

Sequence Listing

<110> JACOBIO PHARMACEUTICALS CO., LTD

<120> BINDING MOLECULE SPECIFIC FOR CD73 AND USE OF BINDING MOLECULE

<130> JABBX100

<150> PCT/CN2019/090366

<151> 2019-06-06

<160> 127

<170> PatentIn version 3.5

<210> 1

<211> 532

<212> PRT

<213> Homo sapiens

<400> 1

Trp Glu Leu Thr Ile Leu His Thr Asn Asp Val His Ser Arg Leu Glu
1 5 10 15

Gln Thr Ser Glu Asp Ser Ser Lys Cys Val Asn Ala Ser Arg Cys Met
20 25 30

Gly Gly Val Ala Arg Leu Phe Thr Lys Val Gln Gln Ile Arg Arg Ala
35 40 45

Glu Pro Asn Val Leu Leu Leu Asp Ala Gly Asp Gln Tyr Gln Gly Thr
50 55 60

Ile Trp Phe Thr Val Tyr Lys Gly Ala Glu Val Ala His Phe Met Asn
65 70 75 80

Ala Leu Arg Tyr Asp Ala Met Ala Leu Gly Asn His Glu Phe Asp Asn
85 90 95

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

Ile Leu Ser Ala Asn Ile Lys Ala Lys Gly Pro Leu Ala Ser Gln Ile
115 120 125

Ser Gly Leu Tyr Leu Pro Tyr Lys Val Leu Pro Val Gly Asp Glu Val
130 135 140

Val Gly Ile Val Gly Tyr Thr Ser Lys Glu Thr Pro Phe Leu Ser Asn
145 150 155 160

Pro Gly Thr Asn Leu Val Phe Glu Asp Glu Ile Thr Ala Leu Gln Pro
165 170 175

Glu Val Asp Lys Leu Lys Thr Leu Asn Val Asn Lys Ile Ile Ala Leu
180 185 190

Gly His Ser Gly Phe Glu Met Asp Lys Leu Ile Ala Gln Lys Val Arg
 195 200 205

Gly Val Asp Val Val Val Gly Gly His Ser Asn Thr Phe Leu Tyr Thr
 210 215 220

Gly Asn Pro Pro Ser Lys Glu Val Pro Ala Gly Lys Tyr Pro Phe Ile
 225 230 235 240

Val Thr Ser Asp Asp Gly Arg Lys Val Pro Val Val Gln Ala Tyr Ala
 245 250 255

Phe Gly Lys Tyr Leu Gly Tyr Leu Lys Ile Glu Phe Asp Glu Arg Gly
 260 265 270

Asn Val Ile Ser Ser His Gly Asn Pro Ile Leu Leu Asn Ser Ser Ile
 275 280 285

Pro Glu Asp Pro Ser Ile Lys Ala Asp Ile Asn Lys Trp Arg Ile Lys
 290 295 300

Leu Asp Asn Tyr Ser Thr Gln Glu Leu Gly Lys Thr Ile Val Tyr Leu
 305 310 315 320

Asp Gly Ser Ser Gln Ser Cys Arg Phe Arg Glu Cys Asn Met Gly Asn
 325 330 335

Leu Ile Cys Asp Ala Met Ile Asn Asn Asn Leu Arg His Thr Asp Glu
 340 345 350

Met Phe Trp Asn His Val Ser Met Cys Ile Leu Asn Gly Gly Gly Ile
 355 360 365

Arg Ser Pro Ile Asp Glu Arg Asn Asn Gly Thr Ile Thr Trp Glu Asn
 370 375 380

Leu Ala Ala Val Leu Pro Phe Gly Gly Thr Phe Asp Leu Val Gln Leu
 385 390 395 400

Lys Gly Ser Thr Leu Lys Lys Ala Phe Glu His Ser Val His Arg Tyr
 405 410 415

Gly Gln Ser Thr Gly Glu Phe Leu Gln Val Gly Gly Ile His Val Val
 420 425 430

Tyr Asp Leu Ser Arg Lys Pro Gly Asp Arg Val Val Lys Leu Asp Val
 435 440 445

Leu Cys Thr Lys Cys Arg Val Pro Ser Tyr Asp Pro Leu Lys Met Asp
 450 455 460

Glu Val Tyr Lys Val Ile Leu Pro Asn Phe Leu Ala Asn Gly Gly Asp
 465 470 475 480

Gly Phe Gln Met Ile Lys Asp Glu Leu Leu Arg His Asp Ser Gly Asp
485 490 495

Gln Asp Ile Asn Val Val Ser Thr Tyr Ile Ser Lys Met Lys Val Ile
500 505 510

Tyr Pro Ala Val Glu Gly Arg Ile Lys Ala His His His His His His
515 520 525

His His His His
530

<210> 2
<211> 532
<212> PRT
<213> *Macaca fascicularis*

<400> 2

Trp Glu Leu Thr Ile Leu His Thr Asn Asp Val His Ser Arg Leu Glu
1 5 10 15

Gln Thr Ser Glu Asp Ser Ser Lys Cys Val Asn Ala Ser Arg Cys Met
20 25 30

Gly Gly Val Ala Arg Leu Phe Thr Lys Val Gln Gln Ile Arg Arg Ala
35 40 45

Glu Pro Asn Val Leu Leu Leu Asp Ala Gly Asp Gln Tyr Gln Gly Thr
50 55 60

Ile Trp Phe Thr Val Tyr Lys Gly Ala Glu Val Ala His Phe Met Asn
65 70 75 80

Ala Leu Arg Tyr Asp Ala Met Ala Leu Gly Asn His Glu Phe Asp Asn
85 90 95

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

Ile Leu Ser Ala Asn Ile Lys Ala Lys Gly Pro Leu Ala Ser Gln Ile
115 120 125

Ser Gly Leu Tyr Leu Pro Tyr Lys Val Leu Pro Val Gly Asp Glu Val
130 135 140

Val Gly Ile Val Gly Tyr Thr Ser Lys Glu Thr Pro Phe Leu Ser Asn
145 150 155 160

Pro Gly Thr Asn Leu Val Phe Glu Asp Glu Ile Thr Ala Leu Gln Pro
165 170 175

Glu Val Asp Lys Leu Lys Thr Leu Asn Val Asn Lys Ile Ile Ala Leu

180 185 190
 Gly His Ser Gly Phe Glu Thr Asp Lys Leu Ile Ala Gln Lys Val Arg
 195 200 205
 Gly Val Asp Val Val Val Gly Gly His Ser Asn Thr Phe Leu Tyr Thr
 210 215 220
 Gly Asn Pro Pro Ser Lys Glu Val Pro Ala Gly Lys Tyr Pro Phe Ile
 225 230 235 240
 Val Thr Ser Asp Asp Gly Arg Lys Val Pro Val Val Gln Ala Tyr Ala
 245 250 255
 Phe Gly Lys Tyr Leu Gly Tyr Leu Lys Ile Glu Phe Asp Glu Arg Gly
 260 265 270
 Asn Val Ile Ser Ser His Gly Asn Pro Ile Leu Leu Asn Ser Ser Ile
 275 280 285
 Pro Glu Asp Pro Ser Ile Lys Ala Asp Ile Asn Lys Trp Arg Ile Lys
 290 295 300
 Leu Asp Asn Tyr Ser Thr Gln Glu Leu Gly Lys Thr Ile Val Tyr Leu
 305 310 315 320
 Asp Gly Ser Ser Gln Ser Cys Arg Phe Arg Glu Cys Asn Met Gly Asn
 325 330 335
 Leu Ile Cys Asp Ala Met Ile Asn Asn Asn Leu Arg His Ala Asp Glu
 340 345 350
 Met Phe Trp Asn His Val Ser Met Cys Ile Leu Asn Gly Gly Gly Ile
 355 360 365
 Arg Ser Pro Ile Asp Glu Arg Asn Asn Gly Thr Ile Thr Trp Glu Asn
 370 375 380
 Leu Ala Ala Val Leu Pro Phe Gly Gly Thr Phe Asp Leu Val Gln Leu
 385 390 395 400
 Lys Gly Ser Thr Leu Lys Lys Ala Phe Glu His Ser Val His Arg Tyr
 405 410 415
 Gly Gln Ser Thr Gly Glu Phe Leu Gln Val Gly Gly Ile His Val Val
 420 425 430
 Tyr Asp Leu Ser Arg Lys Pro Gly Asp Arg Val Val Lys Leu Asp Val
 435 440 445
 Leu Cys Thr Lys Cys Arg Val Pro Ser Tyr Asp Pro Leu Lys Met Asp
 450 455 460

Glu Ile Tyr Lys Val Ile Leu Pro Asn Phe Leu Ala Asn Gly Gly Asp
465 470 475 480

Gly Phe Gln Met Ile Lys Asp Glu Leu Leu Arg His Asp Ser Gly Asp
485 490 495

Gln Asp Ile Asn Val Val Ser Thr Tyr Ile Ser Lys Met Lys Val Ile
500 505 510

Tyr Pro Ala Val Glu Gly Arg Ile Lys Ala His His His His His
515 520 525

His His His His
530

<210> 3
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 3

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

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

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

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

Lys Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
65 70 75 80

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

Ala Arg Arg Gly Tyr Asp Glu Thr Gly Tyr Ala Met Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Ser Val Thr Val Ser Ser
115 120

<210> 4
<211> 363
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 4
gagggtgcagc tgaaggagtc tggggctgag ctggtgaagc ctggggcctc agtgaagatt 60
tctgcaaag ctactggcta tacattcact ggctactgga tagagtgggt aaagcagagg 120
cctggacgtg gacctgagtg gattggagag attttacctg gaagtatat tactaactac 180
aatgagaagt tcaagggcaa ggccacaatc actgcagata catctccaa cacagcctac 240
atgcaactca gcagcctgac aactgaggac tctgcatct attactgtgc aagaaggggt 300
tacgacgaga cgggctatgc tatggactac tggggtaag gaacctcagt cacagtctcc 360
tca 363

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

<220>
<223> synthetic polypeptide

<400> 5

Gly Tyr Trp Ile Glu
1 5

<210> 6
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 6

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

Gly

<210> 7
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 7

Arg Gly Tyr Asp Glu Thr Gly Tyr Ala Met Asp Tyr
1 5 10

<210> 8
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 8

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

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

Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile His Ala Ala Ser Asn Leu Glu Ser Gly Ile Pro Ala
50 55 60

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

Pro Val Glu Glu Glu Asp Ala Ala Val Tyr Phe Cys Gln Gln Ser Lys
85 90 95

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

<210> 9

<211> 333

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic polynucleotide

<400> 9

gacattgtga tgacccaatc tccagctct ttggctgtgt ctctagggca gagggccacc 60

atctcctgca aggccagcca aagtgtgat tatgatggg atagctatat gaactggtag 120

caacagaaac caggacagcc acccaaacct ctcatcatg ctgcatccaa tctagaatct 180

gggatcccag ccaggtttag tggcagtggt tctgggacag acttcaccct caacatccat 240

cctgtggagg aagaggatgc tgcagtgtat ttctgcagc aaagtaagga ggttccgtgg 300

acgttcgtgg aagggaccaa gctggaaatc aaa 333

<210> 10

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 10

Lys Ala Ser Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn
1 5 10 15

<210> 11

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 11

Ala Ala Ser Asn Leu Glu Ser
1 5

<210> 12

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 12

Gln Gln Ser Lys Glu Val Pro Trp Thr
1 5

<210> 13

<211> 451

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 13

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

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

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

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

Lys Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
65 70 75 80

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

Ala Arg Arg Gly Tyr Asp Glu Thr Gly Tyr Ala Met Asp Tyr Trp Gly
100 105 110

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

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

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

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

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

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

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

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

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

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
260 265 270

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

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

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

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

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

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

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

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

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

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met

420 425 430

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

Pro Gly Lys
450

<210> 14
<211> 218
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 14

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

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

Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile His Ala Ala Ser Asn Leu Glu Ser Gly Ile Pro Ala
50 55 60

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

Pro Val Glu Glu Glu Asp Ala Ala Val Tyr Phe Cys Gln Gln Ser Lys
85 90 95

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

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
115 120 125

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
130 135 140

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

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
165 170 175

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

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

195 200 205

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 15
<211> 447
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 15

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

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

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

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

Lys Gly Lys Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
65 70 75 80

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

Ala Arg Arg Gly Tyr Asp Glu Thr Gly Tyr Ala Met Asp Tyr Trp Gly
100 105 110

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

Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala
130 135 140

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

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

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

Pro Ser Ser Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His
195 200 205

Lys Pro Ser Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys Cys

210	215	220
Val Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val		
225	230	235 240
Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr		
245	250	255
Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu		
260	265	270
Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys		
275	280	285
Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser		
290	295	300
Val Leu Thr Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys		
305	310	315 320
Cys Lys Val Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile		
325	330	335
Ser Lys Thr Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro		
340	345	350
Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu		
355	360	365
Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn		
370	375	380
Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser		
385	390	395 400
Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg		
405	410	415
Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu		
420	425	430
His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys		
435	440	445
<210> 16		
<211> 119		
<212> PRT		
<213> Artificial Sequence		
<220>		
<223> synthetic polypeptide		
<400> 16		
Gln Val Gln Leu Gln Gln Ser Gly Leu Glu Leu Val Lys Pro Gly Ala		

1 5 10 15

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

Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
 35 40 45

Gly Tyr Ile Lys Pro His Asn Gly Gly Thr Thr Tyr Asn Pro Lys Phe
 50 55 60

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

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

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

Thr Thr Val Thr Val Ser Ser
 115

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

<220>
<223> synthetic polynucleotide

<400> 17
caggccaac tgcagcagtc tggactgag ctggtgaagc ctggggcttc agtgaagatg 60
tctgcaagg cttctggata cacattcact gactacaaca tgcactgggt gaagcagagc 120
catggaaga gccttgagtg gattggatat attaagcctc acaatgggtg tactacctac 180
aaccogaagt tcgagggcaa ggccacattg actgtaaaca agtcttcag cacagcctac 240
atggagctcc gcagcctgac atcggaggat tctgcagtct attactgtgt aagatcgcat 300
tttctctact ggtatttoga tgtctggggc acagggaacca cggtcaccgt ctctca 357

<210> 18
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 18

Asp Tyr Asn Met His
1 5

<210> 19
<211> 17
<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 19

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

Gly

<210> 20

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 20

Cys Asp Phe Leu Tyr Trp Tyr Phe Asp Val
1 5 10

<210> 21

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 21

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

Glu Arg Val Thr Met Thr Cys Thr Ala Ser Ser Ser Val Ser Ser Ser
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Ser Ser Pro Lys Leu Trp
35 40 45

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

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

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys His Gln Tyr His Arg Ser Pro
85 90 95

Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Met Lys
100 105

<210> 22

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic polynucleotide

<400> 22

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gacattgtga tgaccagtc tccagcaatc atgtctgcat ctctagggga acgggtcacc    60
atgacctgca ctgccagctc aagtgttaagt tccagtactc tgcactggta ccagcagaag    120
ccaggatcct cccccaaact ctggatttat agcacatcca acctggcttc tggagtccca    180
ggtcgcttca gtggcagtggt gtctgggacc tottactctc tcacaatcag cagcatggag    240
gctgaagatg ctgccactta ttactgccac cagtatcatc gttccccgct cacgttcggt    300
gctgggacca agctggaaat gaaa                                     324
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<210> 23

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 23

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Thr Ala Ser Ser Ser Val Ser Ser Ser Tyr Leu His
1      5      10
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<210> 24

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 24

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Ser Thr Ser Asn Leu Ala Ser
1      5
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<210> 25

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 25

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His Gln Tyr His Arg Ser Pro Leu Thr
1      5
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<210> 26

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 26

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

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

Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
35 40 45

Gly Tyr Ile Lys Pro His Asn Gly Gly Thr Thr Tyr Asn Pro Lys Phe
50 55 60

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

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

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

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

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

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

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

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

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

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

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

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

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

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

275 280 285

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

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

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

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

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

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

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

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

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

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

Lys

<210> 27

<211> 445

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 27

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

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

Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
35 40 45

Gly Tyr Ile Lys Pro His Asn Gly Gly Thr Thr Tyr Asn Pro Lys Phe

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

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

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

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
370 375 380

Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
385 390 395 400

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
405 410 415

Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
420 425 430

His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 28

<211> 215

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 28

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

Glu Arg Val Thr Met Thr Cys Thr Ala Ser Ser Ser Val Ser Ser Ser
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Ser Ser Pro Lys Leu Trp
35 40 45

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

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

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys His Gln Tyr His Arg Ser Pro
85 90 95

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

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

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

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

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

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

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

Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 29
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 29

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

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

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

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

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

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

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

Leu Val Thr Val Ser Ala
115

<210> 30
<211> 354
<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic polynucleotide

<400> 30

caggtccacc tgcagcagtc tggggctgaa ctggcaaac ctggggcctc agtgaacctg 60

tctcgcaagg cttctggcta cgctttact agttactgga tgcactgggt aaaacagagg 120

cctggacagg gtcggaatg gattggatac attaatccta gcagtgtct tgctaagtat 180

aatcagaagt tcaaagacaa ggccacattg actacagaca aatcttcaa cacagcctac 240

atgcaactga gcagcctgac atatgacgac tctgcagtct attactgtgg aagatggta 300

ctttcggcct ggtttgctta ctggggccaa gggactctgg tcactgtctc tgca 354

<210> 31

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 31

Ser Tyr Trp Met His

1 5

<210> 32

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 32

Tyr Ile Asn Pro Ser Ser Gly Leu Ala Lys Tyr Asn Gln Lys Phe Lys

1 5 10 15

Asp

<210> 33

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 33

Trp Leu Leu Ser Ala Trp Phe Ala Tyr

1 5

<210> 34

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 34

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

Glu Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Gly Ile Asn Thr Tyr
20 25 30

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Thr Leu Ile
35 40 45

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

Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Asn Ser Leu Glu Tyr
65 70 75 80

Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Glu Phe Pro Tyr
85 90 95

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

<210> 35

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic polynucleotide

<400> 35

gacatcaaga tgaccagtc tccatcttc atatgcat ctctaggaga gagagtcact 60

atcacttgca aggcgagtc gggcattaat acctatttaa gctggtcca gcagaaacca 120

ggaaaatctc ctaagacct gatctatcgt gcaaacatct tggtagatgg ggtcccatca 180

aggttcagtg gcagtgatc tgggcaagat tattctctca ccatcaacag cctggagtat 240

gaagatatgg gaatttatta ttgtctacag tatgatgagt ttccgtacac gttcggaggg 300

gggaccaagc tggaataaaa a 321

<210> 36

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 36

Lys Ala Ser Gln Gly Ile Asn Thr Tyr Leu Ser
1 5 10

<210> 37

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

<220>
<223> synthetic polypeptide

<400> 37

Arg Ala Asn Ile Leu Val Asp
1 5

<210> 38
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 38

Leu Gln Tyr Asp Glu Phe Pro Tyr Thr
1 5

<210> 39
<211> 444
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 39

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

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

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

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

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

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

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

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

Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly

130 135 140
 Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
 145 150 155 160
 Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
 165 170 175
 Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
 180 185 190
 Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
 195 200 205
 Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys Cys Val Glu Cys
 210 215 220
 Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe
 225 230 235 240
 Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 245 250 255
 Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln Phe
 260 265 270
 Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 275 280 285
 Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr
 290 295 300
 Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 305 310 315 320
 Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr
 325 330 335
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 340 345 350
 Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 355 360 365
 Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 370 375 380
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
 385 390 395 400
 Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440

<210> 40

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 40

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

Glu Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Gly Ile Asn Thr Tyr
20 25 30

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Thr Leu Ile
35 40 45

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

Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Asn Ser Leu Glu Tyr
65 70 75 80

Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Glu Phe Pro Tyr
85 90 95

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

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

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

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

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

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

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

Phe Asn Arg Gly Glu Cys
210

<210> 41
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 41

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

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

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

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

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

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

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

Leu Val Thr Val Ser Ala
115

<210> 42
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 42

caggtccagc tgcagcagtc tggggctgaa ctggcaaaac ctggggcctc agtgaagctg 60

ttctgcaagg cttctggcta cacctttact agttactgga tgcactgggt aaaacagagg 120

cctggacagg gtcggaatg gattggatac attaatccta gcagtggta tactaagtcc 180

aatcagaagt tcaaggacaa ggccacattg actgcagaca aatcctccag cacagcctac 240

atgcagctga gcagcctgac atatgaggac tctgcagtct attactgtgg aagatggta 300

ctttcggcct ggtttgctta ctggggccaa gggactctgg tcactgtctc tgca 354

<210> 43

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

<220>
<223> synthetic polypeptide

<400> 43

Ser Tyr Trp Met His
1 5

<210> 44
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 44

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

Asp

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

<220>
<223> synthetic polypeptide

<400> 45

Trp Leu Leu Ser Ala Trp Phe Ala Tyr
1 5

<210> 46
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 46

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

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

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Ser Leu Ile
35 40 45

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

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

Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Asp Phe Pro Tyr
85 90 95

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

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

<220>
<223> synthetic polynucleotide

<400> 47
gacatcagga tgaccagtc tccatcttc atgtatgat ctctaggaga gagagtcact 60
atcacttga aggcgagtc ggacattaat acctatata gctggtcca gcagaaacca 120
ggaaaatctc ctaagtcct gatctatgc tcaaacatct tggtagatgg ggtccatca 180
agattcagtg gcagtgatc tggtaagat tattctctca ccatcagcag cctggagtat 240
gaggatatgg gaatttatta ttgtctacag tatgatgact ttccgtacac gttcggaggg 300
gggaccaagc tggaaataaa a 321

<210> 48
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 48

Lys Ala Ser Gln Asp Ile Asn Thr Tyr Leu Ser
1 5 10

<210> 49
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 49

Arg Ser Asn Ile Leu Val Asp
1 5

<210> 50
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 50

Leu Gln Tyr Asp Asp Phe Pro Tyr Thr
1 5

<210> 51

<211> 444

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 51

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

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

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

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

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

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

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

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

Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly
130 135 140

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

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

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

Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
195 200 205

Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys Cys Val Glu Cys

210 215 220
 Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe
 225 230 235 240
 Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 245 250 255
 Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln Phe
 260 265 270
 Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 275 280 285
 Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr
 290 295 300
 Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 305 310 315 320
 Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr
 325 330 335
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 340 345 350
 Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 355 360 365
 Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 370 375 380
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
 385 390 395 400
 Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 405 410 415
 Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 420 425 430
 Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 435 440
 <210> 52
 <211> 448
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> synthetic polypeptide
 <400> 52
 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala

1 5 10 15

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
260 265 270

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

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

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

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

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

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

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

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

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

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

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

<210> 53
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 53

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

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

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Ser Leu Ile
35 40 45

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

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

Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Asp Phe Pro Tyr
85 90 95

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

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

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

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

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

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

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

Phe Asn Arg Gly Glu Cys
210

<210> 54

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 54

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

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

Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
35 40 45

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

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

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

Arg Glu Arg Gly Ser Ser Trp Gly Thr Met Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Ser Val Thr Val Ser Ser
115

<210> 55
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 55
cagggtgcagc tgaaggagtc aggacctggc ctggtggcgc cctcacagag cctgtccatc 60
acttgcactg tctctgggtt ttcatiaacc aactatggtg tacactgggt tcgccagcct 120
ccaggaaagg gtcctggagtg gctgggagta atatgggctg gtggaagcac aaattataat 180
tcggctctca tgtccagact gagcatcagc aaagacaact ccaagagcca acttttctta 240
aaaatgaaca gtcgcaagc tgatgacaca gccatgtact actgtgccag agagaggggt 300
agtagctggg ggactatgga ctactgggt caaggaaact cagtcactgt ctctca 357

<210> 56
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 56

Asn Tyr Gly Val His
1 5

<210> 57
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 57

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

<210> 58
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 58

Glu Arg Gly Ser Ser Trp Gly Thr Met Asp Tyr

1 5 10

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

<220>
<223> synthetic polypeptide

<400> 59

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

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

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

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

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

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

Phe Gly Gly Gly Thr Lys Leu Glu Met Arg
100 105

<210> 60
<211> 318
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 60

caaattgttc tcaccagtc tcacgaatc atgtctgcat ctccagggga gaagtcacc 60
atgacctgca gtgccagctc acgtgtaagt tacatgcact ggtaccagca gaagtcaggc 120
acctccccc aaagatggat ttatgacaca tccaactgg cttctggagt cctgctcgc 180
ttcagtggca gtgggtctgg gacctttac tcttcacaa tcagcagcat ggaggctgaa 240
gatgctgcca cttattactg ccagcagtagg agtagtaacc catacacgtt cggagggggg 300
accaagctgg aaatgaga 318

<210> 61
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 61

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

<210> 62

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 62

Asp Thr Ser Gln Leu Ala Ser
1 5

<210> 63

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 63

Gln Gln Trp Ser Ser Asn Pro Tyr Thr
1 5

<210> 64

<211> 445

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 64

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

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

Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
35 40 45

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

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

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

Arg Glu Arg Gly Ser Ser Trp Gly Thr Met Asp Tyr Trp Gly Gln Gly

100 105 110
 Thr Ser Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe
 115 120 125
 Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu
 130 135 140
 Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
 145 150 155 160
 Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
 165 170 175
 Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
 180 185 190
 Ser Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro
 195 200 205
 Ser Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys Cys Val Glu
 210 215 220
 Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu
 225 230 235 240
 Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu
 245 250 255
 Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln
 260 265 270
 Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys
 275 280 285
 Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu
 290 295 300
 Thr Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys
 305 310 315 320
 Val Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys
 325 330 335
 Thr Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
 340 345 350
 Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
 355 360 365
 Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
 370 375 380

Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
385 390 395 400

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
405 410 415

Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
420 425 430

His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

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

<220>
<223> synthetic polypeptide

<400> 65

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

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

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

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

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

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

Phe Gly Gly Gly Thr Lys Leu Glu Met Arg 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> 66
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 66

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

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

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

Gly Tyr Ile Lys Pro His Asn Ala Gly Thr Thr Tyr Asn Pro Lys Phe
50 55 60

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

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

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

Thr Thr Val Thr Val Ser Ser
115

<210> 67
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 67

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

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr

20 25 30

Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
35 40 45

Gly Tyr Ile Lys Pro His Asn Ala Gly Thr Thr Tyr Asn Pro Lys Phe
50 55 60

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

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

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

Thr Thr Val Thr Val Ser Ser
115

<210> 68

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 68

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 Thr Ala Ser Ser Ser Val Ser Ser Ser
20 25 30

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

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

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

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr His Arg Ser Pro
85 90 95

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

<210> 69

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 69

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 Thr Ala Ser Ser Ser Val Ser Ser Ser
20 25 30

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

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

Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln
65 70 75 80

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr His Arg Ser Pro
85 90 95

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

<210> 70

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 70

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

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

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Ser Ser Pro Lys Leu Trp
35 40 45

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

Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln
65 70 75 80

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr His Arg Ser Pro
85 90 95

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

<210> 71
<211> 449
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 71

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

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

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

Gly Tyr Ile Lys Pro His Asn Ala Gly Thr Thr Tyr Asn Pro Lys Phe
50 55 60

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Lys

<210> 72

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 72

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

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

Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
35 40 45

Gly Tyr Ile Lys Pro His Asn Ala Gly Thr Thr Tyr Asn Pro Lys Phe
50 55 60

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val

290 295 300
 Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
 305 310 315 320
 Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys
 325 330 335
 Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
 340 345 350
 Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr
 355 360 365
 Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
 370 375 380
 Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
 385 390 395 400
 Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
 405 410 415
 Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
 420 425 430
 Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
 435 440 445
 Lys

 <210> 73
 <211> 215
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> synthetic polypeptide

 <400> 73
 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 Thr Ala Ser Ser Ser Val Ser Ser Ser
 20 25 30
 Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu
 35 40 45
 Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser
 50 55 60
 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln

65 70 75 80
 Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr His Arg Ser Pro
 85 90 95
 Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala
 100 105 110
 Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
 115 120 125
 Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
 130 135 140
 Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
 145 150 155 160
 Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
 165 170 175
 Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
 180 185 190
 Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
 195 200 205
 Ser Phe Asn Arg Gly Glu Cys
 210 215
 <210> 74
 <211> 215
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> synthetic polypeptide
 <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 Thr Ala Ser Ser Ser Val Ser Ser Ser
 20 25 30
 Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Ser Ala Pro Lys Leu Trp
 35 40 45
 Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser
 50 55 60
 Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln
 65 70 75 80
 Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr His Arg Ser Pro

85 90 95

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

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

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

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

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

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

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

Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 75

<211> 215

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 75

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

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

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Ser Ser Pro Lys Leu Trp
35 40 45

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

Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln
65 70 75 80

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr His Arg Ser Pro
85 90 95

Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala

100 105 110

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

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

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

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

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

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

Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 76

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 76

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

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

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

Lys Asp Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

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

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

Leu Val Thr Val Ser Ser

115

<210> 77

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 77

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

Trp Met His Trp Val Arg Gln Arg Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

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

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

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

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

Leu Val Thr Val Ser Ser
115

<210> 78

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 78

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

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

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

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

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

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

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

Leu Val Thr Val Ser Ser
115

<210> 79
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 79

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 Lys Ala Ser Gln Asp Ile Asn Thr Tyr
20 25 30

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Ser Leu Ile
35 40 45

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

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

Glu Asp Phe Ala Ile Tyr Tyr Cys Leu Gln Tyr Asp Asp Phe Pro Tyr
85 90 95

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

<210> 80
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 80

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 Lys Ala Ser Gln Asp Ile Asn Thr Tyr

20 25 30

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Ser Leu Ile
35 40 45

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

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

Glu Asp Phe Ala Ile Tyr Tyr Cys Leu Gln Tyr Asp Asp Phe Pro Tyr
85 90 95

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

<210> 81

<211> 448

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 81

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

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

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

Lys Asp Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

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

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

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

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

Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn

145 150 155 160
 Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
 165 170 175
 Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
 180 185 190
 Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
 195 200 205
 Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr
 210 215 220
 His Thr Lys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
 225 230 235 240
 Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg
 245 250 255
 Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
 260 265 270
 Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala
 275 280 285
 Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val
 290 295 300
 Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
 305 310 315 320
 Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr
 325 330 335
 Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu
 340 345 350
 Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys
 355 360 365
 Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
 370 375 380
 Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
 385 390 395 400
 Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
 405 410 415
 Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
 420 425 430

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

<210> 82
 <211> 448
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic polypeptide

<400> 82

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

Trp Met His Trp Val Arg Gln Arg Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

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

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

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

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

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

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

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

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

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

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

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

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

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

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
260 265 270

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

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

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

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

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

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

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

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

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

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

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

<210> 83

<211> 448

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 83

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
260 265 270

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

Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val

290 295 300
 Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
 305 310 315 320
 Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr
 325 330 335
 Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu
 340 345 350
 Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys
 355 360 365
 Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
 370 375 380
 Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
 385 390 395 400
 Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
 405 410 415
 Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
 420 425 430
 Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 435 440 445
 <210> 84
 <211> 214
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> synthetic polypeptide
 <400> 84
 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 Lys Ala Ser Gln Asp Ile Asn Thr Tyr
 20 25 30
 Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Ser Leu Ile
 35 40 45
 Tyr Arg Ser Asn Ile Leu Val Asp Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Gln Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Ile Tyr Tyr Cys Leu Gln Tyr Asp Asp Phe Pro Tyr

85 90 95

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

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

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

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

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

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

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

Phe Asn Arg Gly Glu Cys
210

<210> 85

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 85

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 Lys Ala Ser Gln Asp Ile Asn Thr Tyr
20 25 30

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Ser Leu Ile
35 40 45

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

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

Glu Asp Phe Ala Ile Tyr Tyr Cys Leu Gln Tyr Asp Asp Phe Pro Tyr
85 90 95

Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala

100 105 110

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

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

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

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

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

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

Phe Asn Arg Gly Glu Cys
210

<210> 86

<211> 442

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 86

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

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

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

Lys Asp Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

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

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

Leu Val Thr Val Ser Ser Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro

115	120	125
Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly		
130	135	140
Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn		
145	150	155
	160	
Ser Gly Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln		
165	170	175
Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr		
180	185	190
Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser		
195	200	205
Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro		
210	215	220
Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro		
225	230	235
	240	
Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys		
245	250	255
Val Val Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp		
260	265	270
Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu		
275	280	285
Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met		
290	295	300
His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser		
305	310	315
	320	
Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly		
325	330	335
Arg Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln		
340	345	350
Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe		
355	360	365
Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu		
370	375	380
Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe		
385	390	395
	400	

Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn
405 410 415

Thr Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr
420 425 430

Glu Lys Ser Leu Ser His Ser Pro Gly Lys
435 440

<210> 87

<211> 442

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 87

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

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

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

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

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

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

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

Leu Val Thr Val Ser Ser Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro
115 120 125

Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly
130 135 140

Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn
145 150 155 160

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

Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr
180 185 190

Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser
195 200 205

Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro
210 215 220

Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro
225 230 235 240

Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys
245 250 255

Val Val Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp
260 265 270

Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu
275 280 285

Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met
290 295 300

His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser
305 310 315 320

Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly
325 330 335

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

Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe
355 360 365

Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu
370 375 380

Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe
385 390 395 400

Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn
405 410 415

Thr Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr
420 425 430

Glu Lys Ser Leu Ser His Ser Pro Gly Lys
435 440

<210> 88

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 88

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 Lys Ala Ser Gln Asp Ile Asn Thr Tyr
20 25 30

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Ser Leu Ile
35 40 45

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

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

Glu Asp Phe Ala Ile Tyr Tyr Cys Leu Gln Tyr Asp Asp Phe Pro Tyr
85 90 95

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

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

Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile
130 135 140

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

Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser
165 170 175

Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr
180 185 190

Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser
195 200 205

Phe Asn Arg Asn Glu Cys
210

<210> 89

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 89

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 Lys Ala Ser Gln Asp Ile Asn Thr Tyr
20 25 30

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Ser Leu Ile
35 40 45

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

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

Glu Asp Phe Ala Ile Tyr Tyr Cys Leu Gln Tyr Asp Asp Phe Pro Tyr
85 90 95

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

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

Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile
130 135 140

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

Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser
165 170 175

Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr
180 185 190

Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser
195 200 205

Phe Asn Arg Asn Glu Cys
210

<210> 90

<211> 448

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 90

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

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

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

Lys Asp Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

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

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

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

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

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

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

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

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

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

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Phe Glu Gly Gly Pro Ser
225 230 235 240

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

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
260 265 270

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

Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val

290 295 300
 Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
 305 310 315 320
 Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Ser Ile Glu Lys Thr
 325 330 335
 Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu
 340 345 350
 Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys
 355 360 365
 Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
 370 375 380
 Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
 385 390 395 400
 Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
 405 410 415
 Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
 420 425 430
 Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 435 440 445
 <210> 91
 <211> 448
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> synthetic polypeptide
 <400> 91
 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
 20 25 30
 Trp Met His Trp Val Arg Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Tyr Ile Asn Pro Ser Ser Gly Tyr Thr Lys Ser Asn Gln Lys Phe
 50 55 60
 Lys Asp Arg Ala Thr Leu Thr Ala Asp Thr Ser Thr Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

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

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

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

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

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

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

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

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

His Thr Cys Pro Pro Cys Pro Ala Pro Glu Phe Glu Gly Gly Pro Ser
225 230 235 240

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

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
260 265 270

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

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

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

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

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

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

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

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

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

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

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

<210> 92
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 92
 cagggtgcagc tggtcagag cggcgccgag gtgaagaagc ccggcgccag cgtgaagatg 60
 agctgcaagg ccagcgcta cacttcacc gactacaaca tgcactgggt gagacagagc 120
 ccgggcaaga gcctggagtg gatcggtac atcaagcccc acaacgcgg caccacctac 180
 aacccaagt tcgagggcag agccaccctg accgtggaca ccagcgccag caccgcctac 240
 atggagctga gcagcctgag aagcgaggac accgccgtgt actactgctg aagaagcgac 300
 ttctgtact ggtacttoga cgtgtggggc cagggcacca ccgtgaccgt gtctca 357

<210> 93
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 93
 cagggtgcagc tggtcagag cggcgccgag gtgaagaagc ccggcgccag cgtgaagatg 60
 agctgcaagg ccagcgcta cacttcacc gactacaaca tgcactgggt gaagcagagc 120
 cacggcaaga gcctggagtg gatcggtac atcaagcccc acaacgcgg caccacctac 180
 aacccaagt tcgagggcag agccaccctg accgtggaca ccagcgccag caccgcctac 240
 atggagctga gaagcctgag aagcgaggac accgccgtgt actactgctg aagaagcgat 300
 ttctgtact ggtatttoga tgtctggggc cagggcacca ccgtgaccgt gtctca 357

<210> 94
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 94
 gacatccaga tgaccagag cccagcagc ctgagcgcca gcgtgggcca cagagtgacc 60
 atcacctgca ccgccagcag cagcgtgagc agcagctacc tgactggta ccagcagaag 120
 cccggcaagg ccccaagct gctgatctac agcaccagca acctggccag cggcgtgccc 180
 agcagattca gcggcagcgg cagcggcacc gacttcccc tgaccatcag cagcctgcag 240
 cccgaggact tcgccacct ctactgccac cagtatcatc gttccccgt cagttcggc 300
 gccggcacca agctggagat caag 324

<210> 95
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 95
 gacatccaga tgaccagag cccagcagc ctgagcgcca gcgtgggcca cagagtgacc 60
 atcacctgca ccgccagcag cagcgtgagc agcagctacc tgactggta ccagcagaag 120
 cccggcagcg ccccaagct gtggatctac agcaccagca acctggccag cggcgtgccc 180
 agcagattca gcggcagcgg cagcggcacc gactaccccc tgaccatcag cagcctgcag 240
 cccgaggact tcgccacct ctactgccac cagtatcatc gttccccgt cagttcggc 300
 gccggcacca agctggagat caag 324

<210> 96
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 96
 gacatcgtga tgaccagag cccagcagc ctgagcgcca gcgtgggcca cagagtgacc 60
 atcacctgca ccgccagcag cagcgtgagc agcagctacc tgactggta ccagcagaag 120
 cccggcagca gcccaagct gtggatctac agcaccagca acctggccag cggcgtgccc 180
 gccagattca gcggcagcgg cagcggcacc gactaccccc tgaccatcag cagcctgcag 240
 cccgaggact tcgccacct ctactgccac cagtatcatc gttccccgt cagttcggc 300
 gccggcacca agctggagat caag 324

<210> 97
 <211> 1347
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 97

cagggtgcagc tgggtcagag cggcgccgag gtgaagaagc ccggcgccag cgtgaagatg 60
 agctgcaagg ccagcggcta caccttcacc gactacaaca tgcactgggt gagacagagc 120
 cccggaaga gcttgagtg gatcggtac atcaagcccc acaacgcgg caccacctac 180
 aacccaagt tgcagggcag agccaccctg accgtggaca ccagcgccag caccgcctac 240
 atggagctga gcagcctgag aagcgaggac accgccgtgt actactgctg aagaagcgac 300
 ttctgtact ggtacttga cgtgtggggc cagggcacca ccgtgacctg gtctcagct 360
 agcaccaagg gccatcgggt cttccccctg gcacctctc ccaagagcac ctctgggggc 420
 acagcgccc tgggctgctt ggtcaaggac tacttccccg aaccggtgac ggtgtcgtgg 480
 aactcaggcg cctgaccag cggcgtgcac acctccccg ctgtcttaca gtctcagga 540
 ctctactccc tcagcagcgt ggtgacctg ccctccagca gcttgggcac ccagacctac 600
 atctgcaacg tgaatcaca gccacgaac accaaggtgg acaaaaaagt tgaacccaaa 660
 tctgtgaca aaactcacac atgcccaccg tgcccagcac ctgaactctt ggggggaccg 720
 tcagtcttc tcttcccc aaacccaag gacacctca tgaatcccc gacctctgag 780
 gtcacatgag tgggtgtgga cgtgagccac gaagacctg aggtcaagtt caactggtac 840
 gtggagggcg tggagggtga taatccaag acaaagccgc gggaggagca gtacaacagc 900
 acgtacctg tggtcagcgt cctcaccgtc ctgcaccagg actggctgaa tggcaaggag 960
 tacaagtga aggttccaa caaagccctc ccagcccca tcgagaaaac catctccaaa 1020
 gccaaaggcg agccccgaga accacagggtg tacacctgc cccatccccg ggtgagttg 1080
 accaagaacc aggtcagcct gacctgcctg gtcaaaggct tctatcccag cgacatcgcc 1140
 gtggagtggt agagcaatgg gcagccggag aacaactaca agaccacgcc tccgtgctg 1200
 gactccgagc gctcttctt cctctacagc aagctcaccg tggacaagag caggtggcag 1260
 caggggaacg tcttctcatg ctccgtgatg catgaggctc tgcacaacca ctacacgag 1320
 aagagcctct ccctgtctcc gggtaaa 1347

<210> 98
 <211> 1347
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 98
 cagggtgcagc tgggtcagag cggcgccgag gtgaagaagc ccggcgccag cgtgaagatg 60
 agctgcaagg ccagcggcta caccttcacc gactacaaca tgcactgggt gaagcagagc 120
 cccggaaga gcttgagtg gatcggtac atcaagcccc acaacgcgg caccacctac 180
 aacccaagt tgcagggcag agccaccctg accgtggaca ccagcgccag caccgcctac 240
 atggagctga gaagcctgag aagcgaggac accgccgtgt actactgctg aagaagcgat 300
 ttctgtact ggtatttga tgtctggggc cagggcacca ccgtgacctg gtctcagct 360
 agcaccaagg gccatcgggt cttccccctg gcacctctc ccaagagcac ctctgggggc 420

acagcgcccc tgggctgcct ggtcaaggac tacttccccg aaccggtgac ggtgtcgtgg 480
 aactcaggcg cctgaccag cggcgtgcac accttccccg ctgtcctaca gtctcagga 540
 ctctactccc tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac ccagacctac 600
 atctgaacg tgaatcaca gccagcaac accaagggtg acaagaaagt tgagcccaaa 660
 tctgtgaca aaatcacac atgcccacg tgcccagcac ctgaactct ggggggaccg 720
 tcagtcttc tcttcccc aaaaccaag gacacctca tgatctccg gacctctgag 780
 gtcacatcg tgggtgtga cgtgagcac gaagacctg aggtcaagt caactgtac 840
 gtggacggcg tggagggtga taatccaag acaaagccgc gggaggagca gtacaacagc 900
 acgtaccgtg tggtagcgt cctcaccgtc ctgcaccag actggctgaa tggcaaggag 960
 tacaagtga aggtctcaa caaagccctc ccagcccca tcgagaaaac catctcaaa 1020
 gccaaagggc agccccgaga accacagggtg tacacctgc cccatcccg ggatgagtg 1080
 accaagaacc aggtcagcct gacctgctg gtcaaaggct tctatcccag cgacatgcc 1140
 gtggagtgg agagcaatgg gcagccggag aacaactaca agaccagcc tccgtgtg 1200
 gactccgacg gctcttctt cctctacagc aagctcaccg tggacaagag cagggtgcag 1260
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 aagagcctct ccctgtctcc gggtaaa 1347

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 <213> Artificial Sequence

<220>
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<400> 99
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 cccggcaagg ccccaagct gctgatctac agcaccagca acctggccag cggcgtgccc 180
 agcagattca gcgcagcgg cagcggcacc gacttcccc tgaccatcag cagcctgcag 240
 cccgaggact tcgccacct ctactgccac cagtatcatc gttccccgt cagttcggc 300
 gccggacca agctggagat caagcgtacg gtggctgcac catctgtct catcttccg 360
 ccactgatg agcagttgaa atctggaact gcctctgtt tgtgctgtct gaataacttc 420
 tatccagag aggccaaagt acagtgaag gtggataacg cctccaatc gggtaactcc 480
 caggagagtg tcacagagca ggacagcaag gacagacct acagcctcag cagcacctg 540
 acgtgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag 600
 ggccgtgagct cggcgtcac aaagagcttc aacaggggag agtgt 645

<210> 100
 <211> 645
 <212> DNA
 <213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 100
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cccgagcagc cccccaagct gtggatctac agcaccagca acctggccag cggcgtgccc 180
agcagattca gcggcagcgg cagcggcacc gactacacc tgaccatcag cagcctgcag 240
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gccggcacca agctggagat caagcgtacg gtggctgcac catctgtct catcttccg 360
ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgcctgct gaataacttc 420
tatccagag aggccaaagt acagtgaag gtggataacg ccctccaatc gggaactcc 480
caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcacctg 540
acgtgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag 600
ggcctgagct cgcccgtcac aaagagcttc aacaggggag agtgt 645

<210> 101
<211> 645
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 101
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atcacctgca ccgccagag cagcgtgagc agcagctacc tgactggta ccagcagaag 120
cccgagcagc cccccaagct gtggatctac agcaccagca acctggccag cggcgtgccc 180
ggcagattca gcggcagcgg cagcggcacc gactacacc tgaccatcag cagcctgcag 240
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tatccagag aggccaaagt acagtgaag gtggataacg ccctccaatc gggaactcc 480
caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcacctg 540
acgtgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag 600
ggcctgagct cgcccgtcac aaagagcttc aacaggggag agtgt 645

<210> 102
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 102
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agctgcaagg ccagcggcta cacctcacc agctactgga tgcactgggt gagacaggcc 120
 cccggccagg gcctggagtg gatgggctac atcaaccca gcagcggcta caccaagagc 180
 aaccagaagt tcaaggacag agtgaccatg accgccgaca ccagcaccag caccgcctac 240
 atggagctga gcagcctgag aagcgaggac accgccgtgt actactgcgg aagatggta 300
 cttcggcct ggttgccta ctggggccag ggcaccctgg tgaccgtgag cagc 354

<210> 103
 <211> 354
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 103
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 agctgcaagg ccagcggcta cacctcacc agctactgga tgcactgggt gagacagaga 120
 cccggccagg gcctggagtg gatgggctac atcaaccca gcagcggcta caccaagagc 180
 aaccagaagt tcaaggacag agtgaccctg accgccgaca ccagcaccag caccgcctac 240
 atggagctga gcagcctgag aagcgaggac accgccgtgt actactgcgg cagatggctg 300
 ctgagcgctt ggttgccta ctggggccag ggcaccctgg tgaccgtgag cagc 354

<210> 104
 <211> 354
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 104
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 agctgcaagg ccagcggcta cacctcacc agctactgga tgcactgggt gagacagaga 120
 cccggccagg gcctggagtg gatcggtac atcaaccca gcagcggcta caccaagagc 180
 aaccagaagt tcaaggacag agccaccctg accgccgaca ccagcaccag caccgcctac 240
 atggagctga gcagcctgag aagcgaggac accgccgtgt actactgcgg cagatggctg 300
 ctgagcgctt ggttgccta ctggggccag ggcaccctgg tgaccgtgag cagc 354

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

<220>
 <223> synthetic polynucleotide

<400> 105
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 atcacctgca aggccagcca ggacatcaac acctacctga gctgtgtcca gcagaagccc 120
 ggcaaggccc ccaagagcct gatctacaga agcaacatcc tggtgacgg cgtgccacgc 180

agattcagcg gcagcggcag cggccaggac ttcacctga ccatcagcag cctgcagccc 240
gaggacttgc ccatctacta ctgcctacag tatgatgact ttccgtacac gttcggccag 300
ggcaccaagc tggagatcaa g 321

<210> 106
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 106
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ggcaagagcc ccaagagcct gatctacaga agcaacatcc tggtaggacgg cgtgcccagc 180
agattcagcg gcagcggcag cggccaggac tacacctga ccatcagcag cctgcagccc 240
gaggacttgc ccatctacta ctgcctacag tatgatgact ttccgtacac gttcggccag 300
ggcaccaagc tggagatcaa g 321

<210> 107
<211> 1344
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 107
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agctgcaagg ccagcggcta cacttcacc agctactgga tgactgggt gagacaggcc 120
ccggccagg gcctggagtg gatgggctac atcaaccca gcagcggcta caccaagagc 180
aaccagaagt tcaaggacag agtgaccatg accgcgcaca ccagcaccag caccgcctac 240
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gcggccctgg gctgcctgt caaggactac ttcccgaac cgtgtacggt gtcgtggaac 480
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tactccctca gcagcgtgtg gaccgtgcc tccagcagct tgggcacca gacctatc 600
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gggaacgtct tctatgctc cgtgatcat gaggctctgc acaaccacta caccgagaag 1320
agcctctccc tgtctcggg taaa 1344

<210> 108
<211> 1344
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 108
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agctgaagg ccagcggcta cacctcacc agctactgga tgactgggt gagacagaga 120
cccgccagg gcctggagtg gatgggtac atcaaccca gcagcggcta caccaagagc 180
aaccagaagt tcaaggacag agtgaccctg accgccgaca ccagcaccag caccgcctac 240
atggagctga gcagcctgag aagcgaggac accgccgtgt actactgcgg cagatggctg 300
ctgagcgctt ggttcgcta ctggggccag ggcacccctg tgaccgtgag cagcgtagc 360
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gcggccctgg gctgcctggt caaggactac ttcccgaac cggtgacggt gtcgtggaac 480
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gggaacgtct tctatgctc cgtgatcat gaggctctgc acaaccacta caccgagaag 1320
agcctctccc tgtctcggg taaa 1344

<210> 109
<211> 1344
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 109
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tactcctca gcagcgtgtt gaccgtgcc tcacagctt tgggcacca gacctacatc 600
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gggaacgtct tctatgctc cgtgatcat gaggtctgc acaaccacta cgcgagaag 1320
agcctctccc tgtctcggg taaa 1344

<210> 110
<211> 642
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 110
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ggcaaggccc ccaagagcct gatctacaga agcaacatcc tggaggacgg cgtgccccagc 180
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 ggcaccaagc tggagatcaa gcgtacggtg gctgcacat ctgtctcat ctcccgcc 360
 tctgatgagc agttgaaatc tggaaactgc tctgttgtg gctgctgaa taactctat 420
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 gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
 ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
 ctgagctcgc ccgtcacaaa gagcttaac aggggagagt gt 642

<210> 111
 <211> 642
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 111
 gacatccaga tgaccagag cccagcagc ctgagcgcca gcgtggcgca cagagtacc 60
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 ggcaagagcc ccaagagcct gatctacaga agcaacatcc tggaggacgg cgtgccccagc 180
 agattcagcg gcagcggcag cggccaggac tacacctga ccatcagcag cctgcagccc 240
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 ggcaccaagc tggagatcaa gcgtacggtg gctgcacat ctgtctcat ctcccgcc 360
 tctgatgagc agttgaaatc tggaaactgc tctgttgtg gctgctgaa taactctat 420
 ccagagagag ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactcccag 480
 gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
 ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
 ctgagctcgc ccgtcacaaa gagcttaac aggggagagt gt 642

<210> 112
 <211> 1326
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 112
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 agctgcaagg ccagcggcta cacttcacc agctactgga tgactgggt gagacaggcc 120
 cccggccagg gcctggagtg gatgggtac atcaaccca gcagcggcta caccaagagc 180
 aaccagaagt tcaaggacag agtgaccatg accgccgaca ccagcaccag caccgctac 240
 atggagctga gcagcctgag aagcgaggac accgccgtgt actactgcgg aagatggta 300

ctttcggcct ggtttgctta ctggggccag ggcacccctg tgaccgtgag cagcgccaag 360
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 aacgtggccc acccagctc ttctaccaag gtggacaaga agatcgtccc ccgggattgc 660
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 gtgtactcca agctgaacgt gcagaagtcc aattgggagg ccggcaacac cttacttgc 1260
 tcgtgtgctc acgagggact gcataaccac cacaccgaga agtcctgtc cactctccc 1320
 ggcaag 1326

<210> 113
 <211> 1326
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 113
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 cccggccagg gcctggagtg gatcggtac atcaaccca gcagcggcta caccaagagc 180
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cagccagccg agaactacaa gaacaccag cccatcatgg ataccgacgg ctcttactc 1200
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ggcaag 1326

<210> 114
<211> 642
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic polynucleotide

<400> 114
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<210> 115
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<212> DNA
<213> Artificial Sequence

<220>
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atcacctgca aggccagcca ggacatcaac acctacctga gctggtcca gcagaagccc 120
ggcaagagcc ccaagagcct gatctacaga agcaacatcc tggaggacgg cgtgccagc 180

agattcagcg gcagcggcag cggccaggac tacacctga ccatcagcag cctgcagccc 240
 gaggacttcg ccatctacta ctgcctacag tatgatgact ttccgtacac gttcggccag 300
 ggcaccaagc tggagatcaa gagagccgac gccgctccta cagtgtctat cttccccct 360
 tctccgagc agctgacctc tggaggagcc tccgtcgtgt gtttctcaa caactctac 420
 cccaaggaca tcaacgtcaa gtggaagatc gacggctccg agaggcagaa cggcgtgctg 480
 aactcttga cgcaccagga ctccaaggac tccacctact ccatgtctc caccctgacc 540
 ctgaccaagg acgagtaoga ggcgcacaac tctactact gcgaggctac ccacaagacc 600
 tctacctccc ccatcgtgaa gagctcaac cgcaacgagt gt 642

<210> 116
 <211> 1344
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic polynucleotide

<400> 116
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 agctgcaagg ccagcggcta caccctcacc agctactgga tgactgggt gagacaggcc 120
 cccggccagg gcctggagtg gatgggctac atcaacccca gcagcggcta caccaagagc 180
 aaccagaagt tcaaggacag agtgaccatg accgccgaca ccagcaccag caccgcctac 240
 atggagctga gcagcctgag aagcgaggac accgccgtgt actactgcgg aagatggta 300
 cttcggcct ggittgctta ctggggccag ggcacctgg tgaccgtgag cagcgtagc 360
 aaaaaggac ctccgtgtt tctctggct ccttctcta agtctaccag cggaggaaca 420
 gcagctctgg gttgtctgt gaaagattac ttccagagc cagtgcagt gtcttgaat 480
 tcaggagctc tgacatcagg agtgacata ttccagcag tgctgcagtc tcagggtctg 540
 tattctctgt cctcagtggt gacagtgctt tcttcttc tgggaacca gacctacac 600
 tgaacgtga accacaagcc ttccaacacc aaggTggata agagagtga gcccaagtct 660
 tgcgataaga ccatacttg cctccttgt ccagctccag aatttgaagg aggaccatca 720
 gtgttctgt ttctcctaa gcctaaggac accctgatga tctccggac ccagaagtg 780
 acttgtgtgg tggTggacgt gtctcacgaa gatcccgagg tgaagttcaa ttgtacgtg 840
 gcgagagtgg aagtgcataa cgtaagaca aagcctagag aggagcagta caactccaca 900
 tacagagtgg tgcagtgtc gacagtgtc catcaggatt ggtgaacgg aaaggagtac 960
 aagtgaagg tgtctaaca ggctctgcca gctctatcg agaagaccat ctccaaggct 1020
 aagggacagc ctagagaacc tcaggtgtac accctgcctc cttccggga ggagatgaca 1080
 aagaaccagg tctcttgac ttgtctggt aagggtttt acccttcga catgcctg 1140
 gaatgggaat ctaacggaca gccagagaac aactacaaga ccacacctc agtctggat 1200
 tccagggct ctttctct gtactccaag ctgaccgtgg ataatctcg ttggcagcag 1260
 ggaaacgtgt tctctgtag cgtgatgcac gaagctctgc acaatcacta caccagaag 1320

tcctgtctc tgtctcagg aaaa

1344

<210> 117

<211> 1344

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic polynucleotide

<400> 117

cagggtgcagc tgcagcagag cggcgcgag gtgaagaagc cggcgcgag cgtgaagctg 60

agctgcaagg ccagcggcta cacctcacc agctactgga tgcactgggt gagacagaga 120

cccgccagg gcctggagtg gatcggtac atcaaccca gcagcggcta caccaagagc 180

aaccagaagt tcaaggacag agccaccctg accgccgaca ccagcaccag caccgcctac 240

atggagctga gcagcctgag aagcgaggac accgccgtgt actactgcgg cagatggctg 300

ctgagcgctt ggttcgcta ctggggccag ggcaccctgg tgaccgtgag cagcgctagc 360

acaaaaggac ctccgtgtt tctctggct cctcttcta agtctaccag cggaggaaca 420

gcagctctgg gttgtctggt gaaagattac tcccagagc cagtgacagt gtcttgaat 480

tcaggagctc tgacatcagg agtcataca ttccagcag tgctgcagtc ttcaggtctg 540

tattctctgt cctcagtggt gacagtgcct tctcttctc tgggaaccca gacctacatc 600

tgtaacgtga accacaagcc ttccaacacc aagggtggata agagagtgga gccaagtct 660

tgcgataaga cccatcttg cctccttgt ccagctccag aatttgaagg aggaccatca 720

gtgttctgt ttctctctaa gcctaaggac accctgatga tctcccgac ccagaagtg 780

actgtgtgg tggtgagctg gtctcacgaa gatcccagg tgaagttcaa ttggtacgtg 840

gacggagtggt aagtgcataa cgctaagaca aagcctagag aggagcagta caactccaca 900

tacagagtgg tgcagtgtct gacagtgtct catcaggatt ggctgaacgg aaaggagtac 960

aagtgcaagg tgctataaa ggctctgcca gcttctatcg agaagaccat ctccaaggct 1020

aaggagacgc ctagaagaac tcaggtgtac accctgcctc ctccccgga ggagatgaca 1080

aagaaccagg tctctctgac ttgtctggtg aagggtttt acccttccga catcgccgtg 1140

gaatgggaat ctaacggaca gccagagaac aactacaaga ccacacctcc agtcttgat 1200

tccgacggct ccttcttct gtactccaag ctgaccgtgg ataatctcg ttggcagcag 1260

ggaaacgtgt tctctgttag cgtgatgcac gaagctctgc acaatcacta caccagaag 1320

tcctgtctc tgtctcagg aaaa

1344

<210> 118

<211> 442

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 118

Gln Val His Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala

1 5 10 15

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

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

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

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

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

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

Leu Val Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro
115 120 125

Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly
130 135 140

Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn
145 150 155 160

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

Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr
180 185 190

Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser
195 200 205

Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro
210 215 220

Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro
225 230 235 240

Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys
245 250 255

Val Val Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp
260 265 270

Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu
275 280 285

Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met
290 295 300

His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser
305 310 315 320

Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly
325 330 335

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

Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe
355 360 365

Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu
370 375 380

Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe
385 390 395 400

Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn
405 410 415

Thr Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr
420 425 430

Glu Lys Ser Leu Ser His Ser Pro Gly Lys
435 440

<210> 119
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic polypeptide

<400> 119

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

Glu Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Gly Ile Asn Thr Tyr
20 25 30

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Thr Leu Ile
35 40 45

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

Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Asn Ser Leu Glu Tyr
65 70 75 80

Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Glu Phe Pro Tyr
85 90 95

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

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

Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile
130 135 140

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

Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser
165 170 175

Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr
180 185 190

Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser
195 200 205

Phe Asn Arg Asn Glu Cys
210

<210> 120

<211> 442

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 120

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

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

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

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

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

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

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

Leu Val Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro
115 120 125

Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly
130 135 140

Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn
145 150 155 160

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

Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr
180 185 190

Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser
195 200 205

Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro
210 215 220

Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro
225 230 235 240

Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys
245 250 255

Val Val Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp
260 265 270

Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu
275 280 285

Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met
290 295 300

His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser
305 310 315 320

Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly
325 330 335

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

Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe
355 360 365

Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu

370 375 380
 Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe
 385 390 395 400
 Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn
 405 410 415
 Thr Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr
 420 425 430
 Glu Lys Ser Leu Ser His Ser Pro Gly Lys
 435 440

 <210> 121
 <211> 214
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> synthetic polypeptide

 <400> 121
 Asp Ile Arg Met Thr Gln Ser Pro Ser Ser Met Tyr Ala Ser Leu Gly
 1 5 10 15
 Glu Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Ile Asn Thr Tyr
 20 25 30
 Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Ser Leu Ile
 35 40 45
 Tyr Arg Ser Asn Ile Leu Val Asp Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Ser Ser Leu Glu Tyr
 65 70 75 80
 Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Asp Phe Pro Tyr
 85 90 95
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Asp Ala Ala
 100 105 110
 Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly
 115 120 125
 Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile
 130 135 140
 Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu
 145 150 155 160
 Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser

165 170 175
 Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr
 180 185 190

 Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser
 195 200 205

 Phe Asn Arg Asn Glu Cys
 210

 <210> 122
 <211> 443
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> synthetic polypeptide

 <400> 122

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

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

 Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
 35 40 45

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

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

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

 Arg Glu Arg Gly Ser Ser Trp Gly Thr Met Asp Tyr Trp Gly Gln Gly
 100 105 110

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

 Pro Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu
 130 135 140

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

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

 Gln Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser

180 185 190

Thr Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser
195 200 205

Ser Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys
210 215 220

Pro Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro
225 230 235 240

Pro Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr
245 250 255

Cys Val Val Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser
260 265 270

Trp Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg
275 280 285

Glu Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile
290 295 300

Met His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn
305 310 315 320

Ser Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys
325 330 335

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

Gln Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe
355 360 365

Phe Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala
370 375 380

Glu Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr
385 390 395 400

Phe Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly
405 410 415

Asn Thr Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His
420 425 430

Thr Glu Lys Ser Leu Ser His Ser Pro Gly Lys
435 440

<210> 123

<211> 213

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 123

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

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

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

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

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

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

Phe Gly Gly Gly Thr Lys Leu Glu Met Arg Arg Ala Asp Ala Ala Pro
100 105 110

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

Ala Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn
130 135 140

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

Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser
165 170 175

Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr
180 185 190

Cys Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser Phe
195 200 205

Asn Arg Asn Glu Cys
210

<210> 124

<211> 444

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 124

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

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

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

Lys Asp Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

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

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

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

Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly
130 135 140

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

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

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

Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
195 200 205

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

Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe
225 230 235 240

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

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln Phe
260 265 270

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

Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr
290 295 300

Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
305 310 315 320

Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr
325 330 335

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

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
355 360 365

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
370 375 380

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
385 390 395 400

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440

<210> 125

<211> 445

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 125

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

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

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

Lys Asp Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

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

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

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

Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly
 130 135 140

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

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

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

Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
195 200 205

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

Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu
225 230 235 240

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

Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln
 260 265 270

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

Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu
290 295 300

Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys
305 310 315 320

Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys
 325 330 335

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

340 345 350

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

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
370 375 380

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

Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln
405 410 415

Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
420 425 430

His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
435 440 445

<210> 126

<211> 444

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 126

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

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

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

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

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

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

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

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

Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly

130 135 140
 Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
 145 150 155 160
 Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
 165 170 175
 Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
 180 185 190
 Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
 195 200 205
 Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys Cys Val Glu Cys
 210 215 220
 Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe
 225 230 235 240
 Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 245 250 255
 Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln Phe
 260 265 270
 Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 275 280 285
 Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr
 290 295 300
 Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 305 310 315 320
 Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr
 325 330 335
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 340 345 350
 Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 355 360 365
 Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 370 375 380
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
 385 390 395 400
 Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440

<210> 127

<211> 445

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic polypeptide

<400> 127

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

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

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

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

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

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

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

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

Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly
130 135 140

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

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

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

Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
195 200 205

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

Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu
225 230 235 240

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

Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln
260 265 270

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

Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu
290 295 300

Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys
305 310 315 320

Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys
325 330 335

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

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

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
370 375 380

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

Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln
405 410 415

Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
420 425 430

His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
435 440 445