

SEQUENCE LISTING

<110> Pharmafox
Pharmafox therapeutics AG
Pharmafox

<120> NEUROMUSCULAR DISEASES

<130> AFR

<160> 51

<170> PatentIn version 3.5

<210> 1

<211> 186

<212> PRT

<213> mouse

<400> 1

Ser Val Gly Asp Leu Glu Thr Leu Ala Phe Asp Gly Arg Thr Tyr Ile
1 5 10 15

Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Lys Ala Leu Gln Ser Asn
20 25 30

His Phe Glu Leu Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu
35 40 45

Trp Ile Gly Lys Val Gly Glu Arg Ala Asp Tyr Met Ala Leu Ala Ile
50 55 60

Val Asp Gly His Leu Gln Leu Ser Tyr Asp Leu Gly Ser Gln Pro Val
65 70 75 80

Val Leu Arg Ser Thr Val Lys Val Asn Thr Asn Arg Trp Leu Arg Val
85 90 95

Arg Ala His Arg Glu His Arg Glu Gly Ser Leu Gln Val Gly Asn Glu
100 105 110

Ala Pro Val Thr Gly Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr
115 120 125

Asp Gly Ala Leu Trp Leu Gly Gly Leu Gln Lys Leu Pro Val Gly Gln

130

135

140

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

Val Val Val Gly His Arg Gln Leu His Leu Leu Glu Asp Ala Val Thr
165 170 175

Lys Pro Glu Leu Arg Pro Cys Pro Thr Leu
180 185

<210> 2
<211> 8
<212> PRT
<213> mouse

<400> 2

Glu Leu Thr Asn Glu Ile Pro Ala
1 5

<210> 3
<211> 11
<212> PRT
<213> mouse

<400> 3

Pro Glu Thr Leu Asp Ser Arg Ala Leu Phe Ser
1 5 10

<210> 4
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<400> 4

Glu Leu Thr Asn Glu Ile Pro Ala Pro Glu Thr Leu Asp Ser Arg Ala
1 5 10 15

Leu Phe Ser

<210> 5
<211> 194

<212> PRT
<213> mouse

<400> 5

Ser Val Gly Asp Leu Glu Thr Leu Ala Phe Asp Gly Arg Thr Tyr Ile
1 5 10 15

Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Thr Asn Glu Ile Pro
20 25 30

Ala Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu Arg Thr
35 40 45

Glu Ala Thr Gln Gly Leu Val Leu Trp Ile Gly Lys Val Gly Glu Arg
50 55 60

Ala Asp Tyr Met Ala Leu Ala Ile Val Asp Gly His Leu Gln Leu Ser
65 70 75 80

Tyr Asp Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val Lys Val
85 90 95

Asn Thr Asn Arg Trp Leu Arg Val Arg Ala His Arg Glu His Arg Glu
100 105 110

Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly Ser Ser Pro
115 120 125

Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly Gly
130 135 140

Leu Gln Lys Leu Pro Val Gly Gln Ala Leu Pro Lys Ala Tyr Gly Thr
145 150 155 160

Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly His Arg Gln Leu
165 170 175

His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg Pro Cys Pro
180 185 190

Thr Leu

<210> 6
<211> 186
<212> PRT
<213> human

<400> 6

Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly Arg Thr Phe Val
1 5 10 15

Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Lys Ala Leu Gln Ser Asn
20 25 30

His Phe Glu Leu Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu
35 40 45

Trp Ser Gly Lys Ala Thr Glu Arg Ala Asp Tyr Val Ala Leu Ala Ile
50 55 60

Val Asp Gly His Leu Gln Leu Ser Tyr Asn Leu Gly Ser Gln Pro Val
65 70 75 80

Val Leu Arg Ser Thr Val Pro Val Asn Thr Asn Arg Trp Leu Arg Val
85 90 95

Val Ala His Arg Glu Gln Arg Glu Gly Ser Leu Gln Val Gly Asn Glu
100 105 110

Ala Pro Val Thr Gly Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr
115 120 125

Asp Gly Ala Leu Trp Leu Gly Gly Leu Pro Glu Leu Pro Val Gly Pro
130 135 140

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

Val Val Val Gly Arg His Pro Leu His Leu Leu Glu Asp Ala Val Thr
165 170 175

Lys Pro Glu Leu Arg Pro Cys Pro Thr Pro
180 185

<210> 7
<211> 8
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<400> 7

Glu Leu Ala Asn Glu Ile Pro Val
1 5

<210> 8
<211> 11
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<213> human

<400> 8

Pro Glu Thr Leu Asp Ser Gly Ala Leu His Ser
1 5 10

<210> 9
<211> 19
<212> PRT
<213> human

<400> 9

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

Leu His Ser

<210> 10
<211> 194
<212> PRT
<213> human

<400> 10

Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly Arg Thr Phe Val
1 5 10 15

Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Ala Asn Glu Ile Pro
20 25 30

Val Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu Arg Thr
35 40 45

Glu Ala Thr Gln Gly Leu Val Leu Trp Ser Gly Lys Ala Thr Glu Arg
50 55 60

Ala Asp Tyr Val Ala Leu Ala Ile Val Asp Gly His Leu Gln Leu Ser
65 70 75 80

Tyr Asn Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val Pro Val
85 90 95

Asn Thr Asn Arg Trp Leu Arg Val Val Ala His Arg Glu Gln Arg Glu
100 105 110

Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly Ser Ser Pro
115 120 125

Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly Gly
130 135 140

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

Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly Arg His Pro Leu
165 170 175

His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg Pro Cys Pro
180 185 190

Thr Pro

<210> 11
<211> 115
<212> PRT
<213> mouse

<400> 11

Glu Ala Glu Thr Arg Glu Cys Ile Tyr Tyr Asn Ala Asn Trp Glu Leu

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

<210> 12
 <211> 115
 <212> PRT
 <213> human

<400> 12

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

Arg Gln Glu Cys Val Ala Thr Glu Glu Asn Pro Gln Val Tyr Phe Cys
65 70 75 80

Cys Cys Glu Gly Asn Phe Cys Asn Glu Arg Phe Thr His Leu Pro Glu
85 90 95

Ala Gly Gly Pro Glu Val Thr Tyr Glu Pro Pro Pro Thr Ala Pro Thr
100 105 110

Leu Leu Thr
115

<210> 13
<211> 15
<212> PRT
<213> recombinant

<400> 13

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

<210> 14
<211> 227
<212> PRT
<213> human

<400> 14

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
1 5 10 15

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
20 25 30

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
35 40 45

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
50 55 60

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
65 70 75 80

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
85 90 95

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
100 105 110

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
115 120 125

Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser
130 135 140

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

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
165 170 175

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
180 185 190

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
195 200 205

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
210 215 220

Pro Gly Lys
225

<210> 15
<211> 435
<212> PRT
<213> recombinant

<400> 15

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
1 5 10 15

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
20 25 30

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
35 40 45

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
50 55 60

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
65 70 75 80

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
85 90 95

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
100 105 110

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
115 120 125

Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser
130 135 140

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

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
165 170 175

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
180 185 190

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
195 200 205

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
210 215 220

Pro Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
225 230 235 240

Gly Ser Val Gly Asp Leu Glu Thr Leu Ala Phe Asp Gly Arg Thr Tyr

245

250

255

Ile Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Thr Asn Glu Ile
260 265 270

Pro Ala Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu Arg
275 280 285

Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ile Gly Lys Val Gly Glu
290 295 300

Arg Ala Asp Tyr Met Ala Leu Ala Ile Val Asp Gly His Leu Gln Leu
305 310 315 320

Ser Tyr Asp Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val Lys
325 330 335

Val Asn Thr Asn Arg Trp Leu Arg Val Arg Ala His Arg Glu His Arg
340 345 350

Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly Ser Ser
355 360 365

Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly
370 375 380

Gly Leu Gln Lys Leu Pro Val Gly Gln Ala Leu Pro Lys Ala Tyr Gly
385 390 395 400

Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly His Arg Gln
405 410 415

Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg Pro Cys
420 425 430

Pro Thr Leu
435

<210> 16

<211> 436

<212> PRT

<213> recombinant

<400> 16

Ser Val Gly Asp Leu Glu Thr Leu Ala Phe Asp Gly Arg Thr Tyr Ile
1 5 10 15

Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Thr Asn Glu Ile Pro
20 25 30

Ala Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu Arg Thr
35 40 45

Glu Ala Thr Gln Gly Leu Val Leu Trp Ile Gly Lys Val Gly Glu Arg
50 55 60

Ala Asp Tyr Met Ala Leu Ala Ile Val Asp Gly His Leu Gln Leu Ser
65 70 75 80

Tyr Asp Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val Lys Val
85 90 95

Asn Thr Asn Arg Trp Leu Arg Val Arg Ala His Arg Glu His Arg Glu
100 105 110

Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly Ser Ser Pro
115 120 125

Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly Gly
130 135 140

Leu Gln Lys Leu Pro Val Gly Gln Ala Leu Pro Lys Ala Tyr Gly Thr
145 150 155 160

Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly His Arg Gln Leu
165 170 175

His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg Pro Cys Pro
180 185 190

Thr Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
195 200 205

Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu
210 215 220

Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu
225 230 235 240

Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser
245 250 255

His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu
260 265 270

Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr
275 280 285

Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn
290 295 300

Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro
305 310 315 320

Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln
325 330 335

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

Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val
355 360 365

Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro
370 375 380

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

Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val
405 410 415

Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu
420 425 430

Ser Pro Gly Lys
435

<210> 17
<211> 435
<212> PRT
<213> recombinant

<400> 17

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
1 5 10 15

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
20 25 30

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
35 40 45

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
50 55 60

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
65 70 75 80

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
85 90 95

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
100 105 110

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
115 120 125

Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser
130 135 140

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

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
165 170 175

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
180 185 190

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
195 200 205

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
210 215 220

Pro Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
225 230 235 240

Gly Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly Arg Thr Phe
245 250 255

Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Ala Asn Glu Ile
260 265 270

Pro Val Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu Arg
275 280 285

Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ser Gly Lys Ala Thr Glu
290 295 300

Arg Ala Asp Tyr Val Ala Leu Ala Ile Val Asp Gly His Leu Gln Leu
305 310 315 320

Ser Tyr Asn Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val Pro
325 330 335

Val Asn Thr Asn Arg Trp Leu Arg Val Val Ala His Arg Glu Gln Arg
340 345 350

Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly Ser Ser
355 360 365

Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly

370

375

380

Gly Leu Pro Glu Leu Pro Val Gly Pro Ala Leu Pro Lys Ala Tyr Gly
 385 390 395 400

Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly Arg His Pro
 405 410 415

Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg Pro Cys
 420 425 430

Pro Thr Pro
 435

<210> 18
 <211> 427
 <212> PRT
 <213> recombinant

<400> 18

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
 1 5 10 15

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
 20 25 30

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
 35 40 45

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
 50 55 60

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
 65 70 75 80

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
 85 90 95

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
 100 105 110

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
115 120 125

Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser
130 135 140

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

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
165 170 175

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
180 185 190

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
195 200 205

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
210 215 220

Pro Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
225 230 235 240

Gly Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly Arg Thr Phe
245 250 255

Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Lys Ala Leu Gln Ser
260 265 270

Asn His Phe Glu Leu Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu Val
275 280 285

Leu Trp Ser Gly Lys Ala Thr Glu Arg Ala Asp Tyr Val Ala Leu Ala
290 295 300

Ile Val Asp Gly His Leu Gln Leu Ser Tyr Asn Leu Gly Ser Gln Pro
305 310 315 320

Val Val Leu Arg Ser Thr Val Pro Val Asn Thr Asn Arg Trp Leu Arg
325 330 335

Val Val Ala His Arg Glu Gln Arg Glu Gly Ser Leu Gln Val Gly Asn
340 345 350

Glu Ala Pro Val Thr Gly Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp
355 360 365

Thr Asp Gly Ala Leu Trp Leu Gly Gly Leu Pro Glu Leu Pro Val Gly
370 375 380

Pro Ala Leu Pro Lys Ala Tyr Gly Thr Gly Phe Val Gly Cys Leu Arg
385 390 395 400

Asp Val Val Val Gly Arg His Pro Leu His Leu Leu Glu Asp Ala Val
405 410 415

Thr Lys Pro Glu Leu Arg Pro Cys Pro Thr Pro
420 425

<210> 19
<211> 357
<212> PRT
<213> Recombinant

<400> 19

Glu Ala Glu Thr Arg Glu Cys Ile Tyr Tyr Asn Ala Asn Trp Glu Leu
1 5 10 15

Glu Arg Thr Asn Gln Ser Gly Leu Glu Arg Cys Glu Gly Glu Gln Asp
20 25 30

Lys Arg Leu His Cys Tyr Ala Ser Trp Arg Asn Ser Ser Gly Thr Ile
35 40 45

Glu Leu Val Lys Lys Gly Cys Trp Leu Asp Asp Phe Asn Cys Tyr Asp
50 55 60

Arg Gln Glu Cys Val Ala Thr Glu Glu Asn Pro Gln Val Tyr Phe Cys
65 70 75 80

Cys Cys Glu Gly Asn Phe Cys Asn Glu Arg Phe Thr His Leu Pro Glu

85

90

95

Pro Gly Gly Pro Glu Val Thr Tyr Glu Pro Pro Pro Thr Ala Pro Thr
 100 105 110

Leu Leu Thr Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
 115 120 125

Gly Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
 130 135 140

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

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 165 170 175

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 180 185 190

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 195 200 205

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 210 215 220

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 225 230 235 240

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 245 250 255

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 260 265 270

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

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

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
305 310 315 320

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
325 330 335

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
340 345 350

Leu Ser Pro Gly Lys
355

<210> 20
<211> 357
<212> PRT
<213> recombinant

<400> 20

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
1 5 10 15

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
20 25 30

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
35 40 45

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
50 55 60

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
65 70 75 80

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
85 90 95

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
100 105 110

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
115 120 125

Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser
130 135 140

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

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
165 170 175

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
180 185 190

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
195 200 205

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
210 215 220

Pro Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
225 230 235 240

Gly Ser Glu Ala Glu Thr Arg Glu Cys Ile Tyr Tyr Asn Ala Asn Trp
245 250 255

Glu Leu Glu Arg Thr Asn Gln Ser Gly Leu Glu Arg Cys Glu Gly Glu
260 265 270

Gln Asp Lys Arg Leu His Cys Tyr Ala Ser Trp Arg Asn Ser Ser Gly
275 280 285

Thr Ile Glu Leu Val Lys Lys Gly Cys Trp Leu Asp Asp Phe Asn Cys
290 295 300

Tyr Asp Arg Gln Glu Cys Val Ala Thr Glu Glu Asn Pro Gln Val Tyr
305 310 315 320

Phe Cys Cys Cys Glu Gly Asn Phe Cys Asn Glu Arg Phe Thr His Leu
325 330 335

Pro Glu Pro Gly Gly Pro Glu Val Thr Tyr Glu Pro Pro Pro Thr Ala
340 345 350

Pro Thr Leu Leu Thr
355

<210> 21
<211> 357
<212> PRT
<213> recombinant

<400> 21

Glu Ala Glu Thr Arg Glu Cys Ile Tyr Tyr Asn Ala Asn Trp Glu Leu
1 5 10 15

Glu Arg Thr Asn Gln Ser Gly Leu Glu Arg Cys Glu Gly Glu Gln Asp
20 25 30

Lys Arg Leu His Cys Tyr Ala Ser Trp Arg Asn Ser Ser Gly Thr Ile
35 40 45

Glu Leu Val Lys Lys Gly Cys Trp Leu Asp Asp Phe Asn Cys Tyr Asp
50 55 60

Arg Gln Glu Cys Val Ala Thr Glu Glu Asn Pro Gln Val Tyr Phe Cys
65 70 75 80

Cys Cys Glu Gly Asn Phe Cys Asn Glu Arg Phe Thr His Leu Pro Glu
85 90 95

Ala Gly Gly Pro Glu Val Thr Tyr Glu Pro Pro Pro Thr Ala Pro Thr
100 105 110

Leu Leu Thr Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
115 120 125

Gly Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
130 135 140

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

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
165 170 175

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
180 185 190

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
195 200 205

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
210 215 220

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
225 230 235 240

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
245 250 255

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
260 265 270

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

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

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
305 310 315 320

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
325 330 335

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
340 345 350

Leu Ser Pro Gly Lys
355

<211> 565
<212> PRT
<213> recombinant

<400> 22

Glu Ala Glu Thr Arg Glu Cys Ile Tyr Tyr Asn Ala Asn Trp Glu Leu
1 5 10 15

Glu Arg Thr Asn Gln Ser Gly Leu Glu Arg Cys Glu Gly Glu Gln Asp
20 25 30

Lys Arg Leu His Cys Tyr Ala Ser Trp Arg Asn Ser Ser Gly Thr Ile
35 40 45

Glu Leu Val Lys Lys Gly Cys Trp Leu Asp Asp Phe Asn Cys Tyr Asp
50 55 60

Arg Gln Glu Cys Val Ala Thr Glu Glu Asn Pro Gln Val Tyr Phe Cys
65 70 75 80

Cys Cys Glu Gly Asn Phe Cys Asn Glu Arg Phe Thr His Leu Pro Glu
85 90 95

Pro Gly Gly Pro Glu Val Thr Tyr Glu Pro Pro Pro Thr Ala Pro Thr
100 105 110

Leu Leu Thr Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
115 120 125

Gly Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
130 135 140

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

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
165 170 175

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
180 185 190

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
195 200 205

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
210 215 220

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
225 230 235 240

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
245 250 255

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
260 265 270

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

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

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
305 310 315 320

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
325 330 335

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
340 345 350

Leu Ser Pro Gly Lys Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
355 360 365

Gly Gly Gly Ser Val Gly Asp Leu Glu Thr Leu Ala Phe Asp Gly Arg
370 375 380

Thr Tyr Ile Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Thr Asn
385 390 395 400

Glu Ile Pro Ala Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser
405 410 415

Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ile Gly Lys Val
420 425 430

Gly Glu Arg Ala Asp Tyr Met Ala Leu Ala Ile Val Asp Gly His Leu
435 440 445

Gln Leu Ser Tyr Asp Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr
450 455 460

Val Lys Val Asn Thr Asn Arg Trp Leu Arg Val Arg Ala His Arg Glu
465 470 475 480

His Arg Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly
485 490 495

Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp
500 505 510

Leu Gly Gly Leu Gln Lys Leu Pro Val Gly Gln Ala Leu Pro Lys Ala
515 520 525

Tyr Gly Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly His
530 535 540

Arg Gln Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg
545 550 555 560

Pro Cys Pro Thr Leu
565

<210> 23
<211> 565
<212> PRT
<213> recombinant

<400> 23

Glu Ala Glu Thr Arg Glu Cys Ile Tyr Tyr Asn Ala Asn Trp Glu Leu
1 5 10 15

Glu Arg Thr Asn Gln Ser Gly Leu Glu Arg Cys Glu Gly Glu Gln Asp

20

25

30

Lys Arg Leu His Cys Tyr Ala Ser Trp Arg Asn Ser Ser Gly Thr Ile
 35 40 45

Glu Leu Val Lys Lys Gly Cys Trp Leu Asp Asp Phe Asn Cys Tyr Asp
 50 55 60

Arg Gln Glu Cys Val Ala Thr Glu Glu Asn Pro Gln Val Tyr Phe Cys
 65 70 75 80

Cys Cys Glu Gly Asn Phe Cys Asn Glu Arg Phe Thr His Leu Pro Glu
 85 90 95

Ala Gly Gly Pro Glu Val Thr Tyr Glu Pro Pro Pro Thr Ala Pro Thr
 100 105 110

Leu Leu Thr Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
 115 120 125

Gly Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
 130 135 140

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

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 165 170 175

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 180 185 190

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 195 200 205

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 210 215 220

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 225 230 235 240

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
245 250 255

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
260 265 270

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

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

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
305 310 315 320

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
325 330 335

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
340 345 350

Leu Ser Pro Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
355 360 365

Gly Gly Gly Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly Arg
370 375 380

Thr Phe Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Ala Asn
385 390 395 400

Glu Ile Pro Val Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser
405 410 415

Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ser Gly Lys Ala
420 425 430

Thr Glu Arg Ala Asp Tyr Val Ala Leu Ala Ile Val Asp Gly His Leu
435 440 445

Gln Leu Ser Tyr Asn Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr

450

455

460

Val Pro Val Asn Thr Asn Arg Trp Leu Arg Val Val Ala His Arg Glu
 465 470 475 480

Gln Arg Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly
 485 490 495

Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp
 500 505 510

Leu Gly Gly Leu Pro Glu Leu Pro Val Gly Pro Ala Leu Pro Lys Ala
 515 520 525

Tyr Gly Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly Arg
 530 535 540

His Pro Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg
 545 550 555 560

Pro Cys Pro Thr Pro
 565

<210> 24
 <211> 557
 <212> PRT
 <213> recombinant

<400> 24

Glu Ala Glu Thr Arg Glu Cys Ile Tyr Tyr Asn Ala Asn Trp Glu Leu
 1 5 10 15

Glu Arg Thr Asn Gln Ser Gly Leu Glu Arg Cys Glu Gly Glu Gln Asp
 20 25 30

Lys Arg Leu His Cys Tyr Ala Ser Trp Arg Asn Ser Ser Gly Thr Ile
 35 40 45

Glu Leu Val Lys Lys Gly Cys Trp Leu Asp Asp Phe Asn Cys Tyr Asp
 50 55 60

Arg Gln Glu Cys Val Ala Thr Glu Glu Asn Pro Gln Val Tyr Phe Cys
65 70 75 80

Cys Cys Glu Gly Asn Phe Cys Asn Glu Arg Phe Thr His Leu Pro Glu
85 90 95

Ala Gly Gly Pro Glu Val Thr Tyr Glu Pro Pro Pro Thr Ala Pro Thr
100 105 110

Leu Leu Thr Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
115 120 125

Gly Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
130 135 140

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

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
165 170 175

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
180 185 190

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
195 200 205

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
210 215 220

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
225 230 235 240

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
245 250 255

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
260 265 270

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

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

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
305 310 315 320

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
325 330 335

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
340 345 350

Leu Ser Pro Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
355 360 365

Gly Gly Gly Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly Arg
370 375 380

Thr Phe Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Lys Ala Leu
385 390 395 400

Gln Ser Asn His Phe Glu Leu Ser Leu Arg Thr Glu Ala Thr Gln Gly
405 410 415

Leu Val Leu Trp Ser Gly Lys Ala Thr Glu Arg Ala Asp Tyr Val Ala
420 425 430

Leu Ala Ile Val Asp Gly His Leu Gln Leu Ser Tyr Asn Leu Gly Ser
435 440 445

Gln Pro Val Val Leu Arg Ser Thr Val Pro Val Asn Thr Asn Arg Trp
450 455 460

Leu Arg Val Val Ala His Arg Glu Gln Arg Glu Gly Ser Leu Gln Val
465 470 475 480

Gly Asn Glu Ala Pro Val Thr Gly Ser Ser Pro Leu Gly Ala Thr Gln
485 490 495

Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly Gly Leu Pro Glu Leu Pro
500 505 510

Val Gly Pro Ala Leu Pro Lys Ala Tyr Gly Thr Gly Phe Val Gly Cys
515 520 525

Leu Arg Asp Val Val Val Gly Arg His Pro Leu His Leu Leu Glu Asp
530 535 540

Ala Val Thr Lys Pro Glu Leu Arg Pro Cys Pro Thr Pro
545 550 555

<210> 25
<211> 288
<212> PRT
<213> recombinant

<400> 25

Gly Asn Cys Trp Leu Arg Gln Ala Lys Asn Gly Arg Cys Gln Val Leu
1 5 10 15

Tyr Lys Thr Glu Leu Ser Lys Glu Glu Cys Cys Ser Thr Gly Arg Leu
20 25 30

Ser Thr Ser Trp Thr Glu Glu Asp Val Asn Asp Asn Thr Leu Phe Lys
35 40 45

Trp Met Ile Phe Asn Gly Gly Ala Pro Asn Cys Ile Pro Cys Lys Glu
50 55 60

Thr Cys Glu Asn Val Asp Cys Gly Pro Gly Lys Lys Cys Arg Met Asn
65 70 75 80

Lys Lys Asn Lys Pro Arg Cys Val Cys Ala Pro Asp Cys Ser Asn Ile
85 90 95

Thr Trp Lys Gly Pro Val Cys Gly Leu Asp Gly Lys Thr Tyr Arg Asn
100 105 110

Glu Cys Ala Leu Leu Lys Ala Arg Cys Lys Glu Gln Pro Glu Leu Glu
115 120 125

Val Gln Tyr Gln Gly Lys Cys Lys Lys Thr Cys Arg Asp Val Phe Cys
130 135 140

Pro Gly Ser Ser Thr Cys Val Val Asp Gln Thr Asn Asn Ala Tyr Cys
145 150 155 160

Val Thr Cys Asn Arg Ile Cys Pro Glu Pro Ser Ser Ser Glu Gln Tyr
165 170 175

Leu Cys Gly Asn Asp Gly Val Thr Tyr Ser Ser Ala Cys His Leu Arg
180 185 190

Lys Ala Thr Cys Leu Leu Gly Arg Ser Ile Gly Leu Ala Tyr Glu Gly
195 200 205

Lys Cys Ile Lys Ala Lys Ser Cys Glu Asp Ile Gln Cys Gly Gly Gly
210 215 220

Lys Lys Cys Leu Trp Asp Ser Lys Val Gly Arg Gly Arg Cys Ser Leu
225 230 235 240

Cys Asp Glu Leu Cys Pro Asp Ser Lys Ser Asp Glu Pro Val Cys Ala
245 250 255

Ser Asp Asn Ala Thr Tyr Ala Ser Glu Cys Ala Met Lys Glu Ala Ala
260 265 270

Cys Ser Ser Gly Val Leu Leu Glu Val Lys His Ser Gly Ser Cys Asn
275 280 285

<210> 26
<211> 530
<212> PRT
<213> recombinant

<400> 26

Gly Asn Cys Trp Leu Arg Gln Ala Lys Asn Gly Arg Cys Gln Val Leu
1 5 10 15

Tyr Lys Thr Glu Leu Ser Lys Glu Glu Cys Cys Ser Thr Gly Arg Leu
20 25 30

Ser Thr Ser Trp Thr Glu Glu Asp Val Asn Asp Asn Thr Leu Phe Lys
35 40 45

Trp Met Ile Phe Asn Gly Gly Ala Pro Asn Cys Ile Pro Cys Lys Glu
50 55 60

Thr Cys Glu Asn Val Asp Cys Gly Pro Gly Lys Lys Cys Arg Met Asn
65 70 75 80

Lys Lys Asn Lys Pro Arg Cys Val Cys Ala Pro Asp Cys Ser Asn Ile
85 90 95

Thr Trp Lys Gly Pro Val Cys Gly Leu Asp Gly Lys Thr Tyr Arg Asn
100 105 110

Glu Cys Ala Leu Leu Lys Ala Arg Cys Lys Glu Gln Pro Glu Leu Glu
115 120 125

Val Gln Tyr Gln Gly Lys Cys Lys Lys Thr Cys Arg Asp Val Phe Cys
130 135 140

Pro Gly Ser Ser Thr Cys Val Val Asp Gln Thr Asn Asn Ala Tyr Cys
145 150 155 160

Val Thr Cys Asn Arg Ile Cys Pro Glu Pro Ser Ser Ser Glu Gln Tyr
165 170 175

Leu Cys Gly Asn Asp Gly Val Thr Tyr Ser Ser Ala Cys His Leu Arg
180 185 190

Lys Ala Thr Cys Leu Leu Gly Arg Ser Ile Gly Leu Ala Tyr Glu Gly
195 200 205

Lys Cys Ile Lys Ala Lys Ser Cys Glu Asp Ile Gln Cys Gly Gly Gly
210 215 220

Lys Lys Cys Leu Trp Asp Ser Lys Val Gly Arg Gly Arg Cys Ser Leu
225 230 235 240

Cys Asp Glu Leu Cys Pro Asp Ser Lys Ser Asp Glu Pro Val Cys Ala
245 250 255

Ser Asp Asn Ala Thr Tyr Ala Ser Glu Cys Ala Met Lys Glu Ala Ala
260 265 270

Cys Ser Ser Gly Val Leu Leu Glu Val Lys His Ser Gly Ser Cys Asn
275 280 285

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp
290 295 300

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly
305 310 315 320

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
325 330 335

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
340 345 350

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
355 360 365

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
370 375 380

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
385 390 395 400

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
405 410 415

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
420 425 430

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu
435 440 445

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
450 455 460

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
465 470 475 480

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
485 490 495

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
500 505 510

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
515 520 525

Gly Lys
530

<210> 27
<211> 738
<212> PRT
<213> recombinant

<400> 27

Gly Asn Cys Trp Leu Arg Gln Ala Lys Asn Gly Arg Cys Gln Val Leu
1 5 10 15

Tyr Lys Thr Glu Leu Ser Lys Glu Glu Cys Cys Ser Thr Gly Arg Leu
20 25 30

Ser Thr Ser Trp Thr Glu Glu Asp Val Asn Asp Asn Thr Leu Phe Lys
35 40 45

Trp Met Ile Phe Asn Gly Gly Ala Pro Asn Cys Ile Pro Cys Lys Glu
50 55 60

Thr Cys Glu Asn Val Asp Cys Gly Pro Gly Lys Lys Cys Arg Met Asn
65 70 75 80

Lys Lys Asn Lys Pro Arg Cys Val Cys Ala Pro Asp Cys Ser Asn Ile
85 90 95

Thr Trp Lys Gly Pro Val Cys Gly Leu Asp Gly Lys Thr Tyr Arg Asn

100

105

110

Glu Cys Ala Leu Leu Lys Ala Arg Cys Lys Glu Gln Pro Glu Leu Glu
 115 120 125

Val Gln Tyr Gln Gly Lys Cys Lys Lys Thr Cys Arg Asp Val Phe Cys
 130 135 140

Pro Gly Ser Ser Thr Cys Val Val Asp Gln Thr Asn Asn Ala Tyr Cys
 145 150 155 160

Val Thr Cys Asn Arg Ile Cys Pro Glu Pro Ser Ser Ser Glu Gln Tyr
 165 170 175

Leu Cys Gly Asn Asp Gly Val Thr Tyr Ser Ser Ala Cys His Leu Arg
 180 185 190

Lys Ala Thr Cys Leu Leu Gly Arg Ser Ile Gly Leu Ala Tyr Glu Gly
 195 200 205

Lys Cys Ile Lys Ala Lys Ser Cys Glu Asp Ile Gln Cys Gly Gly Gly
 210 215 220

Lys Lys Cys Leu Trp Asp Ser Lys Val Gly Arg Gly Arg Cys Ser Leu
 225 230 235 240

Cys Asp Glu Leu Cys Pro Asp Ser Lys Ser Asp Glu Pro Val Cys Ala
 245 250 255

Ser Asp Asn Ala Thr Tyr Ala Ser Glu Cys Ala Met Lys Glu Ala Ala
 260 265 270

Cys Ser Ser Gly Val Leu Leu Glu Val Lys His Ser Gly Ser Cys Asn
 275 280 285

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp
 290 295 300

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly
 305 310 315 320

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
325 330 335

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
340 345 350

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
355 360 365

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
370 375 380

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
385 390 395 400

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
405 410 415

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
420 425 430

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu
435 440 445

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
450 455 460

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
465 470 475 480

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
485 490 495

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
500 505 510

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
515 520 525

Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly

530

535

540

Ser Val Gly Asp Leu Glu Thr Leu Ala Phe Asp Gly Arg Thr Tyr Ile
 545 550 555 560

Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Thr Asn Glu Ile Pro
 565 570 575

Ala Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu Arg Thr
 580 585 590

Glu Ala Thr Gln Gly Leu Val Leu Trp Ile Gly Lys Val Gly Glu Arg
 595 600 605

Ala Asp Tyr Met Ala Leu Ala Ile Val Asp Gly His Leu Gln Leu Ser
 610 615 620

Tyr Asp Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val Lys Val
 625 630 635 640

Asn Thr Asn Arg Trp Leu Arg Val Arg Ala His Arg Glu His Arg Glu
 645 650 655

Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly Ser Ser Pro
 660 665 670

Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly Gly
 675 680 685

Leu Gln Lys Leu Pro Val Gly Gln Ala Leu Pro Lys Ala Tyr Gly Thr
 690 695 700

Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly His Arg Gln Leu
 705 710 715 720

His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg Pro Cys Pro
 725 730 735

Thr Leu

<210> 28
<211> 445
<212> PRT
<213> recombinant

<400> 28

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 Ser
20 25 30

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

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

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

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

Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val
130 135 140

Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala
145 150 155 160

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

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

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

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

Pro Pro Cys Pro Ala Pro Glu Leu 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 His Glu Asp Pro Glu Val Lys
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 Tyr 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 Ala Leu Pro Ala Pro 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

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 Val 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> 29
<211> 217
<212> PRT
<213> recombinant

<400> 29

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

Ser Ile Thr Ile Ser Cys Thr Gly Thr Ser Ser Asp Val Gly Ser Tyr
20 25 30

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

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

Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu
65 70 75 80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gly Thr Phe Ala Gly Gly
85 90 95

Ser Tyr Tyr Gly Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
100 105 110

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

Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe
130 135 140

Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val
145 150 155 160

Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys
165 170 175

Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser
180 185 190

His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu
195 200 205

Lys Thr Val Ala Pro Thr Glu Cys Ser
210 215

<210> 30
<211> 653
<212> PRT
<213> recombinant

<400> 30

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 Ser
20 25 30

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ile Ser Thr Ala Tyr
65 70 75 80

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

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

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

Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val
130 135 140

Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala
145 150 155 160

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

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

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

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

Pro Pro Cys Pro Ala Pro Glu Leu 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 His Glu Asp Pro Glu Val Lys
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 Tyr 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 Ala Leu Pro Ala Pro 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

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 Val 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 Gly Gly Gly
435 440 445

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gly Asp Val
450 455 460

Asp Thr Leu Ala Phe Asp Gly Arg Thr Phe Val Glu Tyr Leu Asn Ala
465 470 475 480

Val Thr Glu Ser Glu Leu Ala Asn Glu Ile Pro Val Glu Lys Ala Leu
485 490 495

Gln Ser Asn His Phe Glu Leu Ser Leu Arg Thr Glu Ala Thr Gln Gly
500 505 510

Leu Val Leu Trp Ser Gly Lys Ala Thr Glu Arg Ala Asp Tyr Val Ala
515 520 525

Leu Ala Ile Val Asp Gly His Leu Gln Leu Ser Tyr Asn Leu Gly Ser
530 535 540

Gln Pro Val Val Leu Arg Ser Thr Val Pro Val Asn Thr Asn Arg Trp
545 550 555 560

Leu Arg Val Val Ala His Arg Glu Gln Arg Glu Gly Ser Leu Gln Val
565 570 575

Gly Asn Glu Ala Pro Val Thr Gly Ser Ser Pro Leu Gly Ala Thr Gln
580 585 590

Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly Gly Leu Pro Glu Leu Pro
595 600 605

Val Gly Pro Ala Leu Pro Lys Ala Tyr Gly Thr Gly Phe Val Gly Cys
610 615 620

Leu Arg Asp Val Val Val Gly Arg His Pro Leu His Leu Leu Glu Asp
625 630 635 640

Ala Val Thr Lys Pro Glu Leu Arg Pro Cys Pro Thr Pro
645 650

<210> 31
<211> 454
<212> PRT
<213> recombinant

<400> 31

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Arg Lys Val
20 25 30

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

Trp Ile Gly His Ile Tyr Trp Asp Asp Asp Lys Arg Leu Asn Pro Ser
50 55 60

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

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

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

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

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

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

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

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

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

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

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
420 425 430

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
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Ser Leu Ser Pro Gly Lys
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<212> PRT
<213> recombinant

<400> 32

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Asp Arg Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Tyr Met
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His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
35 40 45

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

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

Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Trp Tyr Leu His Pro Leu Thr
85 90 95

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

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

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

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

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

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

Asn Arg Gly Glu Cys
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<400> 33

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35 40 45

Trp Ile Gly His Ile Tyr Trp Asp Asp Asp Lys Arg Leu Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Arg Arg Ala Ile Thr Thr Val Ile Gly Gly Gly Thr Phe Asp
100 105 110

Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys
115 120 125

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

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

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

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
180 185 190

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

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

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

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

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

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

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

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

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

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

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

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

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

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys

405

410

415

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
 420 425 430

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

Ser Leu Ser Pro Gly Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 450 455 460

Gly Gly Gly Gly Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly
 465 470 475 480

Arg Thr Phe Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Ala
 485 490 495

Asn Glu Ile Pro Val Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu
 500 505 510

Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ser Gly Lys
 515 520 525

Ala Thr Glu Arg Ala Asp Tyr Val Ala Leu Ala Ile Val Asp Gly His
 530 535 540

Leu Gln Leu Ser Tyr Asn Leu Gly Ser Gln Pro Val Val Leu Arg Ser
 545 550 555 560

Thr Val Pro Val Asn Thr Asn Arg Trp Leu Arg Val Val Ala His Arg
 565 570 575

Glu Gln Arg Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr
 580 585 590

Gly Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu
 595 600 605

Trp Leu Gly Gly Leu Pro Glu Leu Pro Val Gly Pro Ala Leu Pro Lys
 610 615 620

Ala Tyr Gly Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly
625 630 635 640

Arg His Pro Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu
645 650 655

Arg Pro Cys Pro Thr Pro
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<211> 1381
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ggcaaagtgg gagagcgagc agactacatg gccctggcta ttgtggatgg ccatctgcag	300
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taaaagctt	1389

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 <211> 1379
 <212> DNA
 <213> recombinant

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gagccctgtg gcttggcggg ttgccagagt tgccagttgg ccctgctctg cccaaggcct	1260
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 <211> 1357
 <212> DNA
 <213> recombinant

<400> 37	
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 <211> 1147
 <212> DNA
 <213> recombinant

<400> 38	
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<210> 39
 <211> 1152
 <212> DNA
 <213> recombinant

<400> 39	
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tagtaaaagc tt	1152

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<211> 1152
<212> DNA
<213> recombinant

<400> 40
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<211> 1770
<212> DNA
<213> recombinant

<400> 41
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