

SEQUENCE LISTING

<110> NOVARTIS AG

<120> ANTIBODY-CYTOKINE ENGRAFTED PROTEINS AND METHODS OF USE FOR IMMUNE RELATED DISORDERS

<130> PAT056491-WO-PCT

<140>

<141>

<150> 62/510,514

<151> 2017-05-24

<160> 121

<170> PatentIn version 3.5

<210> 1

<211> 822

<212> DNA

<213> Homo sapiens

<400> 1

agttccctat cactctcttt aatcactact cacagtaacc tcaactcctg ccacaatgta	60
caggatgcaa ctctgtcttt gcattgcact aagtcttgca cttgtcacia acagtgcacc	120
tacttcaagt tctacaaaga aaacacagct acaactggag catttactgc tggatttaca	180
gatgattttg aatggaatta ataattacaa gaatcccaaa ctcaccagga tgctcacatt	240
taagttttac atgcccaaga aggccacaga actgaaacat cttcagtgtc tagaagaaga	300
actcaaacct ctggaggaag tgctaaattt agctcaaagc aaaaactttc acttaagacc	360
cagggactta atcagcaata tcaacgtaat agttctggaa ctaaagggat ctgaaacaac	420
attcatgtgt gaatatgctg atgagacagc aaccattgta gaatttctga acagatggat	480
taccttttgt caaagcatca tctcaacact gacttgataa ttaagtgtt cccacttaaa	540
acatatcagg ctttctattt atttaaatat ttaaatttta tttttattgt tgaatgtatg	600
gtttgctacc tattgtaact attattctta atcttaaaac tataaatatg gatcttttat	660
gattcttttt gtaagcccta ggggctctaa aatgggtttca cttatttatc ccaaaatatt	720
tattattatg ttgaatgtta aatatagtat ctatgtagat tggttagtaa aactatttaa	780
taaatttgat aaatataaaa aaaaaaaaaa aaaaaaaaaa aa	822

<210> 2
<211> 153
<212> PRT
<213> Homo sapiens

<400> 2
Met Tyr Arg Met Gln Leu Leu Ser Cys Ile Ala Leu Ser Leu Ala Leu
1 5 10 15

Val Thr Asn Ser Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu
20 25 30

Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile
35 40 45

Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe
50 55 60

Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu
65 70 75 80

Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys
85 90 95

Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile
100 105 110

Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala
115 120 125

Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe
130 135 140

Cys Gln Ser Ile Ile Ser Thr Leu Thr
145 150

<210> 3
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic

polynucleotide"

<400> 3

gcccctacct cctccagcac caagaaaacc cagctgcagc tcgaacatct gctgctggcc	60
ctgcagatga tcctgaacgg catcaacaac tacaagaacc ccaagctgac ccggatgctg	120
accttcaagt tctacatgcc caagaaggcc accgagctga aacatctgca gtgcctggaa	180
gaggaactga agcccctgga agaagtgctg aacctggccc agtccaagaa cttccacctg	240
aggcctcggg acctgatctc caacatcaac gtgatcgtgc tggaactgaa gggctccgag	300
acaaccttca tgtgcgagta cgccgacgag acagccacca tcgtggaatt tctgaaccgg	360
tggatcacct tctgccagtc catcatctcc acctgacc	399

<210> 4

<211> 133

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 4

Ala	Pro	Thr	Ser	Ser	Ser	Thr	Lys	Lys	Thr	Gln	Leu	Gln	Leu	Glu	His
1				5					10					15	

Leu	Leu	Leu	Ala	Leu	Gln	Met	Ile	Leu	Asn	Gly	Ile	Asn	Asn	Tyr	Lys
			20					25					30		

Asn	Pro	Lys	Leu	Thr	Arg	Met	Leu	Thr	Phe	Lys	Phe	Tyr	Met	Pro	Lys
		35					40					45			

Lys	Ala	Thr	Glu	Leu	Lys	His	Leu	Gln	Cys	Leu	Glu	Glu	Glu	Leu	Lys
	50					55				60					

Pro	Leu	Glu	Glu	Val	Leu	Asn	Leu	Ala	Gln	Ser	Lys	Asn	Phe	His	Leu
65					70					75					80

Arg	Pro	Arg	Asp	Leu	Ile	Ser	Asn	Ile	Asn	Val	Ile	Val	Leu	Glu	Leu
				85				90						95	

Lys	Gly	Ser	Glu	Thr	Thr	Phe	Met	Cys	Glu	Tyr	Ala	Asp	Glu	Thr	Ala
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

100

105

110

Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile
 115 120 125

Ile Ser Thr Leu Thr
 130

<210> 5
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic
 polynucleotide"

<400> 5
 gcccctacct cctccagcac caagaaaacc cagctgcagc tcgaacatct gctgctggcc 60
 ctgcagatga tcctgaacgg catcaacaac tacaagaacc ccaagctgac ccggatgctg 120
 accttcaagt tctacatgcc caagaaggcc accgagctga aacatctgca gtgcctggaa 180
 gaggaactga agcccctgga agaagtgtg aacctggccc agtccaagaa cttccacctg 240
 aggcctcggg acctgatctc caacatcaac gtgatcgtgc tggaactgaa gggctccgag 300
 acaaccttca tgtgcgagta cgccgacgag acagccacca tcgtggaatt tctgaaccgg 360
 tggatcacct tctcccagtc catcatctcc accctgacc 399

<210> 6
 <211> 133
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic
 polypeptide"

<400> 6
 Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His
 1 5 10 15

Leu Leu Leu Ala Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
 20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu
65 70 75 80

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

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

Ile Ser Thr Leu Thr
130

<210> 7
<211> 399
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 7
gccccctacct cctccagcac caagaaaacc cagctgcagc tcgaacatct gctgctggac 60
ctgcagatga tcctgaacgg catcaacaac tacaagaacc ccaagctgac ccgcatgctg 120
accttcaagt tctacatgcc caagaaggcc accgagctga aacatctgca gtgcctggaa 180
gaggaactga agccccctgga agaagtgtg aacctggccc agtccaagaa cttccacctg 240
aggcctcggg acctgatctc caacatcaac gtgatcgtgc tggaactgaa gggctccgag 300
acaaccttca tgtgcgagta cgccgacgag acagccacca tcgtggaatt tctgaaccgg 360
tggatcacct tctgccagtc catcatctcc acctgacc 399

<210> 8
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 8
Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His
1 5 10 15

Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu
65 70 75 80

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile
115 120 125

Ile Ser Thr Leu Thr
130

<210> 9
<211> 399
<212> DNA
<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 9

```
gcccctacct cctccagcac caagaaaacc cagctgcagc tcgaacatct gctgctggac      60
ctgcagatga tcctgaacgg catcaacaac tacaagaacc ccaagctgac ccggatgctg      120
accttcaagt tctacatgcc caagaaggcc accgagctga aacatctgca gtgcctggaa      180
gaggaactga agcccctgga agaagtgtg aacctggccc agtccaagaa cttccacctg      240
aggcctcggg acctgatctc caacatcaac gtgatcgtgc tggaactgaa gggctccgag      300
acaaccttca tgtgcgagta cgccgacgag acagccacca tcgtggaatt tctgaaccgg      360
tggatcacct tctccagtc catcatctcc accctgacc                                399
```

<210> 10

<211> 133

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 10

```
Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His
1              5              10              15

Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
      20              25              30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
      35              40              45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
      50              55              60

Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu
65              70              75              80

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
      85              90              95
```

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

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

Ile Ser Thr Leu Thr
130

<210> 11

<211> 145

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 11

Gly Phe Ser Leu Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu
1 5 10 15

Gln Leu Glu His Leu Leu Leu Ala Leu Gln Met Ile Leu Asn Gly Ile
20 25 30

Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe
35 40 45

Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu
50 55 60

Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys
65 70 75 80

Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile
85 90 95

Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala
100 105 110

Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe

115

120

125

Cys Gln Ser Ile Ile Ser Thr Leu Thr Ser Thr Ser Gly Met Ser Val
130 135 140

Gly
145

<210> 12
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 12
Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 13
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 13
Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

<210> 14
<211> 141
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 14
Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His
1 5 10 15

Leu Leu Leu Ala Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu
65 70 75 80

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile
115 120 125

Ile Ser Thr Leu Thr Ser Thr Ser Gly Met Ser Val Gly
130 135 140

<210> 15

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 15

Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 16

<211> 10

<212> PRT

<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 16
Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

<210> 17
<211> 142
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 17
Gly Phe Ser Leu Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu
1 5 10 15

Gln Leu Glu His Leu Leu Leu Ala Leu Gln Met Ile Leu Asn Gly Ile
20 25 30

Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe
35 40 45

Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu
50 55 60

Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys
65 70 75 80

Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile
85 90 95

Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala
100 105 110

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

Cys Gln Ser Ile Ile Ser Thr Leu Thr Ser Thr Ser Gly Met

130

135

140

<210> 18

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 18

Trp Trp Asp Asp Lys

1 5

<210> 19

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 19

Ser Met Ile Thr Asn Trp Tyr Phe Asp Val

1 5 10

<210> 20

<211> 253

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 20

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln

1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ala Pro Thr

20 25 30

Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu

35 40 45

Ala Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys
50 55 60

Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr
65 70 75 80

Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu
85 90 95

Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg
100 105 110

Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser
115 120 125

Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val
130 135 140

Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile Ile Ser Thr
145 150 155 160

Leu Thr Ser Thr Ser Gly Met Ser Val Gly Trp Ile Arg Gln Pro Pro
165 170 175

Gly Lys Ala Leu Glu Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys
180 185 190

Asp Tyr Asn Pro Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr
195 200 205

Ser Lys Asn Gln Val Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp
210 215 220

Thr Ala Thr Tyr Tyr Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe
225 230 235 240

Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser
245 250

<210> 21
<211> 759
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 21
caagtcacac tgcgtgaaag cggccctgcc ctggtcaagc ccacccagac cctgaccctg 60
acctgcacct tctccggctt cagcctggcc cctacctcct ccagcaccaa gaaaaccag 120
ctgcagctcg aacatctgct gctggccctg cagatgatcc tgaacggcat caacaactac 180
aagaaccca agctgaccg gatgctgacc ttcaagttct acatgccaa gaaggccacc 240
gagctgaaac atctgcagt cctggaagag gaactgaagc ccctggaaga agtgctgaac 300
ctggcccagt ccaagaactt ccacctgagg cctcgggacc tgatctcaa catcaacgtg 360
atcgtgctgg aactgaagg ctccgagaca accttcatgt gcgagtacgc cgacgagaca 420
gccaccatcg tggaatttct gaaccggtgg atcaccttct gccagtccat catctccacc 480
ctgacctcca cctccggcat gtccgtgggc tggatccggc agcctcctgg caaggccctg 540
gagtggctgg ccgacatttg gtgggacgac aagaaggact acaaccccag cctgaagtcc 600
cggctgacca tctccaagga cacctccaag aaccaagtgg tgctgaaagt gaccaacatg 660
gaccccgccg acaccggcac ctactactgc gcccggtcca tgatcaccaa ctggtacttc 720
gacgtgtggg gcgctggcac caccgtgacc gtgtcctct 759

<210> 22
<211> 583
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 22
Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ala Pro Thr

20

25

30

Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu
 35 40 45

Ala Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys
 50 55 60

Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr
 65 70 75 80

Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu
 85 90 95

Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg
 100 105 110

Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser
 115 120 125

Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val
 130 135 140

Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile Ile Ser Thr
 145 150 155 160

Leu Thr Ser Thr Ser Gly Met Ser Val Gly Trp Ile Arg Gln Pro Pro
 165 170 175

Gly Lys Ala Leu Glu Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys
 180 185 190

Asp Tyr Asn Pro Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr
 195 200 205

Ser Lys Asn Gln Val Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp
 210 215 220

Thr Ala Thr Tyr Tyr Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe
 225 230 235 240

Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
245 250 255

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

Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
275 280 285

Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
290 295 300

Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
305 310 315 320

Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
325 330 335

Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu
340 345 350

Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
355 360 365

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
370 375 380

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
385 390 395 400

Ala Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
405 410 415

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
420 425 430

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
435 440 445

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu

450

455

460

Ala Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 465 470 475 480

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
 485 490 495

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
 500 505 510

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
 515 520 525

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
 530 535 540

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
 545 550 555 560

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
 565 570 575

Leu Ser Leu Ser Pro Gly Lys
 580

<210> 23

<211> 1749

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
 polynucleotide"

<400> 23

caagtcacac tgcgtgaaag cggccctgcc ctggtcaagc ccaccagac cctgaccctg 60

acctgcacct tctccggctt cagcctggcc cctacctcct ccagcaccaa gaaaaccag 120

ctgcagctcg aacatctgct gctggccctg cagatgatcc tgaacggcat caacaactac 180

aagaacccca agctgaccg gatgctgacc ttcaagttct acatgcccaa gaaggccacc 240

gagctgaaac atctgcagtg cctggaagag gaactgaagc ccctggaaga agtgctgaac	300
ctggcccagt ccaagaactt ccacctgagg cctcgggacc tgatctccaa catcaacgtg	360
atcgtgctgg aactgaaggg ctccgagaca accttcatgt gcgagtacgc cgacgagaca	420
gccaccatcg tggaatttct gaaccggtgg atcaccttct gccagtccat catctccacc	480
ctgacctcca cctccggcat gtccgtgggc tggatccggc agcctcctgg caaggccctg	540
gagtggctgg ccgacatttg gtgggacgac aagaaggact acaaccccag cctgaagtcc	600
cgggtgacca tctccaagga cacctccaag aaccaagtgg tgctgaaagt gaccaacatg	660
gaccccgccg acaccgccac ctactactgc gcccggtcca tgatcaccaa ctggtacttc	720
gacgtgtggg gcgctggcac caccgtgacc gtgtcctctg ctagcaccaa gggcccctcc	780
gtgttccctc tggccccttc cagcaagtct acctccggcg gcacagctgc tctgggctgc	840
ctggtcaagg actacttccc tgagcctgtg acagtgtcct ggaactctgg cgccctgacc	900
tctggcgtgc acaccttccc tgccgtgctg cagtcctccg gcctgtactc cctgtcctcc	960
gtggtcacag tgccttcaag cagcctgggc acccagacct atatctgcaa cgtgaaccac	1020
aagccttcca acaccaaggt ggacaagcgg gtggagccta agtcctgcga caagaccac	1080
acctgtcctc cctgccctgc tcctgaactg ctgggcggcc cttctgtgtt cctgttccct	1140
ccaaagccca aggacaccct gatgatctcc cggacccctg aagtgacctg cgtggtggtg	1200
gccgtgtccc acgaggatcc tgaagtgaag ttcaattggt acgtggacgg cgtggagggtg	1260
cacaacgcca agaccaagcc tcgggaggaa cagtacaact ccacctaccg ggtggtgtcc	1320
gtgctgaccg tgctgcacca ggactggctg aacggcaaag agtacaagtg caaagtctcc	1380
aacaaggccc tggccgcccc tatcgaaaag acaatctcca aggccaaggg ccagcctagg	1440
gaaccccagg tgtacaccct gccaccagc cgggaggaaa tgaccaagaa ccaggtgtcc	1500
ctgacctgtc tgggtcaaggg cttctaccct tccgatatcg ccgtggagtg ggagtctaac	1560
ggccagcctg agaacaacta caagaccacc cctcctgtgc tggactccga cggctccttc	1620
ttcctgtact ccaaactgac cgtggacaag tcccgggtggc agcagggcaa cgtgttctcc	1680
tgctccgtga tgcacgaggc cctgcacaac cactacaccc agaagtcctt gtccctgtct	1740
cccggaag	1749

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

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 24
Lys Ala Gln Leu Ser Val Gly Tyr Met His
1 5 10

<210> 25
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 25
Asp Thr Ser Lys Leu Ala Ser
1 5

<210> 26
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 26
Phe Gln Gly Ser Gly Tyr Pro Phe Thr
1 5

<210> 27
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 27

Lys Ala Gln Leu Ser Val Gly Tyr Met His
1 5 10

<210> 28

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 28

Asp Thr Ser Lys Leu Ala Ser
1 5

<210> 29

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 29

Phe Gln Gly Ser Gly Tyr Pro Phe Thr
1 5

<210> 30

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 30

Gln Leu Ser Val Gly Tyr
1 5

<210> 31

<211> 3

<212> PRT

<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 31
Asp Thr Ser
1

<210> 32
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 32
Gly Ser Gly Tyr Pro Phe
1 5

<210> 33
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 33
Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Lys Ala Gln Leu Ser Val Gly Tyr Met
20 25 30

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

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

Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp

65

70

75

80

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

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

<210> 34

<211> 318

<212> DNA

<213> Artificial Sequence

 $\langle 220 \rangle$

<221> source

```
<223> /note="Description of Artificial Sequence: Synthetic  
polynucleotide"
```

<400> 34

gacatccaga tgacccagag cccctccacc ctgtccgcct ccgtggggcga cagagtgacc 60

atcacttgca aggcccagct gtccgtgggc tacatgcact ggtatcagca gaagcccggc 120

aaggccccta agctgctgat ctacgacacc tccaagctgg cctccggcgt gccctccaga 180

ttctccggct ctggctccgg caccgagttc accctgacca tctccagcct gcagcccgac 240

gacttcgcca cctactactg ttttcaaggc tccggctacc ccttcacctt cggcggaggc 300

accaagctgg aaatcaag 318

<210> 35

<211> 213

<212> PRT

<213> Artificial Sequence

 $\langle 220 \rangle$

<221> source

```
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"
```

<400> 35

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

Asp Arg Val Thr Ile Thr Cys Lys Ala Gln Leu Ser Val Gly Tyr Met
20 25 30

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

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

Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp
65 70 75 80

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

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

Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr
115 120 125

Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys
130 135 140

Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu
145 150 155 160

Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser
165 170 175

Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala
180 185 190

Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe
195 200 205

Asn Arg Gly Glu Cys
210

<210> 36

<211> 639

<212> DNA

<213> Artificial Sequence

<220>

<221> source
<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 36
gacatccaga tgaccagag cccctccacc ctgtccgcct ccgtgggcga cagagtgacc 60
atcacttgca aggcccagct gtccgtgggc tacatgcact ggtatcagca gaagcccggc 120
aagggcccta agctgctgat ctacgacacc tccaagctgg cctccggcgt gccctccaga 180
ttctccggct ctgggtccgg caccgagttc accctgacca tctccagcct gcagcccgac 240
gacttcgcca cctactactg ttttcaaggc tccggctacc cttcacctt cggcggaggc 300
accaagctgg aaatcaagcg tacggtggcc gctcccagcg tgttcattctt cccccccagc 360
gacgagcagc tgaagagcgg caccgccagc gtggtgtgcc tgctgaacaa cttctacccc 420
cgggaggcca aggtgcagtg gaaggtggac aacgccctgc agagcggcaa cagccaggag 480
agcgtcaccg agcaggacag caaggactcc acctacagcc tgagcagcac cctgaccctg 540
agcaaggccg actacgagaa gcataagtg tacgcctgcg aggtgaccca ccagggcctg 600
tccagccccg tgaccaagag cttcaacagg ggcgagtgc 639

<210> 37
<211> 145
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 37
Gly Phe Ser Leu Ala Pro Thr Ser Ser Thr Lys Lys Thr Gln Leu
1 5 10 15

Gln Leu Glu His Leu Leu Leu Ala Leu Gln Met Ile Leu Asn Gly Ile
20 25 30

Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe
35 40 45

Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu
50 55 60

Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys
65 70 75 80

Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile
85 90 95

Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala
100 105 110

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

Ser Gln Ser Ile Ile Ser Thr Leu Thr Ser Thr Ser Gly Met Ser Val
130 135 140

Gly
145

<210> 38
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 38
Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 39
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 39
Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

<210> 40
<211> 141
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 40
Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His
1 5 10 15

Leu Leu Leu Ala Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys
20 25 30

Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys
35 40 45

Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys
50 55 60

Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu
65 70 75 80

Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu
85 90 95

Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala
100 105 110

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

Ile Ser Thr Leu Thr Ser Thr Ser Gly Met Ser Val Gly
130 135 140

<210> 41
<211> 16
<212> PRT
<213> Artificial Sequence

<220>

<221> source
 <223> /note="Description of Artificial Sequence: Synthetic peptide"

 <400> 41
 Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser
 1 5 10 15

 <210> 42
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic peptide"

 <400> 42
 Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
 1 5 10

 <210> 43
 <211> 142
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic polypeptide"

 <400> 43
 Gly Phe Ser Leu Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu
 1 5 10 15

 Gln Leu Glu His Leu Leu Leu Ala Leu Gln Met Ile Leu Asn Gly Ile
 20 25 30

 Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe
 35 40 45

 Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu
 50 55 60

 Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys
 65 70 75 80

Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile
85 90 95

Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala
100 105 110

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

Ser Gln Ser Ile Ile Ser Thr Leu Thr Ser Thr Ser Gly Met
130 135 140

<210> 44
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 44
Trp Trp Asp Asp Lys
1 5

<210> 45
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 45
Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

<210> 46
<211> 253
<212> PRT
<213> Artificial Sequence

<220>
<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 46

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

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ala Pro Thr
20 25 30

Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu
35 40 45

Ala Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys
50 55 60

Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr
65 70 75 80

Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu
85 90 95

Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg
100 105 110

Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser
115 120 125

Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val
130 135 140

Glu Phe Leu Asn Arg Trp Ile Thr Phe Ser Gln Ser Ile Ile Ser Thr
145 150 155 160

Leu Thr Ser Thr Ser Gly Met Ser Val Gly Trp Ile Arg Gln Pro Pro
165 170 175

Gly Lys Ala Leu Glu Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys
180 185 190

Asp Tyr Asn Pro Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr
195 200 205

Ser Lys Asn Gln Val Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp
210 215 220

Thr Ala Thr Tyr Tyr Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe
225 230 235 240

Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser
245 250

<210> 47
<211> 759
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 47
caagtcacac tgcgtgaaag cggccctgcc ctggtcaagc ccacccagac cctgaccctg 60
acctgcacct tctccggctt cagcctggcc cctacctctt ccagcaccaa gaaaaccag 120
ctgcagctcg aacatctgct gctggccctg cagatgatcc tgaacggcat caacaactac 180
aagaacccca agctgaccg gatgctgacc ttcaagttct acatgcccaa gaaggccacc 240
gagctgaaac atctgcagt cctggaagag gaactgaagc ccctggaaga agtgctgaac 300
ctggcccagt ccaagaactt ccacctgagg cctcgggacc tgatctcaa catcaacgtg 360
atcgtgctgg aactgaaggg ctccgagaca accttcatgt gcgagtacgc cgacgagaca 420
gccaccatcg tggaatttct gaaccggtgg atcaccttct ccagttccat catctccacc 480
ctgacctcca cctccggcat gtccgtgggc tggatccggc agcctcctgg caaggccctg 540
gagtggctgg ccgacatttg gtgggacgac aagaaggact acaaccccag cctgaagtcc 600
cggctgacca tctccaagga cacctccaag aaccaagtgg tgctgaaagt gaccaacatg 660
gaccccgccg acaccgccac ctactactgc gcccggtcca tgatcaccaa ctggtacttc 720
gacgtgtggg gcgctggcac caccgtgacc gtgtcctct 759

<210> 48
<211> 583

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 48

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

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ala Pro Thr
20 25 30

Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu
35 40 45

Ala Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys
50 55 60

Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr
65 70 75 80

Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu
85 90 95

Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg
100 105 110

Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser
115 120 125

Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val
130 135 140

Glu Phe Leu Asn Arg Trp Ile Thr Phe Ser Gln Ser Ile Ile Ser Thr
145 150 155 160

Leu Thr Ser Thr Ser Gly Met Ser Val Gly Trp Ile Arg Gln Pro Pro
165 170 175

Gly Lys Ala Leu Glu Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys

180

185

190

Asp Tyr Asn Pro Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr
 195 200 205

Ser Lys Asn Gln Val Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp
 210 215 220

Thr Ala Thr Tyr Tyr Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe
 225 230 235 240

Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
 245 250 255

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

Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
 275 280 285

Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
 290 295 300

Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
 305 310 315 320

Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
 325 330 335

Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu
 340 345 350

Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 355 360 365

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 370 375 380

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 385 390 395 400

Ala Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
405 410 415

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
420 425 430

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
435 440 445

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
450 455 460

Ala Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
465 470 475 480

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
485 490 495

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
500 505 510

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
515 520 525

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
530 535 540

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
545 550 555 560

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
565 570 575

Leu Ser Leu Ser Pro Gly Lys
580

<210> 49

<211> 1749

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 49

caagtcacac tgcgtgaaag cggccctgcc ctggtcaagc ccacccagac cctgaccctg	60
acctgcacct tctccggctt cagcctggcc cctacctcct ccagcaccaa gaaaaccag	120
ctgcagctcg aacatctgct gctggccctg cagatgatcc tgaacggcat caacaactac	180
aagaaccca agctgacccg gatgctgacc ttcaagttct acatgcccaa gaaggccacc	240
gagctgaaac atctgcagtg cctggaagag gaactgaagc ccctggaaga agtgctgaac	300
ctggcccagt ccaagaactt ccacctgagg cctcgggacc tgatctccaa catcaacgtg	360
atcgtgctgg aactgaaggg ctccgagaca accttcattgt gcgagtacgc cgacgagaca	420
gccaccatcg tggaatttct gaaccggtgg atcaccttct cccagtccat catctccacc	480
ctgacctcca cctccggcat gtccgtgggc tggatccggc agcctcctgg caaggccctg	540
gagtggctgg ccgacatttg gtgggacgac aagaaggact acaaccccag cctgaagtcc	600
cggctgacca tctccaagga cacctccaag aaccaagtgg tgctgaaagt gaccaacatg	660
gaccccgccg acaccgccac ctactactgc gcccggtcca tgatcaccaa ctggtacttc	720
gacgtgtggg gcgctggcac caccgtgacc gtgtcctctg ctagcaccaa gggcccctcc	780
gtgttccttc tggccccttc cagcaagtct acctccggcg gcacagctgc tctgggctgc	840
ctggtcaagg actacttccc tgagcctgtg acagtgtcct ggaactctgg cgccctgacc	900
tctggcgtgc acaccttccc tgccgtgctg cagtcctccg gcctgtactc cctgtcctcc	960
gtggtcacag tgccttcaag cagcctgggc acccagacct atatctgcaa cgtgaaccac	1020
aagccttcca acaccaaggt ggacaagcgg gtggagccta agtcctgcga caagaccac	1080
acctgtcctc cctgccctgc tcctgaactg ctgggcggcc cttctgtgtt cctgttcctc	1140
ccaaagcca aggacaccct gatgatctcc cggaccctg aagtgacctg cgtggtggtg	1200
gccgtgtccc acgaggatcc tgaagtgaag ttcaattggt acgtggacgg cgtggaggtg	1260
cacaacgcca agaccaagcc tcgggaggaa cagtacaact ccacctaccg ggtggtgtcc	1320
gtgctgaccg tgctgcacca ggactggctg aacggcaaag agtacaagtg caaagtctcc	1380
aacaaggccc tggccgcccc tatcgaagaa acaatctcca aggccaaagg ccagcctagg	1440

gaaccccagg tgtacaccct gccaccagc cgggaggaaa tgaccaagaa ccaggtgtcc	1500
ctgacctgtc tgggtcaaggg cttctaccct tccgatatcg ccgtggagtg ggagtctaac	1560
ggccagcctg agaacaacta caagaccacc cctcctgtgc tggactccga cggctccttc	1620
ttcctgtact ccaaactgac cgtggacaag tcccgggtggc agcagggcaa cgtgttctcc	1680
tgctccgtga tgcacgaggc cctgcacaac cactacaccc agaagtcctt gtcctgtct	1740
cccggcaag	1749

<210> 50
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 50
 Lys Ala Gln Leu Ser Val Gly Tyr Met His
 1 5 10

<210> 51
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 51
 Asp Thr Ser Lys Leu Ala Ser
 1 5

<210> 52
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> source
 <223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 52

Phe Gln Gly Ser Gly Tyr Pro Phe Thr
1 5

<210> 53
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 53
Lys Ala Gln Leu Ser Val Gly Tyr Met His
1 5 10

<210> 54
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 54
Asp Thr Ser Lys Leu Ala Ser
1 5

<210> 55
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 55
Phe Gln Gly Ser Gly Tyr Pro Phe Thr
1 5

<210> 56
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 56
Gln Leu Ser Val Gly Tyr
1 5

<210> 57
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 57
Asp Thr Ser
1

<210> 58
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 58
Gly Ser Gly Tyr Pro Phe
1 5

<210> 59
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 59
Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Lys Ala Gln Leu Ser Val Gly Tyr Met
20 25 30

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

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

Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp
65 70 75 80

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

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

<210> 60

<211> 318

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 60

gacatccaga tgaccagag cccctccacc ctgtccgcct ccgtgggcga cagagtgacc 60

atcacttgca aggcccagct gtccgtgggc tacatgcact ggtatcagca gaagcccggc 120

aaggccccta agctgctgat ctacgacacc tccaagctgg cctccggcgt gccctccaga 180

ttctccggct ctggctccgg caccgagttc accctgacca tctccagcct gcagcccgac 240

gacttcgcca cctactactg ttttcaaggc tccggctacc ccttcacctt cggcggaggc 300

accaagctgg aaatcaag 318

<210> 61

<211> 213

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 61

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

Asp Arg Val Thr Ile Thr Cys Lys Ala Gln Leu Ser Val Gly Tyr Met
20 25 30

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

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

Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp
65 70 75 80

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

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

Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr
115 120 125

Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys
130 135 140

Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu
145 150 155 160

Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser
165 170 175

Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala
180 185 190

Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe
195 200 205

Asn Arg Gly Glu Cys
210

<210> 62
<211> 639
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 62
gacatccaga tgaccagag cccctccacc ctgtccgcct ccgtgggcga cagagtgacc 60
atcacttgca aggcccagct gtccgtgggc tacatgcact ggtatcagca gaagcccggc 120
aagggcccta agctgctgat ctacgacacc tccaagctgg cctccggcgt gccctccaga 180
ttctccggct ctgggtccgg caccgagttc accctgacca tctccagcct gcagcccagc 240
gacttcgcca cctactactg ttttcaaggc tccggctacc cttcacctt cggcggaggc 300
accaagctgg aaatcaagcg tacggtggcc gctcccagcg tgttcatctt cccccccagc 360
gacgagcagc tgaagagcgg caccgccagc gtggtgtgcc tgctgaacaa cttctacccc 420
cgggaggcca aggtgcagtg gaaggtggac aacgccctgc agagcggcaa cagccaggag 480
agcgtcaccg agcaggacag caaggactcc acctacagcc tgagcagcac cctgaccctg 540
agcaaggccg actacgagaa gcataaggtg tacgcctgcg aggtgaccca ccagggcctg 600
tccagccccg tgaccaagag cttcaacagg ggcgagtg 639

<210> 63
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 63
Gly Phe Ser Leu Ser Thr Ser Gly Met Ser Val Gly

1 5 10

<210> 64
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 64
Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 65
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 65
Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

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

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 66
Thr Ser Gly Met Ser Val Gly
1 5

<210> 67
<211> 16
<212> PRT
<213> Artificial Sequence

<220>

<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 67
Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 68
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 68
Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

<210> 69
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 69
Gly Phe Ser Leu Ser Thr Ser Gly Met
1 5

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

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 70
Trp Trp Asp Asp Lys
1 5

<210> 71
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 71
Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

<210> 72
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 72
Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser Thr Ser
20 25 30

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

Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser
50 55 60

Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val
65 70 75 80

Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp Thr Ala Thr Tyr Tyr
85 90 95

Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe Asp Val Trp Gly Ala
100 105 110

Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 73
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 73
caagtcaccc tgcgtgaaag cggccctgcc ctggtcaagc ccaccagac cctgaccctg 60
acctgcacct tctccggctt ctccctgtcc acctccggca tgtccgtggg ctggatccgg 120
cagcctcctg gcaaggccct ggagtggctg gccgacattt ggtgggacga caagaaggac 180
tacaacccca gcctgaagtc ccggctgacc atctccaagg acacctcaa gaaccaagtg 240
gtgctgaaag tgaccaacat ggaccccgcc gacaccgcca cctactactg cgcccgttcc 300
atgatcacca actggtactt cgacgtgtgg ggcgctggca ccaccgtgac cgtgtcctct 360

<210> 74
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 74
Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser Thr Ser
20 25 30

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

Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser
50 55 60

Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val
65 70 75 80

Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp Thr Ala Thr Tyr Tyr
85 90 95

Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe Asp Val Trp Gly Ala
100 105 110

Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
115 120 125

Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
130 135 140

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

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
165 170 175

Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
180 185 190

Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
195 200 205

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp
210 215 220

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Ala Val Ser His Glu
260 265 270

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His

275

280

285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Ala Ala Pro Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
435 440 445

Gly Lys
450

<210> 75

<211> 1350

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<400> 75

caagtcaccc tgcgtgaaag cggccctgcc ctggtcaagc ccacccagac cctgaccctg	60
acctgcacct tctccggctt ctccctgtcc acctccggca tgtccgtggg ctggatccgg	120
cagcctcctg gcaaggccct ggagtggctg gccgacattt ggtgggacga caagaaggac	180
tacaaccca gcctgaagtc ccggctgacc atctccaagg acacctcaa gaaccaagtg	240
gtgctgaaag tgaccaacat ggaccccgcc gacaccgcca cctactactg cgcccgttcc	300
atgatcacca actggtactt cgacgtgtgg ggcgctggca ccaccgtgac cgtgtcctct	360
gctagcacca agggcccctc cgtgttccct ctggcccctt ccagcaagtc tacctccggc	420
ggcacagctg ctctgggctg cctggtcaag gactacttcc ctgagcctgt gacagtgtcc	480
tggaaactctg gcgccctgac ctctggcgtg cacaccttcc ctgccgtgct gcagtcctcc	540
ggcctgtact ccctgtcctc cgtggtcaca gtgccttcaa gcagcctggg caccagacc	600
tatatctgca acgtgaacca caagccttcc aacaccaagg tggacaagcg ggtggagcct	660
aagtcctgcg acaagaccca cacctgtcct ccctgccctg ctctgaact gctgggcggc	720
ccttctgtgt tcctgttccc tccaaagccc aaggacaccc tgatgatctc ccggaccctt	780
gaagtgacct gcgtgggtgt ggccgtgtcc caccaggatc ctgaagtga gttcaattgg	840
tacgtggacg gcgtggaggt gcacaacgcc aagaccaagc ctcgggagga acagtacaac	900
tccacctacc ggggtgggtgc cgtgctgacc gtgctgcacc aggactggct gaacggcaaa	960
gagtacaagt gcaaagtctc caacaaggcc ctggccgccc ctatcgaaaa gacaatctcc	1020
aaggccaagg gccagcctag ggaaccccag gtgtacaccc tgccaccag ccgggaggaa	1080
atgaccaaga accaggtgtc cctgacctgt ctggtcaagg gcttctacct ttccgatatc	1140
gccgtggagt gggagtctaa cggccagcct gagaacaact acaagaccac ccctcctgtg	1200
ctggactccg acggctcctt cttcctgtac tccaaactga ccgtggacaa gtcccgttgg	1260
cagcagggca acgtgttctc ctgctccgtg atgcacgagg ccctgcacaa cactacacc	1320
cagaagtccc tgtccctgtc tcccggcaag	1350

<210> 76

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 76

Lys Ala Gln Leu Ser Val Gly Tyr Met His
1 5 10

<210> 77

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 77

Asp Thr Ser Lys Leu Ala Ser
1 5

<210> 78

<211> 142

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 78

Phe Gln Gly Ser Gly Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln
1 5 10 15

Leu Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly
20 25 30

Ile Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys
35 40 45

Phe Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu
50 55 60

Glu Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser
65 70 75 80

Lys Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val
85 90 95

Ile Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr
100 105 110

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

Phe Cys Gln Ser Ile Ile Ser Thr Leu Thr Tyr Pro Phe Thr
130 135 140

<210> 79
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 79
Lys Ala Gln Leu Ser Val Gly Tyr Met His
1 5 10

<210> 80
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 80
Asp Thr Ser Lys Leu Ala Ser
1 5

<210> 81
<211> 142
<212> PRT
<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 81

Phe Gln Gly Ser Gly Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln
1 5 10 15

Leu Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly
20 25 30

Ile Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys
35 40 45

Phe Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu
50 55 60

Glu Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser
65 70 75 80

Lys Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val
85 90 95

Ile Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr
100 105 110

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

Phe Cys Gln Ser Ile Ile Ser Thr Leu Thr Tyr Pro Phe Thr
130 135 140

<210> 82

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 82

Gln Leu Ser Val Gly Tyr
1 5

<210> 83
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 83
Asp Thr Ser
1

<210> 84
<211> 139
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 84
Gly Ser Gly Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln
1 5 10 15

Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn
20 25 30

Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr
35 40 45

Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu
50 55 60

Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys Asn
65 70 75 80

Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val
85 90 95

Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp
100 105 110

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

Gln Ser Ile Ile Ser Thr Leu Thr Tyr Pro Phe
130 135

<210> 85

<211> 239

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 85

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

Asp Arg Val Thr Ile Thr Cys Lys Ala Gln Leu Ser Val Gly Tyr Met
20 25 30

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

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

Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp
65 70 75 80

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

Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu Asp
100 105 110

Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys Leu
115 120 125

Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr Glu
130 135 140

Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu Glu
145 150 155 160

Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg Asp
165 170 175

Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser Glu
180 185 190

Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val Glu
195 200 205

Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile Ile Ser Thr Leu
210 215 220

Thr Tyr Pro Phe Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
225 230 235

<210> 86

<211> 717

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 86

gacatccaga tgacccagag cccctccacc ctgtccgcct ccgtgggcga cagagtgacc 60

atcacttgca aggcccagct gtccgtgggc tacatgcact ggtatcagca gaagcccggc 120

aaggccccta agctgctgat ctacgacacc tccaagctgg cctccggcgt gccctccaga 180

ttctccggct ctggctccgg caccgagttc accctgacca tctccagcct gcagcccgcac 240

gacttcgcca cctactactg ttttcaaggc tctggcgccc ctacctcctc cagcaccaag 300

aaaaccagc tgcagctcga acatctgctg ctggacctgc agatgatacct gaacggcatc 360

aacaactaca agaaccccaa gctgaccgg atgctgacct tcaagttcta catgcccgaag 420

aaggccaccg agctgaaaca tctgcagtgc ctggaagagg aactgaagcc cctggaagaa 480
 gtgctgaacc tggcccagtc caagaacttc cacctgaggc ctcgggacct gatctccaac 540
 atcaacgtga tcgtgctgga actgaagggc tccgagacaa ccttcatgtg cgagtacgcc 600
 gacgagacag ccaccatcgt ggaatttctg aaccggtgga tcaccttctg ccagtccatc 660
 atctccaccc tgacctaccc cttcaccttc ggcggaggca ccaagctgga aatcaag 717

<210> 87

<211> 346

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 87

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

Asp Arg Val Thr Ile Thr Cys Lys Ala Gln Leu Ser Val Gly Tyr Met
 20 25 30

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

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

Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp
 65 70 75 80

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

Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu Asp
 100 105 110

Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys Leu
 115 120 125

Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr Glu
130 135 140

Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu Glu
145 150 155 160

Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg Asp
165 170 175

Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser Glu
180 185 190

Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val Glu
195 200 205

Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile Ile Ser Thr Leu
210 215 220

Thr Tyr Pro Phe Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
225 230 235 240

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
245 250 255

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
260 265 270

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
275 280 285

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
290 295 300

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
305 310 315 320

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
325 330 335

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
340 345

<210> 88
<211> 1038
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 88
gacatccaga tgaccagag cccctccacc ctgtccgcct ccgtgggcga cagagtgacc 60
atcacttgca aggcccagct gtccgtgggc tacatgcact ggtatcagca gaagcccggc 120
aaggccccta agctgctgat ctacgacacc tccaagctgg cctccggcgt gccctccaga 180
ttctccggct ctggctccgg caccgagttc accctgacca tctccagcct gcagcccgac 240
gacttcgcca cctactactg ttttcaaggc tctggcgccc ctacctctc cagcaccaag 300
aaaaccagc tgcagctcga acatctgctg ctggacctgc agatgacct gaacggcatc 360
aacaactaca agaaccccaa gctgaccgg atgctgacct tcaagttcta catgcccag 420
aaggccaccg agctgaaaca tctgcagtgc ctggaagagg aactgaagcc cctggaagaa 480
gtgctgaacc tggcccagtc caagaacttc cacctgaggc ctcgggacct gatctccaac 540
atcaacgtga tcgtgctgga actgaagggc tccgagacaa cttcatgtg cgagtacgcc 600
gacgagacag ccaccatcgt ggaatttctg aaccgggtgga tcaccttctg ccagtccatc 660
atctccaccc tgacctacc cttcaccttc ggcggaggca ccaagctgga aatcaagcgt 720
acgggtggccg ctcccagcgt gttcatcttc cccccagcg acgagcagct gaagagcggc 780
accgccagcg tgggtgtgcct gctgaacaac ttctaccccc gggaggccaa ggtgcagtgg 840
aaggtggaca acgccctgca gagcggcaac agccaggaga gcgtcaccga gcaggacagc 900
aaggactcca cctacagcct gagcagcacc ctgacctga gcaaggccga ctacgagaag 960
cataaggtgt acgcctgcga ggtgaccac cagggcctgt ccagccccgt gaccaagagc 1020
ttcaacaggg gcgagtgc 1038

<210> 89
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 89
Gly Phe Ser Leu Ser Thr Ser Gly Met Ser Val Gly
1 5 10

<210> 90
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 90
Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 91
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 91
Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

<210> 92
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 92
Thr Ser Gly Met Ser Val Gly
1 5

<210> 93
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 93
Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 94
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 94
Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

<210> 95
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 95
Gly Phe Ser Leu Ser Thr Ser Gly Met
1 5

<210> 96
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 96

Trp Trp Asp Asp Lys
1 5

<210> 97

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 97

Ser Met Ile Thr Asn Trp Tyr Phe Asp Val
1 5 10

<210> 98

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 98

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

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser Thr Ser
20 25 30

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

Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser
50 55 60

Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val
65 70 75 80

Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp Thr Ala Thr Tyr Tyr
85 90 95

Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe Asp Val Trp Gly Ala
100 105 110

Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 99
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 99
caagtcaccc tgcgtgaaag cggccctgcc ctggtcaagc ccaccagac cctgaccctg 60
acctgcacct tctccggctt ctccctgtcc acctccggca tgtccgtggg ctggatccgg 120
cagcctcctg gcaaggccct ggagtggctg gccgacattt ggtgggacga caagaaggac 180
tacaaccca gcctgaagtc ccggctgacc atctccaagg acacctcaa gaaccaagtg 240
gtgctgaaag tgaccaacat ggaccccgcc gacaccgcca cctactactg cgcccgggtcc 300
atgatcacca actggtactt cgacgtgtgg ggcgctggca ccaccgtgac cgtgtcctct 360

<210> 100
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 100
Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln
1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser Thr Ser
20 25 30

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

Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser
50 55 60

Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val
65 70 75 80

Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp Thr Ala Thr Tyr Tyr
85 90 95

Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe Asp Val Trp Gly Ala
100 105 110

Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
115 120 125

Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
130 135 140

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

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
165 170 175

Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
180 185 190

Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
195 200 205

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp
210 215 220

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile

245

250

255

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Ala Val Ser His Glu
260 265 270

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Ala Ala Pro Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
435 440 445

Gly Lys
450

<210> 101
<211> 1350
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 101
caagtcaccc tgcgtgaaag cggccctgcc ctggtcaagc ccacccagac cctgaccctg 60
acctgcacct tctccggctt ctccctgtcc acctccggca tgtccgtggg ctggatccgg 120
cagcctcctg gcaaggccct ggagtggctg gccgacattt ggtggggacga caagaaggac 180
tacaacccca gcctgaagtc ccggctgacc atctccaagg acacctcaa gaaccaagtg 240
gtgctgaaag tgaccaacat ggaccccgcc gacaccgcca cctactactg cgcccggctc 300
atgatcacca actggtactt cgacgtgtgg ggcgctggca ccaccgtgac cgtgtcctct 360
gctagcacca agggcccctc cgtgttcctt ctggcccctt ccagcaagtc tacctccggc 420
ggcacagctg ctctgggctg cctggtcaag gactacttcc ctgagcctgt gacagtgtcc 480
tggaactctg gcgccctgac ctctggcgtg cacaccttcc ctgccgtgct gcagtcctcc 540
ggcctgtact ccctgtcctc cgtggtcaca gtgccttcaa gcagcctggg caccagacc 600
tatatctgca acgtgaacca caagccttcc aacaccaagg tggacaagcg ggtggagcct 660
aagtcctgcg acaagaccca cacctgtcct ccctgccctg ctctgaact gctgggcggc 720
ccttctgtgt tcctgttccc tcaaagccc aaggacaccc tgatgatctc ccggaccctt 780
gaagtgacct gcgtgggtgt ggccgtgtcc cacgaggatc ctgaagtga gttcaattgg 840
tacgtggacg gcgtggaggt gcacaacgcc aagaccaagc ctcgggagga acagtacaac 900
tccacctacc ggggtggtgtc cgtgctgacc gtgctgcacc aggactggct gaacggcaaa 960
gagtacaagt gcaaagtctc caacaaggcc ctggccgccc ctatcgaaaa gacaatctcc 1020
aaggccaagg gccagcctag ggaaccccag gtgtacaccc tgccaccag ccgggaggaa 1080
atgaccaaga accaggtgtc cctgacctgt ctggtcaagg gcttctaccc ttccgatatc 1140
gccgtggagt gggagtctaa cggccagcct gagaacaact acaagaccac ccctcctgtg 1200
ctggactccg acggctcctt cttcctgtac tccaaactga ccgtggacaa gtcccgggtg 1260

cagcagggca acgtgttctc ctgctccgtg atgcacgagg ccctgcacaa ccactacacc 1320
cagaagtccc tgtccctgtc tcccggaag 1350

<210> 102
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 102
Lys Ala Gln Leu Ser Val Gly Tyr Met His
1 5 10

<210> 103
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 103
Asp Thr Ser Lys Leu Ala Ser
1 5

<210> 104
<211> 142
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 104
Phe Gln Gly Ser Gly Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln
1 5 10 15

Leu Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly
20 25 30

Ile Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys
35 40 45

Phe Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu
50 55 60

Glu Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser
65 70 75 80

Lys Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val
85 90 95

Ile Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr
100 105 110

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

Phe Ser Gln Ser Ile Ile Ser Thr Leu Thr Tyr Pro Phe Thr
130 135 140

<210> 105

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 105

Lys Ala Gln Leu Ser Val Gly Tyr Met His
1 5 10

<210> 106

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 106

Asp Thr Ser Lys Leu Ala Ser
1 5

<210> 107

<211> 142

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 107

Phe Gln Gly Ser Gly Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln
1 5 10 15

Leu Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly
20 25 30

Ile Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys
35 40 45

Phe Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu
50 55 60

Glu Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser
65 70 75 80

Lys Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val
85 90 95

Ile Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr
100 105 110

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

Phe Ser Gln Ser Ile Ile Ser Thr Leu Thr Tyr Pro Phe Thr
130 135 140

<210> 108

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 108

Gln Leu Ser Val Gly Tyr
1 5

<210> 109

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 109

Asp Thr Ser
1

<210> 110

<211> 139

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 110

Gly Ser Gly Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln
1 5 10 15

Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn
20 25 30

Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr
35 40 45

Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu
50 55 60

Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys Asn
65 70 75 80

Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val
85 90 95

Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp
100 105 110

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

Gln Ser Ile Ile Ser Thr Leu Thr Tyr Pro Phe
130 135

<210> 111
<211> 239
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 111
Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Lys Ala Gln Leu Ser Val Gly Tyr Met
20 25 30

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

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

Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp
65 70 75 80

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

Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu Asp
100 105 110

Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys Leu
115 120 125

Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr Glu
130 135 140

Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu Glu
145 150 155 160

Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg Asp
165 170 175

Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser Glu
180 185 190

Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val Glu
195 200 205

Phe Leu Asn Arg Trp Ile Thr Phe Ser Gln Ser Ile Ile Ser Thr Leu
210 215 220

Thr Tyr Pro Phe Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
225 230 235

<210> 112

<211> 717

<212> DNA

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 112

gacatccaga tgaccagag cccctccacc ctgtccgcct ccgtgggcga cagagtgacc 60

atcacttgca aggcccagct gtccgtgggc tacatgcact ggtatcagca gaagcccggc 120

aaggccccta agctgctgat ctacgacacc tccaagctgg cctccggcgt gccctccaga 180

ttctccggct ctggctccgg caccgagttc accctgacca tctccagcct gcagcccgac	240
gacttcgcca cctactactg ttttcaaggc tctggcgccc ctacctcctc cagcaccaag	300
aaaaccagc tgcagctcga acatctgctg ctggacctgc agatgacct gaacggcatc	360
aacaactaca agaaccccaa gctgaccgg atgctgacct tcaagttcta catgcccag	420
aaggccaccg agctgaaaca tctgcagtgc ctggaagagg aactgaagcc cctggaagaa	480
gtgctgaacc tggcccagtc caagaacttc cacctgaggc ctcgggacct gatctccaac	540
atcaacgtga tcgtgctgga actgaagggc tccgagacaa cttcatgtg cgagtacgcc	600
gacgagacag ccaccatcgt ggaatttctg aaccggtgga tcaccttctc ccagtccatc	660
atctccaccc tgacctaccc cttcaccttc ggcggaggca ccaagctgga aatcaag	717

<210> 113

<211> 346

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 113

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

Asp	Arg	Val	Thr	Ile	Thr	Cys	Lys	Ala	Gln	Leu	Ser	Val	Gly	Tyr	Met
			20					25					30		

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

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

Gly	Ser	Gly	Thr	Glu	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro	Asp
65					70				75					80	

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

Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu Asp
100 105 110

Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys Leu
115 120 125

Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr Glu
130 135 140

Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu Glu
145 150 155 160

Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg Asp
165 170 175

Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser Glu
180 185 190

Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val Glu
195 200 205

Phe Leu Asn Arg Trp Ile Thr Phe Ser Gln Ser Ile Ile Ser Thr Leu
210 215 220

Thr Tyr Pro Phe Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
225 230 235 240

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
245 250 255

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
260 265 270

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
275 280 285

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
290 295 300

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
305 310 315 320

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
325 330 335

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
340 345

<210> 114
<211> 1038
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polynucleotide"

<400> 114
gacatccaga tgaccagag cccctccacc ctgtccgcct ccgtgggcga cagagtgacc 60
atcacttgca aggcccagct gtccgtgggc tacatgcact ggtatcagca gaagcccggc 120
aaggccccta agctgctgat ctacgacacc tccaagctgg cctccggcgt gccctccaga 180
ttctccggct ctggctccgg caccgagttc accctgacca tctccagcct gcagcccgac 240
gacttcgcca cctactactg ttttcaaggc tctggcgccc ctacctctc cagcaccaag 300
aaaaccagc tgcagctcga acatctgctg ctggacctgc agatgatacct gaacggcatc 360
aacaactaca agaaccccaa gctgaccggg atgctgacct tcaagttcta catgcccgaag 420
aaggccaccg agctgaaaca tctgcagtgc ctggaagagg aactgaagcc cctggaagaa 480
gtgctgaacc tggcccagtc caagaacttc cacctgaggc ctcgggacct gatctccaac 540
atcaacgtga tcgtgctgga actgaagggc tccgagacaa cttcatgtg cgagtacgcc 600
gacgagacag ccaccatcgt ggaatttctg aaccgggtgga tcaccttctc ccagtccatc 660
atctccaccc tgacctaccc cttcaccttc ggcggaggca ccaagctgga aatcaagcgt 720
acgggtggccg ctcccagcgt gttcatcttc cccccagcg acgagcagct gaagagcggc 780
accgccagcg tgggtgtgcct gctgaacaac ttctaccccc gggaggccaa ggtgcagtgg 840
aaggtggaca acgccctgca gagcggcaac agccaggaga gcgtcaccga gcaggacagc 900
aaggactcca cctacagcct gagcagcacc ctgaccctga gcaaggccga ctacgagaag 960
cataaggtgt acgcctgcga ggtgaccac cagggcctgt ccagccccgt gaccaagagc 1020

<210> 115
<211> 60
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<220>
<221> MISC_FEATURE
<222> (1)..(5)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (7)..(11)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (13)..(17)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (19)..(23)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (25)..(29)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (31)..(35)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (37)..(41)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (43)..(47)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (49)..(53)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (55)..(59)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (1)..(60)
<223> /note="This sequence may encompass 0-10 '(Gly)n-Ser' repeating units where n=1-5"

<400> 115
Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly
1 5 10 15

Gly Ser Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Gly Ser Gly Gly
20 25 30

Gly Gly Gly Ser Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Gly Ser
35 40 45

Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Gly Ser
50 55 60

<210> 116
<211> 60
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<220>
<221> MISC_FEATURE
<222> (1)..(5)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (7)..(11)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (13)..(17)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (19)..(23)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (25)..(29)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (31)..(35)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (37)..(41)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (43)..(47)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (49)..(53)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (55)..(59)
<223> /note="This region may encompass 1-5 residues"

<220>
<221> MISC_FEATURE
<222> (1)..(60)
<223> /note="This sequence may encompass 0-10 '(Gly)n-Ala'
repeating units where n=1-5"

<400> 116
Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly
1 5 10 15

Gly Ala Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly Gly Ala Gly Gly
20 25 30

Gly Gly Gly Ala Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly Gly Ala
35 40 45

Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly Gly Ala
50 55 60

<210> 117
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<220>
<221> MISC_FEATURE
<222> (1)..(10)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (12)..(21)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (23)..(32)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (34)..(43)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (45)..(54)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (56)..(65)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (67)..(76)

<223> /note="This region may encompass 0-10 residues"

<220>

<221> MISC_FEATURE

<222> (78)..(87)

<223> /note="This region may encompass 0-10 residues"

<220>

<221> MISC_FEATURE

<222> (89)..(98)

<223> /note="This region may encompass 0-10 residues"

<220>

<221> MISC_FEATURE

<222> (100)..(109)

<223> /note="This region may encompass 0-10 residues"

<220>

<221> MISC_FEATURE

<222> (1)..(110)

<223> /note="This sequence may encompass 1-10 '(Gly)n-Ser'
repeating units where n=0-10"

<400> 117

Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Gly
1 5 10 15

Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
20 25 30

Ser Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly
35 40 45

Gly Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Gly Gly Gly Gly Gly
50 55 60

Gly Ser Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Ser Gly Gly Gly
65 70 75 80

Gly Gly Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Gly Gly Gly Gly
85 90 95

Gly Gly Ser Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Ser
100 105 110

<210> 118

<211> 5

<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<220>
<221> source
<223> /note="See specification as filed for detailed description of substitutions and preferred embodiments"

<400> 118
Gly Gly Gly Gly Ser
1 5

<210> 119
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<220>
<221> MISC_FEATURE
<222> (1)..(10)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (12)..(21)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (23)..(32)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (34)..(43)
<223> /note="This region may encompass 0-10 residues"

<220>
<221> MISC_FEATURE
<222> (45)..(54)
<223> /note="This region may encompass 0-10 residues"

<220>
 <221> MISC_FEATURE
 <222> (56)..(65)
 <223> /note="This region may encompass 0-10 residues"

<220>
 <221> MISC_FEATURE
 <222> (67)..(76)
 <223> /note="This region may encompass 0-10 residues"

<220>
 <221> MISC_FEATURE
 <222> (78)..(87)
 <223> /note="This region may encompass 0-10 residues"

<220>
 <221> MISC_FEATURE
 <222> (89)..(98)
 <223> /note="This region may encompass 0-10 residues"

<220>
 <221> MISC_FEATURE
 <222> (100)..(109)
 <223> /note="This region may encompass 0-10 residues"

<220>
 <221> MISC_FEATURE
 <222> (1)..(110)
 <223> /note="This sequence may encompass 1-10 '(Gly)n-Ala'
 repeating units where n=0-10"

<400> 119
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly Gly
 1 5 10 15

Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 20 25 30

Ala Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly
 35 40 45

Gly Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 50 55 60

Gly Ala Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly
 65 70 75 80

Gly Gly Gly Gly Gly Gly Gly Ala Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly

Gly Gly Ala Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Ala
100 105 110

<210> 120

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<220>

<221> source

<223> /note="See specification as filed for detailed description of substitutions and preferred embodiments"

<400> 120

Gly Gly Gly Gly Ala
1 5

<210> 121

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<221> source

<223> /note="Description of Artificial Sequence: Synthetic 6xHis tag"

<400> 121

His His His His His His
1 5