> 58
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Arg
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Thr Tyr
 20 25 30
 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Gly Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Ile Pro Tyr
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105

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

<220>
 <223> synthetic

<400> 59
 cagagcatta gcacttat

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

<220>
<223> synthetic

<400> 60
Gln Ser Ile Ser Thr Tyr
1 5

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

<220>
<223> synthetic

<400> 61
gctgcatcc

9

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

<220>
<223> synthetic

<400> 62
Ala Ala Ser
1

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

<220>
<223> synthetic

<400> 63
caacagagtt acagtatccc gtacact

27

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

<220>
<223> synthetic

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

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

<220>
 <223> synthetic

<400> 65
 gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctgggggggtc cctgagactc 60
 tcctgtgcag cctctggatt cacctctagc agctatgcc tgaactgggt ccgccaggct 120
 ccaggaagg ggctggagtg ggtctcaaca attagtggta tgggtggtag cacatactac 180
 gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
 ctgcaaatac acagcctgag agccgaggac acggccgtat attactgtgc gaaaagggga 300
 tatccccatt cttttgatat ctggggccaa gggacaatgg tcaccgtctc ttca 354

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

<220>
 <223> synthetic

<400> 66
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Ser Ser Ser Tyr
 20 25 30
 Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Thr Ile Ser Gly Met 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 Arg Gly Tyr Pro His Ser Phe Asp Ile Trp Gly Gln Gly Thr
 100 105 110
 Met Val Thr Val Ser Ser
 115

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

<220>
 <223> synthetic

<400> 67
 ggattcacct ctagcagcta tgcc 24

<210> 68
 <211> 8
 <212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 68

Gly Phe Thr Ser Ser Ser Tyr Ala
1 5

<210> 69

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 69

attagtggta tgggtggtag caca

24

<210> 70

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 70

Ile Ser Gly Met Gly Gly Ser Thr
1 5

<210> 71

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 71

gcgaaaagg gatatcccca ttcttttgat atc

33

<210> 72

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 72

Ala Lys Arg Gly Tyr Pro His Ser Phe Asp Ile
1 5 10

<210> 73

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

<220>
 <223> synthetic

<400> 73
 gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
 atcacttgcc gggcaagtca gagcattagc agcttttttaa attggtatca gcagaaacca 120
 gggaaagccc ctaaactcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagta ccctcacctt cggccaaggg 300
 acacgactgg agattaata 318

<210> 74
 <211> 106
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

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

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

<220>
 <223> synthetic

<400> 75
 cagagcatta gcagcttt 18

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

<220>
 <223> synthetic

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

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

<220>
<223> synthetic

<400> 77
gctgcatcc

9

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

<220>
<223> synthetic

<400> 78
Ala Ala Ser
1

<210> 79
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 79
caacagagtt acagtaccct cacc

24

<210> 80
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 80
Gln Gln Ser Tyr Ser Thr Leu Thr
1 5

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

<220>

<223> synthetic

<400> 81

```
gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctgggggggtc cctgagactc 60
tcctgtgcag cctctgaatt caccttttagc agctatgcca tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcagct attagtggta gtagtggtag cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaaaaa gacgctgtat 240
ctacaaatga acagcctgag agtcgaggac acggccgtat attactgtgc gaaagggggg 300
taccgccatt cttttgatat ctgggggccat gggacaatgg tcaccgtctc ttca 354
```

<210> 82

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 82

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

<210> 83

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 83

```
gaattcacct ttagcagcta tgcc
```

24

<210> 84

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 84

```
Glu Phe Thr Phe Ser Ser Tyr Ala
 1           5
```

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

 <220>
 <223> synthetic

 <400> 85
 attagtggta gtagtggttag caca 24

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

 <220>
 <223> synthetic

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

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

 <220>
 <223> synthetic

 <400> 87
 gcgaaagggg ggtaccccca ttcttttgat atc 33

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

 <220>
 <223> synthetic

 <400> 88
 Ala Lys Gly Gly Tyr Pro His Ser Phe Asp Ile
 1 5 10

 <210> 89
 <211> 318
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 89

```

gacatccaga tgaccacagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agcttttttaa attggtatca gcagaaacca 120
gggaaagccc ctaaactcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagtt ccatcacctt cggccaaggg 300
acacgactgg agattaaa 318

```

```

<210> 90
<211> 106
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> synthetic

```

```

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

```

```

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

```

```

<220>
<223> synthetic

```

```

<400> 91
cagagcatta gcagcttt 18

```

```

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

```

```

<220>
<223> synthetic

```

```

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

```

```

<210> 93
<211> 9
<212> DNA

```

<213> Artificial Sequence

<220>

<223> synthetic

<400> 93

gctgcatcc

9

<210> 94

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 94

Ala Ala Ser

1

<210> 95

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 95

caacagagtt acagttccat cacc

24

<210> 96

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 96

Gln Gln Ser Tyr Ser Ser Ile Thr

1

5

<210> 97

<211> 375

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 97

cagggtgcagc tgggtggagtc tggggggaggc gtgggtccagc ctggggaggtc cctgagactc 60
tcctgtgcag cgtctggatt caccttcagt agttatggca tccactgggt ccgccaggct 120
ccaggcaagt ggctggagtg ggtggcattt atatggtttg atggaagtaa taaatactat 180
gcagactccg tgaagggccg attcaccatc tccagagacg attccaagaa cacgctgtat 240
ctgcaaatga acagcctgag agccgaggac acggctgttt attactgtgc gagagatgga 300

gagatTTTTg gAgTgCttAt ttCctctgAt gCttttgAtA tCtggggCcA agggAcAAtg 360
 gTcAcCgtCt cTtCA 375

<210> 98
 <211> 125
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 98
 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 Ile His Trp Val Arg Gln Ala Pro Gly Lys Trp Leu Glu Trp Val
 35 40 45
 Ala Phe Ile Trp Phe Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Asp Gly Glu Ile Phe Gly Val Leu Ile Ser Ser Asp Ala Phe
 100 105 110
 Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
 115 120 125

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

<220>
 <223> synthetic

<400> 99
 ggattCacCt tCagtagtTA tggC 24

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

<220>
 <223> synthetic

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

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

<220>
 <223> synthetic

 <400> 101
 atatggtttg atggaagtaa taaa 24

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

 <220>
 <223> synthetic

 <400> 102
 Ile Trp Phe Asp Gly Ser Asn Lys
 1 5

 <210> 103
 <211> 54
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 103
 gcgagagatg gagagatttt tggagtgcct atttcctctg atgcttttga tatc 54

 <210> 104
 <211> 18
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 104
 Ala Arg Asp Gly Glu Ile Phe Gly Val Leu Ile Ser Ser Asp Ala Phe
 1 5 10 15
 Asp Ile

 <210> 105
 <211> 321
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 105
 gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
 atcacttgcc gggcaagtcg gggcattaga aatgatttag gctggtttca gcagaaacca 120
 gggaaagccc ctaagcgctt gatctatgtt gcatccaatt tgcaaagtgg ggtcccatca 180
 aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240
 gaagattttg caacttatta ctgtctacag cataatagtt acccgatcac cttcggccaa 300

gggacacgac tggagattaa a

321

<210> 106

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 106

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

<210> 107

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 107

cggggcatta gaaatgat

18

<210> 108

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 108

Arg	Gly	Ile	Arg	Asn	Asp
1				5	

<210> 109

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 109
gttgcattcc

9

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

<220>
<223> synthetic

<400> 110
Val Ala Ser
1

<210> 111
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 111
ctacagcata atagttaccc gatcacc

27

<210> 112
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 112
Leu Gln His Asn Ser Tyr Pro Ile Thr
1 5

<210> 113
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 113
gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctgggggggct cctgagactc 60
tcctgtgcag cctctggatt caccttcaga agctacgaca tgcactgggt ccgccaaggt 120
tcaggaaaag gtctggagtg ggtctcagct attggtactg ctggtgacac atactattta 180
ggctccgtga agggccgatt caccatctcc agagaaaatg ccaagaactc cttgtatctt 240
caaataaaca gcctgagagc cggggacacg gctgtgtatt actgtgcaag agcgtgggtc 300
ggggacgtat tcctggacta ctgggggccag ggaaccctgg tcaccgtctc ctca 354

<210> 114
<211> 118
<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 114

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

<210> 115

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 115

ggattcacct tcagaagcta cgac

24

<210> 116

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 116

Gly Phe Thr Phe Arg Ser Tyr Asp
1 5

<210> 117

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 117

attggtactg ctggtgacac a

21

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

<220>
<223> synthetic

<400> 118
Ile Gly Thr Ala Gly Asp Thr
1 5

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

<220>
<223> synthetic

<400> 119
gcaagagcgt gggttcgggga cgtattcctg gactac 36

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

<220>
<223> synthetic

<400> 120
Ala Arg Ala Trp Phe Gly Asp Val Phe Leu Asp Tyr
1 5 10

<210> 121
<211> 318
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 121
gaaatagtga tgacgcagtc tccagccacc ctgtctgtgt ctccagggga aagagccacc 60
ctctcctgca gggccagtc gagtggttag agcaacttag cctggtacca gcagaaacct 120
ggccaggctc ccaggctcct catatatggt gcatccacca gggccactgg tatcccagcc 180
aggttcagtg gcagtgggtc tgggacagag ttcactctca ccatcagcag cctgcagtct 240
gaagattttg caggctatta ctgtcagcag tataataaca ggctgacttt cggcggaggg 300
accaaggtgg agatcaaa 318

<210> 122
<211> 106
<212> PRT
<213> Artificial Sequence

<220>

<223> synthetic

<400> 122

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

<210> 123

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 123

cagagtgtta gcagcaac

18

<210> 124

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 124

Gln	Ser	Val	Ser	Ser	Asn
1					5

<210> 125

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 125

ggtgcatcc

9

<210> 126

<211> 3

<212> PRT

<213> Artificial Sequence

<220>
<223> synthetic

<400> 126
Gly Ala Ser
1

<210> 127
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 127
cagcagtata ataacaggct gact

24

<210> 128
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 128
Gln Gln Tyr Asn Asn Arg Leu Thr
1 5

<210> 129
<211> 381
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 129
gaggtgcagc tgggtggagtc tggggggaggc ttggtccagc ctggaggggc cctgagactc 60
tcctgtgcag cctctggatt caccttcagt gaccactaca tggctctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggttggccgt actagaaaca aagctaatag ttatagcaca 180
gaatatgccg cgtctgtgaa aggcagattc accatctcaa gagatgattc aaagaagtca 240
ctgtatctgc aaatgaacag cctgaaaacc gaggacacgg ccgtgtatta ctgtgctaga 300
gggggggaaa cactatgggt cggggagtc aactacggta tggacgtctg gggccaagg 360
accacgggtca ccgtctcctc a 381

<210> 130
<211> 127
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 130
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

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

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

<220>
 <223> synthetic

<400> 131
 ggattcacct tcagtgacca ctac

24

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

<220>
 <223> synthetic

<400> 132
 Gly Phe Thr Phe Ser Asp His Tyr
 1 5

<210> 133
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 133
 actagaaaca aagctaataag ttatagcaca

30

<210> 134
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 134
 Thr Arg Asn Lys Ala Asn Ser Tyr Ser Thr
 1 5 10

<210> 135
 <211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 135
 gctagagggg gggaaacact atggttcggg gagtccaact acggtatgga cgtc 54

<210> 136
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 136
 Ala Arg Gly Gly Glu Thr Leu Trp Phe Gly Glu Ser Asn Tyr Gly Met
 1 5 10 15
 Asp Val

<210> 137
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 137
 gaaattgtgt tgacgcagtc tccagacacc ctgtctttgt ctccagggga aagagccacc 60
 ctctcctgca gggccagtc gagtgtagc agcacctact tagcctggta ccagcagaaa 120
 cctggccagg ctcccagtc cctcatctat ggtgcatcca gcagggccac tggcatccca 180
 gacaggttca gtggcagcgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
 cctgaagatt ttgcagtgtg ttactgtcag cagtatggta ggtcacctct cactttcggc 300
 ggagggacca aggtggagat caaa 324

<210> 138
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 138
 Glu Ile Val Leu Thr Gln Ser Pro Asp 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	Thr
			20					25					30		
Tyr	Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ala	Pro	Ser	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	Arg	Ser	Pro
				85					90					95	
Leu	Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys				
			100					105							

<210> 139
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 139
 cagagtgtta gcagcaccta c

21

<210> 140
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 140
 Gln Ser Val Ser Ser Thr Tyr
 1 5

<210> 141
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 141
 ggtgcatcc

9

<210> 142
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 142
 Gly Ala Ser

1

<210> 143
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 143
cagcagtatg gtaggtcacc tctcact

27

<210> 144
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 144
Gln Gln Tyr Gly Arg Ser Pro Leu Thr
1 5

<210> 145
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 145
cagggtgcagc tgggtggagtc tggggggaggc gtgggtccagc ctggggaggtc cctgagactc 60
tctctgtgcag cgtctggcctt caccttcaat aactatggca tgcactgggt ccgccaggct 120
ccaggcatgg ggctggagtg ggtggcagtt atatggcacg atggaagtga taaatactat 180
gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaataga acagcctgag agccgaggac acggctgtgt attactgtgc gagaaattgg 300
aacctctttg actactgggg ccaggaacc ctgggtcactg tctcctca 348

<210> 146
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 146
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 Asn Asn Tyr
20 25 30
Gly Met His Trp Val Arg Gln Ala Pro Gly Met Gly Leu Glu Trp Val
35 40 45
Ala Val Ile Trp His Asp Gly Ser Asp 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	Asn	Trp	Asn	Leu	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val
		100						105					110		
Thr	Val	Ser	Ser												
		115													

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

<220>
 <223> synthetic

<400> 147
 ggcttcacct tcaataacta tggc 24

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

<220>
 <223> synthetic

<400> 148
 Gly Phe Thr Phe Asn Asn Tyr Gly
 1 5

<210> 149
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 149
 atatggcacg atggaagtga taaa 24

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

<220>
 <223> synthetic

<400> 150
 Ile Trp His Asp Gly Ser Asp Lys
 1 5

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

<220>
 <223> synthetic

<400> 151
 gcgagaaatt ggaacctctt tgactac

27

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

<220>
 <223> synthetic

<400> 152
 Ala Arg Asn Trp Asn Leu Phe Asp Tyr
 1 5

<210> 153
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 153
 gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagaatcacc 60
 atcacttgcc gggcaagtca gagcatcagc acctatttac attggtatca gcagaaacca 120
 gggaaagccc ctaagctcct gatctatgct gcatccactt tgcagagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agtttcagta cccctccgat aaacttcggc 300
 caagggacca agctggagat caaa 324

<210> 154
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

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

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

<210> 155
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 155
 cagagcatca gcacctat

18

<210> 156
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 156
 Gln Ser Ile Ser Thr Tyr
 1 5

<210> 157
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 157
 gctgcatcc

9

<210> 158
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 158
 Ala Ala Ser
 1

<210> 159
 <211> 30
 <212> DNA
 <213> Artificial Sequence

```

<220>
<223> synthetic

<400> 159
caacagagtt tcagtacccc tccgataaac                                     30

<210> 160
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 160
Gln Gln Ser Phe Ser Thr Pro Pro Ile Asn
1          5          10

<210> 161
<211> 384
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 161
gaggtgcagc tgggtggagtc tggggggaggc ttgggtccagc ctgggggggtc cctgagactc 60
tcctgtgcag cctctaaatt cacctttgac acctttgccca tgagctgggt ccgccaggct 120
ccaggaaggg ggttggaatg ggtctcattt attagtagtt ctgggtgggtc cacagactat 180
gtagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa caccctgtat 240
ctgcaaataga acagcctgcg agccgaggac acggccgtat attactgtgc gaaagaacgg 300
acgatttttg gagtgcttat tctgggcccc gacaactacg gtatggacgt ctggggccaa 360
gggaccacgg tcaccgtctc ctca                                     384

<210> 162
<211> 128
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 162
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1          5          10          15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Lys Phe Thr Phe Asp Thr Phe
20          25          30
Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35          40          45
Ser Phe Ile Ser Ser Ser Gly Gly Arg Thr Asp Tyr Val 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 Glu Arg Thr Ile Phe Gly Val Leu Ile Leu Gly Pro Asp Asn
100         105         110

```

Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

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

<220>
<223> synthetic

<400> 163
aaattcacct ttgacacctt tgcc 24

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

<220>
<223> synthetic

<400> 164
Lys Phe Thr Phe Asp Thr Phe Ala
1 5

<210> 165
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 165
attagtagtt ctggtggtcg caca 24

<210> 166
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

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

<210> 167
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 167
 gcgaaagaac ggacgatttt tggagtgcctt attctgggcc ccgacaacta cggtatggac 60
 gtc 63

<210> 168
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 168
 Ala Lys Glu Arg Thr Ile Phe Gly Val Leu Ile Leu Gly Pro Asp Asn
 1 5 10 15
 Tyr Gly Met Asp Val
 20

<210> 169
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 169
 gacatccaga tgaccagtc tccatcctcc ctgtctgcat ttgtaggaga cagagtcacc 60
 atcacttgcc gggcaagtca gagcattagc acctatTTaa attggtatca gcaaaaacca 120
 gggaaagccc ctaaactcct gatctatgct gcatccagtt tgcaaagtgg ggtctcatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagtg cccctccgat caccttcggc 300
 caagggacac gactggagat taaa 324

<210> 170
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

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

<210> 171
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 171
cagagcatta gcacctat

18

<210> 172
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

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

<210> 173
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 173
gctgcatcc

9

<210> 174
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 174
Ala Ala Ser
1

<210> 175
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 175

caacagagtt acagtgcgcc tccgatcacc

30

<210> 176

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 176

Gln	Gln	Ser	Tyr	Ser	Ala	Pro	Pro	Ile	Thr
1				5					10

<210> 177

<211> 384

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 177

caggtacagc	tcagcagtc	aggtccagga	ctggtgaagc	cctcgcagac	cctctcactc	60
acctgtgcc	tctccgggga	cagtgtctct	agcaacattc	ctgcttgga	ctggatcagg	120
cagtcccctt	cgagaggcct	tgagtggctg	ggaaggacat	actacaggtc	caagtggat	180
aatgattatg	cagtatctgt	gaaaagtcca	ataaccatca	atccagacac	atccaagaac	240
cacttctccc	tcagctgaa	ctctgtgact	cccaggagca	cggctgtgta	ttactgtgca	300
agaggaaggg	tctatgacag	gtcttctagg	tacttctacg	ctatggacgt	ctggggccaa	360
gggaccacgg	tcaccgtctc	ctca				384

<210> 178

<211> 128

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 178

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

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

 <220>
 <223> synthetic

 <400> 179
 ggggacagtg tctctagcaa cattcctgct 30

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

 <220>
 <223> synthetic

 <400> 180
 Gly Asp Ser Val Ser Ser Asn Ile Pro Ala
 1 5 10

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

 <220>
 <223> synthetic

 <400> 181
 acatactaca ggtccaagtg gtataat 27

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

 <220>
 <223> synthetic

 <400> 182
 Thr Tyr Tyr Arg Ser Lys Trp Tyr Asn
 1 5

 <210> 183
 <211> 54
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 183
 gcaagaggaa gggctctatga caggctcttct aggtacttct acgctatgga cgtc 54

<210> 184
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 184
 Ala Arg Gly Arg Val Tyr Asp Arg Ser Ser Arg Tyr Phe Tyr Ala Met
 1 5 10 15
 Asp Val

<210> 185
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 185
 gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
 atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
 gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagta attatccgat caccttcggc 300
 caagggacac gactggagat taaa 324

<210> 186
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 186
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
 20 25 30
 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Asn Tyr Pro
 85 90 95
 Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
 100 105

<210> 187
 <211> 18
 <212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 187

cagagcatta gcagctat

18

<210> 188

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 188

Gln Ser Ile Ser Ser Tyr

1

5

<210> 189

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 189

gctgcatcc

9

<210> 190

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 190

Ala Ala Ser

1

<210> 191

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 191

caacagagtt acagtaatta tccgatcacc

30

<210> 192

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 192

Gln	Gln	Ser	Tyr	Ser	Asn	Tyr	Pro	Ile	Thr
1				5					10

<210> 193

<211> 357

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 193

gaggtgcagc	tggtggagtc	tgggggaggc	ttggttcagc	cggggggggtc	cctgagactc	60
tcctgtgcag	cctctggatt	caccttcaga	acctacgaca	tgactgggt	ccgccaagct	120
acaggaaaag	gtctggagt	ggtctcagct	attggtactg	ctggtgacac	atactatcca	180
ggctccgtga	agggccgatt	caccatctcc	agagaaaatg	ccaagaactc	cttgtatctt	240
caaatgaaca	gcctgagagc	cggtgacacg	gctgtgtatt	actgtgcacg	aacgattttt	300
ggagtgggttc	ttacctttga	ctactggggc	caggggaacc	tggtcaccgt	ctcctca	357

<210> 194

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 194

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

<210> 195

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 195
ggattcacct tcagaacctt cgac 24

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

<220>
<223> synthetic

<400> 196
Gly Phe Thr Phe Arg Thr Tyr Asp
1 5

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

<220>
<223> synthetic

<400> 197
attggtactg ctggtgacac a 21

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

<220>
<223> synthetic

<400> 198
Ile Gly Thr Ala Gly Asp Thr
1 5

<210> 199
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 199
gcacgaacga tttttggagt ggttcttacc tttgactac 39

<210> 200
<211> 13
<212> PRT
<213> Artificial Sequence

<220>

<223> synthetic

<400> 200

Ala Arg Thr Ile Phe Gly Val Val Leu Thr Phe Asp Tyr
1 5 10

<210> 201

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 201

gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agctctttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcacagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag acttacagta tccctccgac caccttcggc 300
caagggacca aggtggaaat caaa 324

<210> 202

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 202

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

<210> 203

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 203

cagagcatta gcagctct

18

<210> 204
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 204
Gln Ser Ile Ser Ser Ser
1 5

<210> 205
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 205
gctgcatcc

9

<210> 206
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 206
Ala Ala Ser
1

<210> 207
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 207
caacagactt acagtatccc tccgaccacc

30

<210> 208
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 208
Gln Gln Thr Tyr Ser Ile Pro Pro Thr Thr
1 5 10

<210> 209
 <211> 384
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 209
 gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctgggggggtc cctgagactc 60
 tcctgtgcag cctctggatt caccttttagc aactatgcca tgatctgggt ccgccaggct 120
 ccaggaagg ggctggagtg ggtctcaggt attagtggta gtgggtggcag tatatactac 180
 gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
 ctgcaaatac acagcctgag agccgaggac acggccgtat attactgtgc gaaagaagga 300
 attattagta tggttcgggg acttatcaac tactaccacg gtatggacgt ctggggccaa 360
 gggaccacgg tcaccgtctc ctca 384

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

<220>
 <223> synthetic

<400> 210
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Ala Met Ile 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 Ile 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 Glu Gly Ile Ile Ser Met Val Arg Gly Leu Ile Asn Tyr Tyr
 100 105 110
 His Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120 125

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

<220>
 <223> synthetic

<400> 211
 ggattcacct ttagcaacta tgcc 24

<210> 212
 <211> 8

<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 212
Gly Phe Thr Phe Ser Asn Tyr Ala
1 5

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

<220>
<223> synthetic

<400> 213
attagtggta gtggtggcag tata 24

<210> 214
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 214
Ile Ser Gly Ser Gly Gly Ser Ile
1 5

<210> 215
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 215
gcgaaagaag gaattattag tatggttcgg ggacttatca actactacca cggtatggac 60
gtc 63

<210> 216
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 216
Ala Lys Glu Gly Ile Ile Ser Met Val Arg Gly Leu Ile Asn Tyr Tyr
1 5 10 15
His Gly Met Asp Val

<210> 217
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 217
 gaaattgtgt tgacgcagtc tccagggcacc ctgtctttgt ctccagggga aagagccacc 60
 ctctcctgca gggccagtc gagtggttagc agcagctact tagcctggta ccagcagaaa 120
 cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180
 gacaggttca gtggcagtggt gtctgggaca gacttcactc tcaccatcag cagactggag 240
 cctgaagatt ttgcagtgtta ttactgtcag cagtatggta gctcaccttg gacgttcggc 300
 caagggacca aggtggaaat caaa 324

<210> 218
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

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

<210> 219
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 219
 cagagtgtta gcagcagcta c

21

<210> 220
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
<223> synthetic

<400> 220
Gln Ser Val Ser Ser Ser Tyr
1 5

<210> 221
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 221
ggtgcatcc

9

<210> 222
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 222
Gly Ala Ser
1

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

<220>
<223> synthetic

<400> 223
cagcagtatg gtagctcacc ttggacg

27

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

<220>
<223> synthetic

<400> 224
Gln Gln Tyr Gly Ser Ser Pro Trp Thr
1 5

<210> 225
<211> 360

<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 225
caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctgggggcctc agtgaagggtt 60
tcctgcaagg catctggata caccttcacc agctactata tgcactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gttgggaata atcaacccta gtggtggttag cacaagctac 180
gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac 240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagagaca 300
ggagaagctg gtgaggtttt taactactgg ggccaggga cccaggtcac cgtctcctca 360

<210> 226
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 226
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30
Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Leu
35 40 45
Gly Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe
50 55 60
Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Glu Thr Gly Glu Ala Gly Glu Val Phe Asn Tyr Trp Gly Gln
100 105 110
Gly Thr Gln Val Thr Val Ser Ser
115 120

<210> 227
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 227
ggatacacct tcaccagcta ctat 24

<210> 228
<211> 8
<212> PRT
<213> Artificial Sequence

<220>

<223> synthetic

<400> 228

Gly Tyr Thr Phe Thr Ser Tyr Tyr
1 5

<210> 229

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 229

atcaacccta gtggtggttag caca

24

<210> 230

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 230

Ile Asn Pro Ser Gly Gly Ser Thr
1 5

<210> 231

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 231

gcgagagaga caggagaagc tggtagaggtt tttaactac

39

<210> 232

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 232

Ala Arg Glu Thr Gly Glu Ala Gly Glu Val Phe Asn Tyr
1 5 10

<210> 233

<211> 324

<212> DNA

<213> Artificial Sequence

<220>
 <223> synthetic

<400> 233
 gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
 atcacttgcc gggcaagtca gatcattagc aggtatttaa attggtatca gcataaacca 120
 gggaaagccc ctaaggtcct gatctatgct gcctccactt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
 caagggacac gactggagat taaa 324

<210> 234
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

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

<210> 235
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 235
 cagatcatta gcaggtat 18

<210> 236
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 236
 Gln Ile Ile Ser Arg Tyr
 1 5

<210> 237
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 237
gctgcctcc

9

<210> 238
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 238
Ala Ala Ser
1

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

<220>
<223> synthetic

<400> 239
caacagagtt acagtacccc tccgatacc

30

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

<220>
<223> synthetic

<400> 240
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 241
<211> 381
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 241

```

gaggtgcagc tgggtggagtc tggggggagggc ttggtacagc ctggaggggtc cctgagactc 60
tcctgtgcag cctctggatt caccttcagt agttatgaaa tgaactgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtttcatac attggtagta gtggtcgtgc cacatactac 180
gcagactctg tgaagggccg attcaccatc tccagagaca acgcaaaaaa ctactgtat 240
ctgcaaatac acagcctgag agccgaggac acggctgttt attactgtgc gagaccttcg 300
agcatagcag ctctgttacg gaaccagtac cacttcggta tggacgtctg gggccaaggg 360
accacggtca ccgtctcctc a 381

```

```

<210> 242
<211> 127
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> synthetic

```

```

<400> 242
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1          5          10          15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20          25          30
Glu Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35          40          45
Ser Tyr Ile Gly Ser Ser Gly Arg Ala Thr 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 Pro Ser Ser Ile Ala Ala Leu Leu Arg Asn Gln Tyr His Phe
100         105         110
Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115         120         125

```

```

<210> 243
<211> 24
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> synthetic

```

```

<400> 243
ggattcacct tcagtagtta tgaa 24

```

```

<210> 244
<211> 8
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> synthetic

```

```

<400> 244
Gly Phe Thr Phe Ser Ser Tyr Glu
1          5

```

<210> 245
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 245
attggtagta gtggtcgtgc caca

24

<210> 246
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 246
Ile Gly Ser Ser Gly Arg Ala Thr
1 5

<210> 247
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 247
gcgagacctt cgagcatagc agctctgtta cggaaccagt accacttcgg tatggacgtc 60

<210> 248
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 248
Ala Arg Pro Ser Ser Ile Ala Ala Leu Leu Arg Asn Gln Tyr His Phe
1 5 10 15
Gly Met Asp Val
20

<210> 249
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 249
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattacc agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaggtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaa 324

<210> 250
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 250
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Thr Ser Tyr
20 25 30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr Ala Ala Ser Ser Leu Gln Gly Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
85 90 95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105

<210> 251
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 251
cagagcatta ccagctat 18

<210> 252
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 252
Gln Ser Ile Thr Ser Tyr
1 5

<210> 253
<211> 9

<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 253
gctgcatcc

9

<210> 254
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 254
Ala Ala Ser
1

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

<220>
<223> synthetic

<400> 255
caacagagtt acagtacccc tccgatcacc

30

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

<220>
<223> synthetic

<400> 256
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 257
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 257
caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaagggtt 60
tcctgcaagg catctggata caccttcacc agctactata tgcactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggaata atcaacccta gtggtggtag cacaagctac 180
gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac 240

atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagagata 300
 ggagaagctg gtgaagtttt taactactgg ggccagggaa ccttggtcac cgtctctca 360

<210> 258
 <211> 120
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 258
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
 20 25 30
 Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe
 50 55 60
 Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Glu Ile Gly Glu Ala Gly Glu Val Phe Asn Tyr Trp Gly Gln
 100 105 110
 Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 259
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 259
 ggatacacct tcaccagcta ctat 24

<210> 260
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 260
 Gly Tyr Thr Phe Thr Ser Tyr Tyr
 1 5

<210> 261
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 261
 atcaacccta gtggtggttag caca 24

<210> 262
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 262
 Ile Asn Pro Ser Gly Gly Ser Thr
 1 5

<210> 263
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 263
 gcgagagaga taggagaagc tggatgaagtt ttttaactac 39

<210> 264
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 264
 Ala Arg Glu Ile Gly Glu Ala Gly Glu Val Phe Asn Tyr
 1 5 10

<210> 265
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 265
 gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
 atcacttgcc gggcaagtca gagcattagc aggtatttaa attggtatca gcataaacca 120
 gggaaagccc ctaaggctcct gatctatgct gcatccattt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
 caagggacac gactggagat taaa 324

<210> 266
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

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

<210> 267
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 267
 cagagcatta gcaggtat

18

<210> 268
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 268
 Gln Ser Ile Ser Arg Tyr
 1 5

<210> 269
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 269

gctgcatcc

9

<210> 270

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 270

Ala Ala Ser

1

<210> 271

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 271

caacagagtt acagtacccc tccgatcacc

30

<210> 272

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 272

Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr

1

5

10

<210> 273

<211> 381

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 273

gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctggaggggc cctgagactc 60
tcctgtgcag cctctggatt caccttcagt acttatgaaa tgaactgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtttcatat agtagtagta gtggtagaac catatactac 180
gcagactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctcactgttt 240
ctgcaaatac acagcctgag agccgaggac acggctgttt attactgtgc gagaccttcg 300
agtatagaga ctctgttacg gaatcagtac cactacgggtg tggacgtctg gggccaaggg 360
accacgggtca ccgtctcctc a 381

<210> 274

<211> 127

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 274

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

<210> 275

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 275

ggattcacct tcagtactta tgaa

24

<210> 276

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 276

Gly	Phe	Thr	Phe	Ser	Thr	Tyr	Glu		
1				5					

<210> 277

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 277

agtagtagta gtggtagaac cata

24

<210> 278
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 278
Ser Ser Ser Ser Gly Arg Thr Ile
1 5

<210> 279
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 279
gcgagacctt cgagtataga gactctgtta cggaatcagt accactacgg tgtggacgtc 60

<210> 280
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 280
Ala Arg Pro Ser Ser Ile Glu Thr Leu Leu Arg Asn Gln Tyr His Tyr
1 5 10 15
Gly Val Asp Val
20

<210> 281
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 281
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcaattgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccgta 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaa 324

<210> 282
<211> 108
<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 282

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

<210> 283

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 283

cagagcatta gcagctat

18

<210> 284

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 284

Gln	Ser	Ile	Ser	Ser	Tyr
1				5	

<210> 285

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic

<400> 285

gctgcatcc

9

<210> 286

<211> 3

<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 286
Ala Ala Ser
1

<210> 287
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 287
caacagagtt acagtacccc tccgatcacc

30

<210> 288
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 288
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 289
<211> 384
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 289
gaggtgcagc tgggtggagtc tggggggaggc ttggcacagc ctggagggtc cctgagactc 60
tcctgtgcag cctctggatt caccttcagt agtcatgaaa tgaactgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtttcatac attagtcgta gtggtagaat cataaactac 180
gcagactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctactgtat 240
ctgcaaatac acagcctgag agccgaggac acggctgttt attactgtgc gagagagaga 300
ggctcgtatt acgatatttt gactggttcc caggactacg gtatggacgt ctggggccaa 360
gggaccacgg tcaccgtctc ctca 384

<210> 290
<211> 128
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 290
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Ala Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser His
 20 25 30
 Glu Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Tyr Ile Ser Arg Ser Gly Arg Ile Ile Asn Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Glu Arg Gly Ser Tyr Tyr Asp Ile Leu Thr Gly Ser Gln Asp
 100 105 110
 Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120 125

<210> 291
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 291
 ggattcacct tcagtagtca tgaa

24

<210> 292
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 292
 Gly Phe Thr Phe Ser Ser His Glu
 1 5

<210> 293
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 293
 attagtcgta gtggtagaat cata

24

<210> 294
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
<223> synthetic

<400> 294
Ile Ser Arg Ser Gly Arg Ile Ile
1 5

<210> 295
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 295
gcgagagaga gaggctcgta ttacgatatt ttgactgggt cccaggacta cggtatggac 60
gtc 63

<210> 296
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 296
Ala Arg Glu Arg Gly Ser Tyr Tyr Asp Ile Leu Thr Gly Ser Gln Asp
1 5 10 15
Tyr Gly Met Asp Val
20

<210> 297
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 297
gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gaccattagc acctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagtcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
agggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaa 324

<210> 298
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

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

<210> 299
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 299
 cagaccatta gcacctat

18

<210> 300
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 300
 Gln Thr Ile Ser Thr Tyr
 1 5

<210> 301
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 301
 gctgcatcc

9

<210> 302
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>

<223> synthetic

<400> 302
Ala Ala Ser
1

<210> 303
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 303
caacagagtt acagtacccc tccgatcacc 30

<210> 304
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 304
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 305
<211> 381
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 305
gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctggaggggc cctgagactc 60
tcctgtgcag cctctggatt caccttcagt agttatgaaa tgaactgggt ccgccaggct 120
ccaggaagg ggctggagtg ggtttcatac attagtagta gtggtagtagt caaatactac 180
gcagactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctactgtat 240
ctgcaaatac acagcctgag agccgaggac acggctgttt attactgtgc gagaccttcg 300
agtataccag ctctgttacg gaaccagtac cactacggta tggacgtctg gggccaaggg 360
accacgggtc cgtctctc a 381

<210> 306
<211> 127
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 306
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Ser	Tyr
			20					25					30		
Glu	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
		35					40					45			
Ser	Tyr	Ile	Ser	Ser	Ser	Gly	Ser	Thr	Lys	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	Pro	Ser	Ser	Ile	Pro	Ala	Leu	Leu	Arg	Asn	Gln	Tyr	His	Tyr
			100				105						110		
Gly	Met	Asp	Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	
		115					120					125			

<210> 307
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 307
 ggattcacct tcagtagtta tgaa

24

<210> 308
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 308
 Gly Phe Thr Phe Ser Ser Tyr Glu
 1 5

<210> 309
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 309
 attagtagta gtggtagtag caaa

24

<210> 310
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 310
 Ile Ser Ser Ser Gly Ser Thr Lys
 1 5

<210> 311
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 311
 gcgagacctt cgagtatacc agctctgtta cggaaccagt accactacgg tatggacgtc 60

<210> 312
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 312
 Ala Arg Pro Ser Ser Ile Pro Ala Leu Leu Arg Asn Gln Tyr His Tyr
 1 5 10 15
 Gly Met Asp Val
 20

<210> 313
 <211> 2051
 <212> DNA
 <213> Ebola virus

<400> 313
 gaattcgcca ccatgggctg gaccggcatc ctgcagctgc cccgggacag attcaagcgg 60
 accagcttct tctgtgggt catcatcctg ttccagcgga ccttcagcat cccctgggc 120
 gtgatccaca acagcaccct gcaggtgtcc gacgtggaca agctcgtgtg ccgggacaag 180
 ctgagcagca ccaaccagct gagaagcgtg ggcctgaacc tggaaggcaa tggcgtggcc 240
 accgatgtgc ctagegccac caagagatgg ggcttcagat ccggcgtgcc cccaagggtc 300
 gtgaattatg aggcggcgga gtgggcccag aactgctaca acctggaaat caagaagccc 360
 gacggcagcg agtgccctgc tgctgcccct gatggcatca gaggcttccc ccggtgcaga 420
 tacgtgcaca aggtgtccgg cacaggcccc tgcgctggcg atttcgcctt tcacaaagag 480
 ggcgcctttt tctgtacga ccggctggcc tccaccgtga tctacagagg caccaccttt 540
 gccgagggcg tgggtggcctt tctgatcctg cctcaggcca agaaggactt cttcagcagc 600
 caccctctgc gcgagcctgt gaatgccaca gaggatccca gcagcggcta ctacagcacc 660
 accatcagat accaggccac cggcttcggc accaacgaga cagagtacct gttcgaggtg 720
 gacaacctga cctacgtgca gctggaaagc cggttcacc cccagtttct gctgcagctg 780
 aacgagacaa tctacgccag cggcaagcgg agcaacacca ccggcaagct gatctggaaa 840
 gtgaaccccg agatcgatac cacaatcgga gagtgggcct tctgggagac aaagaagaac 900
 ctgacccgga agatcagaag cgaggaactg agcttcaccg ccgtgtccaa cggccccaag 960
 aacatcagcg gacagagccc cgccagaacc agcagcgacc ccgagacaaa caccaccaat 1020
 gaggaccaca agatcatggc cagcgagaac agcagcgcca tgggtgcaggt gcacagccag 1080
 ggaagaaagg ccgctgtgtc ccacctgacc acctggcca caatctccac cagccctcag 1140
 agcctgacca caaagcctgg ccccgacaac tccaccaca acaccccggt gtacaagctg 1200
 gacatcagcg aggccacaca agtgggccag caccacagaa gggccgacaa cgatagcacc 1260

```

gccagcgata cccctccagc cacaactgct gccggacctc tgaaggccga gaataccaac 1320
accagcaaga gcgcccacag cctggatctg gccaccacca caagccccca gaactactct 1380
gagacagccg gcaacaacaa caccaccac caggataccg gcgaggaaag cgccagctct 1440
ggcaagctgg gactgatcac caacacaatc gccggcgtgg ccggcctgat taccgggggg 1500
agaagaacca gacgggaagt gatcgtgaac gccagccca agtgcaacc caacctgcac 1560
tactggacca cccaggatga gggcgctgct atcggactgg cctggatccc ttactttggc 1620
cctgccgcg agggcatcta caccgaggga ctgatgcaca accaggacgg cctgatctgc 1680
ggactgaggc agctggccaa cgaaaccaca caggctctgc agctgttcct gagagccacc 1740
accgagctga ggaccttctc catcctgaac agaaaggcta tcgacttcct gctgcagcgc 1800
tggggcggca cctgtcacat tctgggccct gactgctgca tcgagcccca cgactggacc 1860
aagaatatca ccgacaagat cgaccagatc atccacgact ttgtggacaa gaccctgccc 1920
gaccagggcg acaatgacaa ctggtggaca ggctggcggc agtggattcc tgccggcatt 1980
ggagtgaccg gcgtgatcat tgccgtgatc gccctgttct gcactctgca gttcgtgttc 2040
tgagcgccg c 2051

```

<210> 314

<211> 676

<212> PRT

<213> Ebola virus

<400> 314

```

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

```

Glu Leu Ser Phe Thr Ala Val Ser Asn Gly Pro Lys Asn Ile Ser Gly
 305 310 315 320
 Gln Ser Pro Ala Arg Thr Ser Ser Asp Pro Glu Thr Asn Thr Thr Asn
 325 330 335
 Glu Asp His Lys Ile Met Ala Ser Glu Asn Ser Ser Ala Met Val Gln
 340 345 350
 Val His Ser Gln Gly Arg Lys Ala Ala Val Ser His Leu Thr Thr Leu
 355 360 365
 Ala Thr Ile Ser Thr Ser Pro Gln Pro Pro Thr Thr Lys Thr Gly Pro
 370 375 380
 Asp Asn Ser Thr His Asn Thr Pro Val Tyr Lys Leu Asp Ile Ser Glu
 385 390 395 400
 Ala Thr Gln Val Gly Gln His His Arg Arg Ala Asp Asn Asp Ser Thr
 405 410 415
 Ala Ser Asp Thr Pro Pro Ala Thr Thr Ala Ala Gly Pro Leu Lys Ala
 420 425 430
 Glu Asn Thr Asn Thr Ser Lys Ser Ala Asp Ser Leu Asp Leu Ala Thr
 435 440 445
 Thr Thr Ser Pro Gln Asn Tyr Ser Glu Thr Ala Gly Asn Asn Asn Thr
 450 455 460
 His His Gln Asp Thr Gly Glu Glu Ser Ala Ser Ser Gly Lys Leu Gly
 465 470 475 480
 Leu Ile Thr Asn Thr Ile Ala Gly Val Ala Gly Leu Ile Thr Gly Gly
 485 490 495
 Arg Arg Thr Arg Arg Glu Val Ile Val Asn Ala Gln Pro Lys Cys Asn
 500 505 510
 Pro Asn Leu His Tyr Trp Thr Thr Gln Asp Glu Gly Ala Ala Ile Gly
 515 520 525
 Leu Ala Trp Ile Pro Tyr Phe Gly Pro Ala Ala Glu Gly Ile Tyr Thr
 530 535 540
 Glu Gly Leu Met His Asn Gln Asp Gly Leu Ile Cys Gly Leu Arg Gln
 545 550 555 560
 Leu Ala Asn Glu Thr Gln Ala Leu Gln Leu Phe Leu Arg Ala Thr
 565 570 575
 Thr Glu Leu Arg Thr Phe Ser Ile Leu Asn Arg Lys Ala Ile Asp Phe
 580 585 590
 Leu Leu Gln Arg Trp Gly Gly Thr Cys His Ile Leu Gly Pro Asp Cys
 595 600 605
 Cys Ile Glu Pro His Asp Trp Thr Lys Asn Ile Thr Asp Lys Ile Asp
 610 615 620
 Gln Ile Ile His Asp Phe Val Asp Lys Thr Leu Pro Asp Gln Gly Asp
 625 630 635 640
 Asn Asp Asn Trp Trp Thr Gly Trp Arg Gln Trp Ile Pro Ala Gly Ile
 645 650 655
 Gly Val Thr Gly Val Ile Ile Ala Val Ile Ala Leu Phe Cys Ile Cys
 660 665 670
 Lys Phe Val Phe
 675

<210> 315
 <211> 676
 <212> PRT
 <213> Ebola virus

<400> 315
 Met Gly Val Thr Gly Ile Leu Gln Leu Pro Arg Asp Arg Phe Lys Arg
 1 5 10 15
 Thr Ser Phe Phe Leu Trp Val Ile Ile Leu Phe Gln Arg Thr Phe Ser

Arg	Arg	Thr	Arg	Arg	Glu	Val	Ile	Val	Asn	Ala	Gln	Pro	Lys	Cys	Asn
			500					505					510		
Pro	Asn	Leu	His	Tyr	Trp	Thr	Thr	Gln	Asp	Glu	Gly	Ala	Ala	Ile	Gly
		515					520					525			
Leu	Ala	Trp	Ile	Pro	Tyr	Phe	Gly	Pro	Ala	Ala	Glu	Gly	Ile	Tyr	Thr
	530					535					540				
Glu	Gly	Leu	Met	His	Asn	Gln	Asp	Gly	Leu	Ile	Cys	Gly	Leu	Arg	Gln
545					550					555					560
Leu	Ala	Asn	Glu	Thr	Thr	Gln	Ala	Leu	Gln	Leu	Phe	Leu	Arg	Ala	Thr
				565					570					575	
Thr	Glu	Leu	Arg	Thr	Phe	Ser	Ile	Leu	Asn	Arg	Lys	Ala	Ile	Asp	Phe
			580					585					590		
Leu	Leu	Gln	Arg	Trp	Gly	Gly	Thr	Cys	His	Ile	Leu	Gly	Pro	Asp	Cys
		595				600						605			
Cys	Ile	Glu	Pro	His	Asp	Trp	Thr	Lys	Asn	Ile	Thr	Asp	Lys	Ile	Asp
	610					615					620				
Gln	Ile	Ile	His	Asp	Phe	Val	Asp	Lys	Thr	Leu	Pro	Asp	Gln	Gly	Asp
625					630					635					640
Asn	Asp	Asn	Trp	Trp	Gly	Trp	Arg	Gln	Trp	Ile	Pro	Ala	Gly	Ile	
				645				650						655	
Gly	Val	Thr	Gly	Val	Ile	Ile	Ala	Val	Ile	Ala	Leu	Phe	Cys	Ile	Cys
			660					665					670		
Lys	Phe	Val	Phe												
			675												

<210> 316
 <211> 364
 <212> PRT
 <213> Ebola virus

<400> 316

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

210		215		220
Phe Gly Thr Asn Glu Thr	Glu Tyr Leu Phe Glu Val Asp Asn Leu Thr			
225	230	235	240	
Tyr Val Gln Leu Glu Ser Arg Phe Thr Pro Gln Phe Leu Leu Gln Leu				
	245	250	255	
Asn Glu Thr Ile Tyr Ala Ser Gly Lys Arg Ser Asn Thr Thr Gly Lys				
	260	265	270	
Leu Ile Trp Lys Val Asn Pro Glu Ile Asp Thr Thr Ile Gly Glu Trp				
	275	280	285	
Ala Phe Trp Glu Thr Lys Lys Thr Ser Leu Glu Lys Phe Ala Val Lys				
	290	295	300	
Ser Cys Leu Ser Gln Leu Tyr Gln Thr Asp Pro Lys Thr Ser Val Val				
305	310	315	320	
Arg Val Arg Arg Glu Leu Leu Pro Thr Gln Arg Pro Thr Gln Gln Met				
	325	330	335	
Lys Thr Thr Lys Ser Trp Leu Gln Lys Ile Pro Leu Gln Trp Phe Lys				
	340	345	350	
Cys Thr Val Lys Glu Gly Lys Leu Gln Cys Arg Ile				
	355	360		

<210> 317
 <211> 360
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> aa 1-332: Zaire_Ebola_GP aa 33 through 364 of
 AHX24650
 aa 333-360: myc-myc-hexahistidine tag

<400> 317

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

Tyr	Val	Gln	Leu	Glu	Ser	Arg	Phe	Thr	Pro	Gln	Phe	Leu	Leu	Gln	Leu
	210					215					220				
Asn	Glu	Thr	Ile	Tyr	Ala	Ser	Gly	Lys	Arg	Ser	Asn	Thr	Thr	Gly	Lys
225					230					235					240
Leu	Ile	Trp	Lys	Val	Asn	Pro	Glu	Ile	Asp	Thr	Thr	Ile	Gly	Glu	Trp
				245					250					255	
Ala	Phe	Trp	Glu	Thr	Lys	Lys	Thr	Ser	Leu	Glu	Lys	Phe	Ala	Val	Lys
			260					265					270		
Ser	Cys	Leu	Ser	Gln	Leu	Tyr	Gln	Thr	Asp	Pro	Lys	Thr	Ser	Val	Val
	275						280					285			
Arg	Val	Arg	Arg	Glu	Leu	Leu	Pro	Thr	Gln	Arg	Pro	Thr	Gln	Gln	Met
	290					295					300				
Lys	Thr	Thr	Lys	Ser	Trp	Leu	Gln	Lys	Ile	Pro	Leu	Gln	Trp	Phe	Lys
305					310					315					320
Cys	Thr	Val	Lys	Glu	Gly	Lys	Leu	Gln	Cys	Arg	Ile	Glu	Gln	Lys	Leu
				325					330					335	
Ile	Ser	Glu	Glu	Asp	Leu	Gly	Gly	Glu	Gln	Lys	Leu	Ile	Ser	Glu	Glu
			340					345					350		
Asp	Leu	His	His	His	His	His	His								
	355						360								

<210> 318

<211> 628

<212> PRT

<213> Artificial Sequence

<220>

<223> aa 1-618: Zaire ebolavirus (strain
H.sapiens-wt/GIN/2014/Kissidougou-C15) GP (aa 33
through 650 (AHX24649.1))
aa 619-628: decahistidine tag

<400> 318

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

