SEQUENCE LISTING

<110> Hoffmann-La Roche AG

<120> HER3 antigen binding proteins binding to the beta-hairpin of HER3

<130> 31326 WO

<150> EP 12191866.8
<151> 2012-11-08

<160> 71

<170> PatentIn version 3.5

<210> 1
<211> 19
<212> PRT
<213> Homo Sapiens

<400> 1

Pro Gln Pro Leu Val Tyr Asn Lys Leu Thr Phe Gln Leu Glu Pro Asn
1 5 10 15

Pro His Thr

<210> 2
<211> 19
<212> PRT
<213> Homo Sapiens

<400> 2

Pro Gln Thr Phe Val Tyr Asn Pro Thr Thr Phe Gln Leu Glu His Asn
1 5 10 15

Phe Asn Ala

<210> 3
<211> 1323
<212> PRT
<213> Homo Sapiens

<400> 3

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

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

Leu Tyr Glu Arg Cys Glu Val Val Met Gly Asn Leu Glu Ile Val Leu
35 40 45

Thr Gly His Asn Ala Asp Leu Ser Phe Leu Gln Trp Ile Arg Glu Val
50 55 60

```
Thr Gly Tyr Val Leu Val Ala Met Asn Glu Phe Ser Thr Leu Pro Leu
65                  70                  75                  80

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

Ala Ile Phe Val Met Leu Asn Tyr Asn Thr Asn Ser Ser His Ala Leu
            100                 105                 110

Arg Gln Leu Arg Leu Thr Gln Leu Thr Glu Ile Leu Ser Gly Gly Val
        115                 120                 125

Tyr Ile Glu Lys Asn Asp Lys Leu Cys His Met Asp Thr Ile Asp Trp
    130                 135                 140

Arg Asp Ile Val Arg Asp Arg Asp Ala Glu Ile Val Val Lys Asp Asn
145                 150                 155                 160

Gly Arg Ser Cys Pro Pro Cys His Glu Val Cys Lys Gly Arg Cys Trp
                165                 170                 175

Gly Pro Gly Ser Glu Asp Cys Gln Thr Leu Thr Lys Thr Ile Cys Ala
            180                 185                 190

Pro Gln Cys Asn Gly His Cys Phe Gly Pro Asn Pro Asn Gln Cys Cys
        195                 200                 205

His Asp Glu Cys Ala Gly Gly Cys Ser Gly Pro Gln Asp Thr Asp Cys
    210                 215                 220

Phe Ala Cys Arg His Phe Asn Asp Ser Gly Ala Cys Val Pro Arg Cys
225                 230                 235                 240

Pro Gln Pro Leu Val Tyr Asn Lys Leu Thr Phe Gln Leu Glu Pro Asn
                245                 250                 255

Pro His Thr Lys Tyr Gln Tyr Gly Gly Val Cys Val Ala Ser Cys Pro
            260                 265                 270

His Asn Phe Val Val Asp Gln Thr Ser Cys Val Arg Ala Cys Pro Pro
        275                 280                 285

Asp Lys Met Glu Val Asp Lys Asn Gly Leu Lys Met Cys Glu Pro Cys
    290                 295                 300

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

Phe Gln Thr Val Asp Ser Ser Asn Ile Asp Gly Phe Val Asn Cys Thr
                325                 330                 335
```

```
Lys Ile Leu Gly Asn Leu Asp Phe Leu Ile Thr Gly Leu Asn Gly Asp
            340                 345                 350

Pro Trp His Lys Ile Pro Ala Leu Asp Pro Glu Lys Leu Asn Val Phe
        355                 360                 365

Arg Thr Val Arg Glu Ile Thr Gly Tyr Leu Asn Ile Gln Ser Trp Pro
    370                 375                 380

Pro His Met His Asn Phe Ser Val Phe Ser Asn Leu Thr Thr Ile Gly
385                 390                 395                 400

Gly Arg Ser Leu Tyr Asn Arg Gly Phe Ser Leu Leu Ile Met Lys Asn
                405                 410                 415

Leu Asn Val Thr Ser Leu Gly Phe Arg Ser Leu Lys Glu Ile Ser Ala
            420                 425                 430

Gly Arg Ile Tyr Ile Ser Ala Asn Arg Gln Leu Cys Tyr His His Ser
        435                 440                 445

Leu Asn Trp Thr Lys Val Leu Arg Gly Pro Thr Glu Glu Arg Leu Asp
    450                 455                 460

Ile Lys His Asn Arg Pro Arg Arg Asp Cys Val Ala Glu Gly Lys Val
465                 470                 475                 480

Cys Asp Pro Leu Cys Ser Ser Gly Gly Cys Trp Gly Pro Gly Pro Gly
                485                 490                 495

Gln Cys Leu Ser Cys Arg Asn Tyr Ser Arg Gly Gly Val Cys Val Thr
            500                 505                 510

His Cys Asn Phe Leu Asn Gly Glu Pro Arg Glu Phe Ala His Glu Ala
        515                 520                 525

Glu Cys Phe Ser Cys His Pro Glu Cys Gln Pro Met Glu Gly Thr Ala
    530                 535                 540

Thr Cys Asn Gly Ser Gly Ser Asp Thr Cys Ala Gln Cys Ala His Phe
545                 550                 555                 560

Arg Asp Gly Pro His Cys Val Ser Ser Cys Pro His Gly Val Leu Gly
                565                 570                 575

Ala Lys Gly Pro Ile Tyr Lys Tyr Pro Asp Val Gln Asn Glu Cys Arg
            580                 585                 590

Pro Cys His Glu Asn Cys Thr Gln Gly Cys Lys Gly Pro Glu Leu Gln
        595                 600                 605
```

```
Asp Cys Leu Gly Gln Thr Leu Val Leu Ile Gly Lys Thr His Leu Thr
    610                 615                 620

Met Ala Leu Thr Val Ile Ala Gly Leu Val Val Ile Phe Met Met Leu
625                 630                 635                 640

Gly Gly Thr Phe Leu Tyr Trp Arg Gly Arg Arg Ile Gln Asn Lys Arg
                645                 650                 655

Ala Met Arg Arg Tyr Leu Glu Arg Gly Glu Ser Ile Glu Pro Leu Asp
            660                 665                 670

Pro Ser Glu Lys Ala Asn Lys Val Leu Ala Arg Ile Phe Lys Glu Thr
        675                 680                 685

Glu Leu Arg Lys Leu Lys Val Leu Gly Ser Gly Val Phe Gly Thr Val
    690                 695                 700

His Lys Gly Val Trp Ile Pro Glu Gly Glu Ser Ile Lys Ile Pro Val
705                 710                 715                 720

Cys Ile Lys Val Ile Glu Asp Lys Ser Gly Arg Gln Ser Phe Gln Ala
                725                 730                 735

Val Thr Asp His Met Leu Ala Ile Gly Ser Leu Asp His Ala His Ile
            740                 745                 750

Val Arg Leu Leu Gly Leu Cys Pro Gly Ser Ser Leu Gln Leu Val Thr
        755                 760                 765

Gln Tyr Leu Pro Leu Gly Ser Leu Leu Asp His Val Arg Gln His Arg
    770                 775                 780

Gly Ala Leu Gly Pro Gln Leu Leu Leu Asn Trp Gly Val Gln Ile Ala
785                 790                 795                 800

Lys Gly Met Tyr Tyr Leu Glu Glu His Gly Met Val His Arg Asn Leu
                805                 810                 815

Ala Ala Arg Asn Val Leu Leu Lys Ser Pro Ser Gln Val Gln Val Ala
            820                 825                 830

Asp Phe Gly Val Ala Asp Leu Leu Pro Pro Asp Asp Lys Gln Leu Leu
        835                 840                 845

Tyr Ser Glu Ala Lys Thr Pro Ile Lys Trp Met Ala Leu Glu Ser Ile
    850                 855                 860

His Phe Gly Lys Tyr Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val
865                 870                 875                 880
```

```
Thr Val Trp Glu Leu Met Thr Phe Gly Ala Glu Pro Tyr Ala Gly Leu
                885                 890                 895

Arg Leu Ala Glu Val Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu Ala
            900                 905                 910

Gln Pro Gln Ile Cys Thr Ile Asp Val Tyr Met Val Met Val Lys Cys
        915                 920                 925

Trp Met Ile Asp Glu Asn Ile Arg Pro Thr Phe Lys Glu Leu Ala Asn
    930                 935                 940

Glu Phe Thr Arg Met Ala Arg Asp Pro Pro Arg Tyr Leu Val Ile Lys
945                 950                 955                 960

Arg Glu Ser Gly Pro Gly Ile Ala Pro Gly Pro Glu Pro His Gly Leu
                965                 970                 975

Thr Asn Lys Lys Leu Glu Glu Val Glu Leu Glu Pro Glu Leu Asp Leu
            980                 985                 990

Asp Leu Asp Leu Glu Ala Glu Glu  Asp Asn Leu Ala Thr  Thr Thr Leu
        995                 1000                1005

Gly Ser  Ala Leu Ser Leu Pro  Val Gly Thr Leu Asn  Arg Pro Arg
    1010                1015                1020

Gly Ser  Gln Ser Leu Leu Ser  Pro Ser Ser Gly Tyr  Met Pro Met
    1025                1030                1035

Asn Gln  Gly Asn Leu Gly Glu  Ser Cys Gln Glu Ser  Ala Val Ser
    1040                1045                1050

Gly Ser  Ser Glu Arg Cys Pro  Arg Pro Val Ser Leu  His Pro Met
    1055                1060                1065

Pro Arg  Gly Cys Leu Ala Ser  Glu Ser Ser Glu Gly  His Val Thr
    1070                1075                1080

Gly Ser  Glu Ala Glu Leu Gln  Glu Lys Val Ser Met  Cys Arg Ser
    1085                1090                1095

Arg Ser  Arg Ser Arg Ser Pro  Arg Pro Arg Gly Asp  Ser Ala Tyr
    1100                1105                1110

His Ser  Gln Arg His Ser Leu  Leu Thr Pro Val Thr  Pro Leu Ser
    1115                1120                1125

Pro Pro  Gly Leu Glu Glu Glu  Asp Val Asn Gly Tyr  Val Met Pro
    1130                1135                1140
```

```
Asp Thr  His Leu Lys Gly Thr  Pro Ser Ser Arg Glu  Gly Thr Leu
    1145                1150                1155


Ser Ser  Val Gly Leu Ser Ser  Val Leu Gly Thr Glu  Glu Glu Asp
    1160                1165                1170


Glu Asp  Glu Glu Tyr Glu Tyr  Met Asn Arg Arg Arg  Arg His Ser
    1175                1180                1185


Pro Pro  His Pro Pro Arg Pro  Ser Ser Leu Glu Glu  Leu Gly Tyr
    1190                1195                1200


Glu Tyr  Met Asp Val Gly Ser  Asp Leu Ser Ala Ser  Leu Gly Ser
    1205                1210                1215


Thr Gln  Ser Cys Pro Leu His  Pro Val Pro Ile Met  Pro Thr Ala
    1220                1225                1230


Gly Thr  Thr Pro Asp Glu Asp  Tyr Glu Tyr Met Asn  Arg Gln Arg
    1235                1240                1245


Asp Gly  Gly Gly Pro Gly Gly  Asp Tyr Ala Ala Met  Gly Ala Cys
    1250                1255                1260


Pro Ala  Ser Glu Gln Gly Tyr  Glu Glu Met Arg Ala  Phe Gln Gly
    1265                1270                1275


Pro Gly  His Gln Ala Pro His  Val His Tyr Ala Arg  Leu Lys Thr
    1280                1285                1290


Leu Arg  Ser Leu Glu Ala Thr  Asp Ser Ala Phe Asp  Asn Pro Asp
    1295                1300                1305


Tyr Trp  His Ser Arg Leu Phe  Pro Lys Ala Asn Ala  Gln Arg Thr
    1310                1315                1320


<210>  4
<211>  624
<212>  PRT
<213>  Homo Sapiens

<400>  4

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


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


Leu Tyr Glu Arg Cys Glu Val Val Met Gly Asn Leu Glu Ile Val Leu
        35                  40                  45


Thr Gly His Asn Ala Asp Leu Ser Phe Leu Gln Trp Ile Arg Glu Val
```

50 55 60

Thr Gly Tyr Val Leu Val Ala Met Asn Glu Phe Ser Thr Leu Pro Leu
65 70 75 80

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

Ala Ile Phe Val Met Leu Asn Tyr Asn Thr Asn Ser Ser His Ala Leu
100 105 110

Arg Gln Leu Arg Leu Thr Gln Leu Thr Glu Ile Leu Ser Gly Gly Val
115 120 125

Tyr Ile Glu Lys Asn Asp Lys Leu Cys His Met Asp Thr Ile Asp Trp
130 135 140

Arg Asp Ile Val Arg Asp Arg Asp Ala Glu Ile Val Val Lys Asp Asn
145 150 155 160

Gly Arg Ser Cys Pro Pro Cys His Glu Val Cys Lys Gly Arg Cys Trp
165 170 175

Gly Pro Gly Ser Glu Asp Cys Gln Thr Leu Thr Lys Thr Ile Cys Ala
180 185 190

Pro Gln Cys Asn Gly His Cys Phe Gly Pro Asn Pro Asn Gln Cys Cys
195 200 205

His Asp Glu Cys Ala Gly Gly Cys Ser Gly Pro Gln Asp Thr Asp Cys
210 215 220

Phe Ala Cys Arg His Phe Asn Asp Ser Gly Ala Cys Val Pro Arg Cys
225 230 235 240

Pro Gln Pro Leu Val Tyr Asn Lys Leu Thr Phe Gln Leu Glu Pro Asn
245 250 255

Pro His Thr Lys Tyr Gln Tyr Gly Gly Val Cys Val Ala Ser Cys Pro
260 265 270

His Asn Phe Val Val Asp Gln Thr Ser Cys Val Arg Ala Cys Pro Pro
275 280 285

Asp Lys Met Glu Val Asp Lys Asn Gly Leu Lys Met Cys Glu Pro Cys
290 295 300

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

Phe Gln Thr Val Asp Ser Ser Asn Ile Asp Gly Phe Val Asn Cys Thr

```
                325                 330                 335

Lys Ile Leu Gly Asn Leu Asp Phe Leu Ile Thr Gly Leu Asn Gly Asp
            340                 345                 350

Pro Trp His Lys Ile Pro Ala Leu Asp Pro Glu Lys Leu Asn Val Phe
        355                 360                 365

Arg Thr Val Arg Glu Ile Thr Gly Tyr Leu Asn Ile Gln Ser Trp Pro
    370                 375                 380

Pro His Met His Asn Phe Ser Val Phe Ser Asn Leu Thr Thr Ile Gly
385                 390                 395                 400

Gly Arg Ser Leu Tyr Asn Arg Gly Phe Ser Leu Leu Ile Met Lys Asn
                405                 410                 415

Leu Asn Val Thr Ser Leu Gly Phe Arg Ser Leu Lys Glu Ile Ser Ala
            420                 425                 430

Gly Arg Ile Tyr Ile Ser Ala Asn Arg Gln Leu Cys Tyr His His Ser
        435                 440                 445

Leu Asn Trp Thr Lys Val Leu Arg Gly Pro Thr Glu Glu Arg Leu Asp
    450                 455                 460

Ile Lys His Asn Arg Pro Arg Arg Asp Cys Val Ala Glu Gly Lys Val
465                 470                 475                 480

Cys Asp Pro Leu Cys Ser Ser Gly Gly Cys Trp Gly Pro Gly Pro Gly
                485                 490                 495

Gln Cys Leu Ser Cys Arg Asn Tyr Ser Arg Gly Gly Val Cys Val Thr
            500                 505                 510

His Cys Asn Phe Leu Asn Gly Glu Pro Arg Glu Phe Ala His Glu Ala
        515                 520                 525

Glu Cys Phe Ser Cys His Pro Glu Cys Gln Pro Met Glu Gly Thr Ala
    530                 535                 540

Thr Cys Asn Gly Ser Gly Ser Asp Thr Cys Ala Gln Cys Ala His Phe
545                 550                 555                 560

Arg Asp Gly Pro His Cys Val Ser Ser Cys Pro His Gly Val Leu Gly
                565                 570                 575

Ala Lys Gly Pro Ile Tyr Lys Tyr Pro Asp Val Gln Asn Glu Cys Arg
            580                 585                 590

Pro Cys His Glu Asn Cys Thr Gln Gly Cys Lys Gly Pro Glu Leu Gln
```

595 600 605

Asp Cys Leu Gly Gln Thr Leu Val Leu Ile Gly Lys Thr His Leu Thr
610 615 620

<210> 5
<211> 1283
<212> PRT
<213> Homo Sapiens

<400> 5

Gln Ser Val Cys Ala Gly Thr Glu Asn Lys Leu Ser Ser Leu Ser Asp
1 5 10 15

Leu Glu Gln Gln Tyr Arg Ala Leu Arg Lys Tyr Tyr Glu Asn Cys Glu
20 25 30

Val Val Met Gly Asn Leu Glu Ile Thr Ser Ile Glu His Asn Arg Asp
35 40 45

Leu Ser Phe Leu Arg Ser Val Arg Glu Val Thr Gly Tyr Val Leu Val
50 55 60

Ala Leu Asn Gln Phe Arg Tyr Leu Pro Leu Glu Asn Leu Arg Ile Ile
65 70 75 80

Arg Gly Thr Lys Leu Tyr Glu Asp Arg Tyr Ala Leu Ala Ile Phe Leu
85 90 95

Asn Tyr Arg Lys Asp Gly Asn Phe Gly Leu Gln Glu Leu Gly Leu Lys
100 105 110

Asn Leu Thr Glu Ile Leu Asn Gly Gly Val Tyr Val Asp Gln Asn Lys
115 120 125

Phe Leu Cys Tyr Ala Asp Thr Ile His Trp Gln Asp Ile Val Arg Asn
130 135 140

Pro Trp Pro Ser Asn Leu Thr Leu Val Ser Thr Asn Gly Ser Ser Gly
145 150 155 160

Cys Gly Arg Cys His Lys Ser Cys Thr Gly Arg Cys Trp Gly Pro Thr
165 170 175

Glu Asn His Cys Gln Thr Leu Thr Arg Thr Val Cys Ala Glu Gln Cys
180 185 190

Asp Gly Arg Cys Tyr Gly Pro Tyr Val Ser Asp Cys Cys His Arg Glu
195 200 205

Cys Ala Gly Gly Cys Ser Gly Pro Lys Asp Thr Asp Cys Phe Ala Cys
210 215 220

```
Met Asn Phe Asn Asp Ser Gly Ala Cys Val Thr Gln Cys Pro Gln Thr
225                 230                 235                 240

Phe Val Tyr Asn Pro Thr Thr Phe Gln Leu Glu His Asn Phe Asn Ala
                245                 250                 255

Lys Tyr Thr Tyr Gly Ala Phe Cys Val Lys Lys Cys Pro His Asn Phe
            260                 265                 270

Val Val Asp Ser Ser Ser Cys Val Arg Ala Cys Pro Ser Ser Lys Met
        275                 280                 285

Glu Val Glu Glu Asn Gly Ile Lys Met Cys Lys Pro Cys Thr Asp Ile
    290                 295                 300

Cys Pro Lys Ala Cys Asp Gly Ile Gly Thr Gly Ser Leu Met Ser Ala
305                 310                 315                 320

Gln Thr Val Asp Ser Ser Asn Ile Asp Lys Phe Ile Asn Cys Thr Lys
                325                 330                 335

Ile Asn Gly Asn Leu Ile Phe Leu Val Thr Gly Ile His Gly Asp Pro
            340                 345                 350

Tyr Asn Ala Ile Glu Ala Ile Asp Pro Glu Lys Leu Asn Val Phe Arg
        355                 360                 365

Thr Val Arg Glu Ile Thr Gly Phe Leu Asn Ile Gln Ser Trp Pro Pro
    370                 375                 380

Asn Met Thr Asp Phe Ser Val Phe Ser Asn Leu Val Thr Ile Gly Gly
385                 390                 395                 400

Arg Val Leu Tyr Ser Gly Leu Ser Leu Leu Ile Leu Lys Gln Gln Gly
                405                 410                 415

Ile Thr Ser Leu Gln Phe Gln Ser Leu Lys Glu Ile Ser Ala Gly Asn
            420                 425                 430

Ile Tyr Ile Thr Asp Asn Ser Asn Leu Cys Tyr Tyr His Thr Ile Asn
        435                 440                 445

Trp Thr Thr Leu Phe Ser Thr Ile Asn Gln Arg Ile Val Ile Arg Asp
    450                 455                 460

Asn Arg Lys Ala Glu Asn Cys Thr Ala Glu Gly Met Val Cys Asn His
465                 470                 475                 480

Leu Cys Ser Ser Asp Gly Cys Trp Gly Pro Gly Pro Asp Gln Cys Leu
                485                 490                 495
```

```
Ser Cys Arg Arg Phe Ser Arg Gly Arg Ile Cys Ile Glu Ser Cys Asn
            500                 505                 510

Leu Tyr Asp Gly Glu Phe Arg Glu Phe Glu Asn Gly Ser Ile Cys Val
        515                 520                 525

Glu Cys Asp Pro Gln Cys Glu Lys Met Glu Asp Gly Leu Leu Thr Cys
    530                 535                 540

His Gly Pro Gly Pro Asp Asn Cys Thr Lys Cys Ser His Phe Lys Asp
545                 550                 555                 560

Gly Pro Asn Cys Val Glu Lys Cys Pro Asp Gly Leu Gln Gly Ala Asn
                565                 570                 575

Ser Phe Ile Phe Lys Tyr Ala Asp Pro Asp Arg Glu Cys His Pro Cys
            580                 585                 590

His Pro Asn Cys Thr Gln Gly Cys Asn Gly Pro Thr Ser His Asp Cys
        595                 600                 605

Ile Tyr Tyr Pro Trp Thr Gly His Ser Thr Leu Pro Gln His Ala Arg
    610                 615                 620

Thr Pro Leu Ile Ala Ala Gly Val Ile Gly Gly Leu Phe Ile Leu Val
625                 630                 635                 640

Ile Val Gly Leu Thr Phe Ala Val Tyr Val Arg Arg Lys Ser Ile Lys
                645                 650                 655

Lys Lys Arg Ala Leu Arg Arg Phe Leu Glu Thr Glu Leu Val Glu Pro
            660                 665                 670

Leu Thr Pro Ser Gly Thr Ala Pro Asn Gln Ala Gln Leu Arg Ile Leu
        675                 680                 685

Lys Glu Thr Glu Leu Lys Arg Val Lys Val Leu Gly Ser Gly Ala Phe
    690                 695                 700

Gly Thr Val Tyr Lys Gly Ile Trp Val Pro Glu Gly Glu Thr Val Lys
705                 710                 715                 720

Ile Pro Val Ala Ile Lys Ile Leu Asn Glu Thr Thr Gly Pro Lys Ala
                725                 730                 735

Asn Val Glu Phe Met Asp Glu Ala Leu Ile Met Ala Ser Met Asp His
            740                 745                 750

Pro His Leu Val Arg Leu Leu Gly Val Cys Leu Ser Pro Thr Ile Gln
        755                 760                 765
```

```
Leu Val Thr Gln Leu Met Pro His Gly Cys Leu Leu Glu Tyr Val His
    770                 775                 780

Glu His Lys Asp Asn Ile Gly Ser Gln Leu Leu Leu Asn Trp Cys Val
785                 790                 795                 800

Gln Ile Ala Lys Gly Met Met Tyr Leu Glu Glu Arg Arg Leu Val His
                805                 810                 815

Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys Ser Pro Asn His Val
            820                 825                 830

Lys Ile Thr Asp Phe Gly Leu Ala Arg Leu Leu Glu Gly Asp Glu Lys
        835                 840                 845

Glu Tyr Asn Ala Asp Gly Gly Lys Met Pro Ile Lys Trp Met Ala Leu
    850                 855                 860

Glu Cys Ile His Tyr Arg Lys Phe Thr His Gln Ser Asp Val Trp Ser
865                 870                 875                 880

Tyr Gly Val Thr Ile Trp Glu Leu Met Thr Phe Gly Gly Lys Pro Tyr
                885                 890                 895

Asp Gly Ile Pro Thr Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu
            900                 905                 910

Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr Met Val Met
        915                 920                 925

Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys Phe Lys Glu
    930                 935                 940

Leu Ala Ala Glu Phe Ser Arg Met Ala Arg Asp Pro Gln Arg Tyr Leu
945                 950                 955                 960

Val Ile Gln Gly Asp Asp Arg Met Lys Leu Pro Ser Pro Asn Asp Ser
                965                 970                 975

Lys Phe Phe Gln Asn Leu Leu Asp Glu Glu Asp Leu Glu Asp Met Met
            980                 985                 990

Asp Ala Glu Glu Tyr Leu Val Pro  Gln Ala Phe Asn Ile  Pro Pro Pro
        995                 1000                1005

Ile Tyr  Thr Ser Arg Ala Arg  Ile Asp Ser Asn Arg  Ser Glu Ile
    1010                1015                1020

Gly His  Ser Pro Pro Pro Ala  Tyr Thr Pro Met Ser  Gly Asn Gln
    1025                1030                1035
```

```
Phe Val  Tyr Arg Asp Gly Gly  Phe Ala Ala Glu Gln  Gly Val Ser
    1040                1045                1050

Val Pro  Tyr Arg Ala Pro Thr  Ser Thr Ile Pro Glu  Ala Pro Val
    1055                1060                1065

Ala Gln  Gly Ala Thr Ala Glu  Ile Phe Asp Asp Ser  Cys Cys Asn
    1070                1075                1080

Gly Thr  Leu Arg Lys Pro Val  Ala Pro His Val Gln  Glu Asp Ser
    1085                1090                1095

Ser Thr  Gln Arg Tyr Ser Ala  Asp Pro Thr Val Phe  Ala Pro Glu
    1100                1105                1110

Arg Ser  Pro Arg Gly Glu Leu  Asp Glu Glu Gly Tyr  Met Thr Pro
    1115                1120                1125

Met Arg  Asp Lys Pro Lys Gln  Glu Tyr Leu Asn Pro  Val Glu Glu
    1130                1135                1140

Asn Pro  Phe Val Ser Arg Arg  Lys Asn Gly Asp Leu  Gln Ala Leu
    1145                1150                1155

Asp Asn  Pro Glu Tyr His Asn  Ala Ser Asn Gly Pro  Pro Lys Ala
    1160                1165                1170

Glu Asp  Glu Tyr Val Asn Glu  Pro Leu Tyr Leu Asn  Thr Phe Ala
    1175                1180                1185

Asn Thr  Leu Gly Lys Ala Glu  Tyr Leu Lys Asn Asn  Ile Leu Ser
    1190                1195                1200

Met Pro  Glu Lys Ala Lys Lys  Ala Phe Asp Asn Pro  Asp Tyr Trp
    1205                1210                1215

Asn His  Ser Leu Pro Pro Arg  Ser Thr Leu Gln His  Pro Asp Tyr
    1220                1225                1230

Leu Gln  Glu Tyr Ser Thr Lys  Tyr Phe Tyr Lys Gln  Asn Gly Arg
    1235                1240                1245

Ile Arg  Pro Ile Val Ala Glu  Asn Pro Glu Tyr Leu  Ser Glu Phe
    1250                1255                1260

Ser Leu  Lys Pro Gly Thr Val  Leu Pro Pro Pro Pro  Tyr Arg His
    1265                1270                1275

Arg Asn  Thr Val Val
    1280
```

<210> 6
<211> 626
<212> PRT
<213> Homo Sapiens

<400> 6

```
Gln Ser Val Cys Ala Gly Thr Glu Asn Lys Leu Ser Ser Leu Ser Asp
1               5                  10                  15

Leu Glu Gln Gln Tyr Arg Ala Leu Arg Lys Tyr Tyr Glu Asn Cys Glu
            20                  25                  30

Val Val Met Gly Asn Leu Glu Ile Thr Ser Ile Glu His Asn Arg Asp
        35                  40                  45

Leu Ser Phe Leu Arg Ser Val Arg Glu Val Thr Gly Tyr Val Leu Val
    50                  55                  60

Ala Leu Asn Gln Phe Arg Tyr Leu Pro Leu Glu Asn Leu Arg Ile Ile
65                  70                  75                  80

Arg Gly Thr Lys Leu Tyr Glu Asp Arg Tyr Ala Leu Ala Ile Phe Leu
                85                  90                  95

Asn Tyr Arg Lys Asp Gly Asn Phe Gly Leu Gln Glu Leu Gly Leu Lys
            100                 105                 110

Asn Leu Thr Glu Ile Leu Asn Gly Gly Val Tyr Val Asp Gln Asn Lys
        115                 120                 125

Phe Leu Cys Tyr Ala Asp Thr Ile His Trp Gln Asp Ile Val Arg Asn
    130                 135                 140

Pro Trp Pro Ser Asn Leu Thr Leu Val Ser Thr Asn Gly Ser Ser Gly
145                 150                 155                 160

Cys Gly Arg Cys His Lys Ser Cys Thr Gly Arg Cys Trp Gly Pro Thr
                165                 170                 175

Glu Asn His Cys Gln Thr Leu Thr Arg Thr Val Cys Ala Glu Gln Cys
            180                 185                 190

Asp Gly Arg Cys Tyr Gly Pro Tyr Val Ser Asp Cys Cys His Arg Glu
        195                 200                 205

Cys Ala Gly Gly Cys Ser Gly Pro Lys Asp Thr Asp Cys Phe Ala Cys
    210                 215                 220

Met Asn Phe Asn Asp Ser Gly Ala Cys Val Thr Gln Cys Pro Gln Thr
225                 230                 235                 240
```

```
Phe Val Tyr Asn Pro Thr Thr Phe Gln Leu Glu His Asn Phe Asn Ala
                245                 250                 255

Lys Tyr Thr Tyr Gly Ala Phe Cys Val Lys Lys Cys Pro His Asn Phe
            260                 265                 270

Val Val Asp Ser Ser Ser Cys Val Arg Ala Cys Pro Ser Ser Lys Met
        275                 280                 285

Glu Val Glu Glu Asn Gly Ile Lys Met Cys Lys Pro Cys Thr Asp Ile
    290                 295                 300

Cys Pro Lys Ala Cys Asp Gly Ile Gly Thr Gly Ser Leu Met Ser Ala
305                 310                 315                 320

Gln Thr Val Asp Ser Ser Asn Ile Asp Lys Phe Ile Asn Cys Thr Lys
                325                 330                 335

Ile Asn Gly Asn Leu Ile Phe Leu Val Thr Gly Ile His Gly Asp Pro
            340                 345                 350

Tyr Asn Ala Ile Glu Ala Ile Asp Pro Glu Lys Leu Asn Val Phe Arg
        355                 360                 365

Thr Val Arg Glu Ile Thr Gly Phe Leu Asn Ile Gln Ser Trp Pro Pro
    370                 375                 380

Asn Met Thr Asp Phe Ser Val Phe Ser Asn Leu Val Thr Ile Gly Gly
385                 390                 395                 400

Arg Val Leu Tyr Ser Gly Leu Ser Leu Leu Ile Leu Lys Gln Gln Gly
                405                 410                 415

Ile Thr Ser Leu Gln Phe Gln Ser Leu Lys Glu Ile Ser Ala Gly Asn
            420                 425                 430

Ile Tyr Ile Thr Asp Asn Ser Asn Leu Cys Tyr Tyr His Thr Ile Asn
        435                 440                 445

Trp Thr Thr Leu Phe Ser Thr Ile Asn Gln Arg Ile Val Ile Arg Asp
    450                 455                 460

Asn Arg Lys Ala Glu Asn Cys Thr Ala Glu Gly Met Val Cys Asn His
465                 470                 475                 480

Leu Cys Ser Ser Asp Gly Cys Trp Gly Pro Gly Pro Asp Gln Cys Leu
                485                 490                 495

Ser Cys Arg Arg Phe Ser Arg Gly Arg Ile Cys Ile Glu Ser Cys Asn
            500                 505                 510
```

```
Leu Tyr Asp Gly Glu Phe Arg Glu Phe Glu Asn Gly Ser Ile Cys Val
        515                 520                 525

Glu Cys Asp Pro Gln Cys Glu Lys Met Glu Asp Gly Leu Leu Thr Cys
    530                 535                 540

His Gly Pro Gly Pro Asp Asn Cys Thr Lys Cys Ser His Phe Lys Asp
545                 550                 555                 560

Gly Pro Asn Cys Val Glu Lys Cys Pro Asp Gly Leu Gln Gly Ala Asn
                565                 570                 575

Ser Phe Ile Phe Lys Tyr Ala Asp Pro Asp Arg Glu Cys His Pro Cys
            580                 585                 590

His Pro Asn Cys Thr Gln Gly Cys Asn Gly Pro Thr Ser His Asp Cys
        595                 600                 605

Ile Tyr Tyr Pro Trp Thr Gly His Ser Thr Leu Pro Gln His Ala Arg
    610                 615                 620

Thr Pro
625
```

<210> 7
<211> 1186
<212> PRT
<213> Homo Sapiens

<400> 7

```
Leu Glu Glu Lys Lys Val Cys Gln Gly Thr Ser Asn Lys Leu Thr Gln
1               5                   10                  15

Leu Gly Thr Phe Glu Asp His Phe Leu Ser Leu Gln Arg Met Phe Asn
            20                  25                  30

Asn Cys Glu Val Val Leu Gly Asn Leu Glu Ile Thr Tyr Val Gln Arg
        35                  40                  45

Asn Tyr Asp Leu Ser Phe Leu Lys Thr Ile Gln Glu Val Ala Gly Tyr
    50                  55                  60

Val Leu Ile Ala Leu Asn Thr Val Glu Arg Ile Pro Leu Glu Asn Leu
65                  70                  75                  80

Gln Ile Ile Arg Gly Asn Met Tyr Tyr Glu Asn Ser Tyr Ala Leu Ala
                85                  90                  95

Val Leu Ser Asn Tyr Asp Ala Asn Lys Thr Gly Leu Lys Glu Leu Pro
            100                 105                 110
```

```
Met Arg Asn Leu Gln Glu Ile Leu His Gly Ala Val Arg Phe Ser Asn
        115                 120                 125

Asn Pro Ala Leu Cys Asn Val Glu Ser Ile Gln Trp Arg Asp Ile Val
    130                 135                 140

Ser Ser Asp Phe Leu Ser Asn Met Ser Met Asp Phe Gln Asn His Leu
145                 150                 155                 160

Gly Ser Cys Gln Lys Cys Asp Pro Ser Cys Pro Asn Gly Ser Cys Trp
                165                 170                 175

Gly Ala Gly Glu Glu Asn Cys Gln Lys Leu Thr Lys Ile Ile Cys Ala
            180                 185                 190

Gln Gln Cys Ser Gly Arg Cys Arg Gly Lys Ser Pro Ser Asp Cys Cys
        195                 200                 205

His Asn Gln Cys Ala Ala Gly Cys Thr Gly Pro Arg Glu Ser Asp Cys
    210                 215                 220

Leu Val Cys Arg Lys Phe Arg Asp Glu Ala Thr Cys Lys Asp Thr Cys
225                 230                 235                 240

Pro Pro Leu Met Leu Tyr Asn Pro Thr Thr Tyr Gln Met Asp Val Asn
                245                 250                 255

Pro Glu Gly Lys Tyr Ser Phe Gly Ala Thr Cys Val Lys Lys Cys Pro
            260                 265                 270

Arg Asn Tyr Val Val Thr Asp His Gly Ser Cys Val Arg Ala Cys Gly
        275                 280                 285

Ala Asp Ser Tyr Glu Met Glu Glu Asp Gly Val Arg Lys Cys Lys Lys
    290                 295                 300

Cys Glu Gly Pro Cys Arg Lys Val Cys Asn Gly Ile Gly Ile Gly Glu
305                 310                 315                 320

Phe Lys Asp Ser Leu Ser Ile Asn Ala Thr Asn Ile Lys His Phe Lys
                325                 330                 335

Asn Cys Thr Ser Ile Ser Gly Asp Leu His Ile Leu Pro Val Ala Phe
            340                 345                 350

Arg Gly Asp Ser Phe Thr His Thr Pro Pro Leu Asp Pro Gln Glu Leu
        355                 360                 365

Asp Ile Leu Lys Thr Val Lys Glu Ile Thr Gly Phe Leu Leu Ile Gln
    370                 375                 380
```

```
Ala Trp Pro Glu Asn Arg Thr Asp Leu His Ala Phe Glu Asn Leu Glu
385                 390                 395                 400

Ile Ile Arg Gly Arg Thr Lys Gln His Gly Gln Phe Ser Leu Ala Val
                405                 410                 415

Val Ser Leu Asn Ile Thr Ser Leu Gly Leu Arg Ser Leu Lys Glu Ile
            420                 425                 430

Ser Asp Gly Asp Val Ile Ile Ser Gly Asn Lys Asn Leu Cys Tyr Ala
        435                 440                 445

Asn Thr Ile Asn Trp Lys Lys Leu Phe Gly Thr Ser Gly Gln Lys Thr
    450                 455                 460

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

Val Cys His Ala Leu Cys Ser Pro Glu Gly Cys Trp Gly Pro Glu Pro
                485                 490                 495

Arg Asp Cys Val Ser Cys Arg Asn Val Ser Arg Gly Arg Glu Cys Val
            500                 505                 510

Asp Lys Cys Asn Leu Leu Glu Gly Glu Pro Arg Glu Phe Val Glu Asn
        515                 520                 525

Ser Glu Cys Ile Gln Cys His Pro Glu Cys Leu Pro Gln Ala Met Asn
    530                 535                 540

Ile Thr Cys Thr Gly Arg Gly Pro Asp Asn Cys Ile Gln Cys Ala His
545                 550                 555                 560

Tyr Ile Asp Gly Pro His Cys Val Lys Thr Cys Pro Ala Gly Val Met
                565                 570                 575

Gly Glu Asn Asn Thr Leu Val Trp Lys Tyr Ala Asp Ala Gly His Val
            580                 585                 590

Cys His Leu Cys His Pro Asn Cys Thr Tyr Gly Cys Thr Gly Pro Gly
        595                 600                 605

Leu Glu Gly Cys Pro Thr Asn Gly Pro Lys Ile Pro Ser Ile Ala Thr
    610                 615                 620

Gly Met Val Gly Ala Leu Leu Leu Leu Leu Val Val Ala Leu Gly Ile
625                 630                 635                 640

Gly Leu Phe Met Arg Arg Arg His Ile Val Arg Lys Arg Thr Leu Arg
                645                 650                 655
```

```
Arg Leu Leu Gln Glu Arg Glu Leu Val Glu Pro Leu Thr Pro Ser Gly
            660                 665                 670

Glu Ala Pro Asn Gln Ala Leu Leu Arg Ile Leu Lys Glu Thr Glu Phe
        675                 680                 685

Lys Lys Ile Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys
    690                 695                 700

Gly Leu Trp Ile Pro Glu Gly Glu Lys Val Lys Ile Pro Val Ala Ile
705                 710                 715                 720

Lys Glu Leu Arg Glu Ala Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu
                725                 730                 735

Asp Glu Ala Tyr Val Met Ala Ser Val Asp Asn Pro His Val Cys Arg
            740                 745                 750

Leu Leu Gly Ile Cys Leu Thr Ser Thr Val Gln Leu Ile Thr Gln Leu
        755                 760                 765

Met Pro Phe Gly Cys Leu Leu Asp Tyr Val Arg Glu His Lys Asp Asn
    770                 775                 780

Ile Gly Ser Gln Tyr Leu Leu Asn Trp Cys Val Gln Ile Ala Lys Gly
785                 790                 795                 800

Met Asn Tyr Leu Glu Asp Arg Arg Leu Val His Arg Asp Leu Ala Ala
                805                 810                 815

Arg Asn Val Leu Val Lys Thr Pro Gln His Val Lys Ile Thr Asp Phe
            820                 825                 830

Gly Leu Ala Lys Leu Leu Gly Ala Glu Glu Lys Glu Tyr His Ala Glu
        835                 840                 845

Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu Glu Ser Ile Leu His
    850                 855                 860

Arg Ile Tyr Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val Thr Val
865                 870                 875                 880

Trp Glu Leu Met Thr Phe Gly Ser Lys Pro Tyr Asp Gly Ile Pro Ala
                885                 890                 895

Ser Glu Ile Ser Ser Ile Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro
            900                 905                 910

Pro Ile Cys Thr Ile Asp Val Tyr Met Ile Met Val Lys Cys Trp Met
        915                 920                 925
```

```
Ile Asp Ala Asp Ser Arg Pro Lys Phe Arg Glu Leu Ile Ile Glu Phe
    930                 935                 940

Ser Lys Met Ala Arg Asp Pro Gln Arg Tyr Leu Val Ile Gln Gly Asp
945                 950                 955                 960

Glu Arg Met His Leu Pro Ser Pro Thr Asp Ser Asn Phe Tyr Arg Ala
                965                 970                 975

Leu Met Asp Glu Glu Asp Met Asp Asp Val Val Asp Ala Asp Glu Tyr
            980                 985                 990

Leu Ile Pro Gln Gln Gly Phe Phe  Ser Ser Pro Ser Thr  Ser Arg Thr
        995                 1000                1005

Pro Leu  Leu Ser Ser Leu Ser  Ala Thr Ser Asn Asn  Ser Thr Val
    1010                1015                1020

Ala Cys  Ile Asp Arg Asn Gly  Leu Gln Ser Cys Pro  Ile Lys Glu
    1025                1030                1035

Asp Ser  Phe Leu Gln Arg Tyr  Ser Ser Asp Pro Thr  Gly Ala Leu
    1040                1045                1050

Thr Glu  Asp Ser Ile Asp Asp  Thr Phe Leu Pro Val  Pro Glu Tyr
    1055                1060                1065

Ile Asn  Gln Ser Val Pro Lys  Arg Pro Ala Gly Ser  Val Gln Asn
    1070                1075                1080

Pro Val  Tyr His Asn Gln Pro  Leu Asn Pro Ala Pro  Ser Arg Asp
    1085                1090                1095

Pro His  Tyr Gln Asp Pro His  Ser Thr Ala Val Gly  Asn Pro Glu
    1100                1105                1110

Tyr Leu  Asn Thr Val Gln Pro  Thr Cys Val Asn Ser  Thr Phe Asp
    1115                1120                1125

Ser Pro  Ala His Trp Ala Gln  Lys Gly Ser His Gln  Ile Ser Leu
    1130                1135                1140

Asp Asn  Pro Asp Tyr Gln Gln  Asp Phe Phe Pro Lys  Glu Ala Lys
    1145                1150                1155

Pro Asn  Gly Ile Phe Lys Gly  Ser Thr Ala Glu Asn  Ala Glu Tyr
    1160                1165                1170

Leu Arg  Val Ala Pro Gln Ser  Ser Glu Phe Ile Gly  Ala
    1175                1180                1185
```

<210> 8
<211> 621
<212> PRT
<213> Homo Sapiens

<400> 8

```
Leu Glu Glu Lys Lys Val Cys Gln Gly Thr Ser Asn Lys Leu Thr Gln
1               5                  10                  15

Leu Gly Thr Phe Glu Asp His Phe Leu Ser Leu Gln Arg Met Phe Asn
            20                  25                  30

Asn Cys Glu Val Val Leu Gly Asn Leu Glu Ile Thr Tyr Val Gln Arg
        35                  40                  45

Asn Tyr Asp Leu Ser Phe Leu Lys Thr Ile Gln Glu Val Ala Gly Tyr
    50                  55                  60

Val Leu Ile Ala Leu Asn Thr Val Glu Arg Ile Pro Leu Glu Asn Leu
65                  70                  75                  80

Gln Ile Ile Arg Gly Asn Met Tyr Tyr Glu Asn Ser Tyr Ala Leu Ala
                85                  90                  95

Val Leu Ser Asn Tyr Asp Ala Asn Lys Thr Gly Leu Lys Glu Leu Pro
            100                 105                 110

Met Arg Asn Leu Gln Glu Ile Leu His Gly Ala Val Arg Phe Ser Asn
        115                 120                 125

Asn Pro Ala Leu Cys Asn Val Glu Ser Ile Gln Trp Arg Asp Ile Val
    130                 135                 140

Ser Ser Asp Phe Leu Ser Asn Met Ser Met Asp Phe Gln Asn His Leu
145                 150                 155                 160

Gly Ser Cys Gln Lys Cys Asp Pro Ser Cys Pro Asn Gly Ser Cys Trp
                165                 170                 175

Gly Ala Gly Glu Glu Asn Cys Gln Lys Leu Thr Lys Ile Ile Cys Ala
            180                 185                 190

Gln Gln Cys Ser Gly Arg Cys Arg Gly Lys Ser Pro Ser Asp Cys Cys
        195                 200                 205

His Asn Gln Cys Ala Ala Gly Cys Thr Gly Pro Arg Glu Ser Asp Cys
    210                 215                 220

Leu Val Cys Arg Lys Phe Arg Asp Glu Ala Thr Cys Lys Asp Thr Cys
225                 230                 235                 240

Pro Pro Leu Met Leu Tyr Asn Pro Thr Thr Tyr Gln Met Asp Val Asn
```

```
                245                 250                 255

Pro Glu Gly Lys Tyr Ser Phe Gly Ala Thr Cys Val Lys Lys Cys Pro
            260                 265                 270

Arg Asn Tyr Val Val Thr Asp His Gly Ser Cys Val Arg Ala Cys Gly
        275                 280                 285

Ala Asp Ser Tyr Glu Met Glu Glu Asp Gly Val Arg Lys Cys Lys Lys
    290                 295                 300

Cys Glu Gly Pro Cys Arg Lys Val Cys Asn Gly Ile Gly Ile Gly Glu
305                 310                 315                 320

Phe Lys Asp Ser Leu Ser Ile Asn Ala Thr Asn Ile Lys His Phe Lys
                325                 330                 335

Asn Cys Thr Ser Ile Ser Gly Asp Leu His Ile Leu Pro Val Ala Phe
            340                 345                 350

Arg Gly Asp Ser Phe Thr His Thr Pro Pro Leu Asp Pro Gln Glu Leu
        355                 360                 365

Asp Ile Leu Lys Thr Val Lys Glu Ile Thr Gly Phe Leu Leu Ile Gln
    370                 375                 380

Ala Trp Pro Glu Asn Arg Thr Asp Leu His Ala Phe Glu Asn Leu Glu
385                 390                 395                 400

Ile Ile Arg Gly Arg Thr Lys Gln His Gly Gln Phe Ser Leu Ala Val
                405                 410                 415

Val Ser Leu Asn Ile Thr Ser Leu Gly Leu Arg Ser Leu Lys Glu Ile
            420                 425                 430

Ser Asp Gly Asp Val Ile Ile Ser Gly Asn Lys Asn Leu Cys Tyr Ala
        435                 440                 445

Asn Thr Ile Asn Trp Lys Lys Leu Phe Gly Thr Ser Gly Gln Lys Thr
    450                 455                 460

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

Val Cys His Ala Leu Cys Ser Pro Glu Gly Cys Trp Gly Pro Glu Pro
                485                 490                 495

Arg Asp Cys Val Ser Cys Arg Asn Val Ser Arg Gly Arg Glu Cys Val
            500                 505                 510

Asp Lys Cys Asn Leu Leu Glu Gly Glu Pro Arg Glu Phe Val Glu Asn
```

515 520 525

Ser Glu Cys Ile Gln Cys His Pro Glu Cys Leu Pro Gln Ala Met Asn
530 535 540

Ile Thr Cys Thr Gly Arg Gly Pro Asp Asn Cys Ile Gln Cys Ala His
545 550 555 560

Tyr Ile Asp Gly Pro His Cys Val Lys Thr Cys Pro Ala Gly Val Met
565 570 575

Gly Glu Asn Asn Thr Leu Val Trp Lys Tyr Ala Asp Ala Gly His Val
580 585 590

Cys His Leu Cys His Pro Asn Cys Thr Tyr Gly Cys Thr Gly Pro Gly
595 600 605

Leu Glu Gly Cys Pro Thr Asn Gly Pro Lys Ile Pro Ser
610 615 620

<210> 9
<211> 1233
<212> PRT
<213> Homo Sapiens

<400> 9

Thr Gln Val Cys Thr Gly Thr Asp Met Lys Leu Arg Leu Pro Ala Ser
1 5 10 15

Pro Glu Thr His Leu Asp Met Leu Arg His Leu Tyr Gln Gly Cys Gln
20 25 30

Val Val Gln Gly Asn Leu Glu Leu Thr Tyr Leu Pro Thr Asn Ala Ser
35 40 45

Leu Ser Phe Leu Gln Asp Ile Gln Glu Val Gln Gly Tyr Val Leu Ile
50 55 60

Ala His Asn Gln Val Arg Gln Val Pro Leu Gln Arg Leu Arg Ile Val
65 70 75 80

Arg Gly Thr Gln Leu Phe Glu Asp Asn Tyr Ala Leu Ala Val Leu Asp
85 90 95

Asn Gly Asp Pro Leu Asn Asn Thr Thr Pro Val Thr Gly Ala Ser Pro
100 105 110

Gly Gly Leu Arg Glu Leu Gln Leu Arg Ser Leu Thr Glu Ile Leu Lys
115 120 125

Gly Gly Val Leu Ile Gln Arg Asn Pro Gln Leu Cys Tyr Gln Asp Thr
130 135 140

```
Ile Leu Trp Lys Asp Ile Phe His Lys Asn Asn Gln Leu Ala Leu Thr
145                 150                 155                 160

Leu Ile Asp Thr Asn Arg Ser Arg Ala Cys His Pro Cys Ser Pro Met
                165                 170                 175

Cys Lys Gly Ser Arg Cys Trp Gly Glu Ser Ser Glu Asp Cys Gln Ser
            180                 185                 190

Leu Thr Arg Thr Val Cys Ala Gly Gly Cys Ala Arg Cys Lys Gly Pro
        195                 200                 205

Leu Pro Thr Asp Cys Cys His Glu Gln Cys Ala Ala Gly Cys Thr Gly
    210                 215                 220

Pro Lys His Ser Asp Cys Leu Ala Cys Leu His Phe Asn His Ser Gly
225                 230                 235                 240

Ile Cys Glu Leu His Cys Pro Ala Leu Val Thr Tyr Asn Thr Asp Thr
                245                 250                 255

Phe Glu Ser Met Pro Asn Pro Glu Gly Arg Tyr Thr Phe Gly Ala Ser
            260                 265                 270

Cys Val Thr Ala Cys Pro Tyr Asn Tyr Leu Ser Thr Asp Val Gly Ser
        275                 280                 285

Cys Thr Leu Val Cys Pro Leu His Asn Gln Glu Val Thr Ala Glu Asp
    290                 295                 300

Gly Thr Gln Arg Cys Glu Lys Cys Ser Lys Pro Cys Ala Arg Val Cys
305                 310                 315                 320

Tyr Gly Leu Gly Met Glu His Leu Arg Glu Val Arg Ala Val Thr Ser
                325                 330                 335

Ala Asn Ile Gln Glu Phe Ala Gly Cys Lys Lys Ile Phe Gly Ser Leu
            340                 345                 350

Ala Phe Leu Pro Glu Ser Phe Asp Gly Asp Pro Ala Ser Asn Thr Ala
        355                 360                 365

Pro Leu Gln Pro Glu Gln Leu Gln Val Phe Glu Thr Leu Glu Glu Ile
    370                 375                 380

Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro Asp Ser Leu Pro Asp Leu
385                 390                 395                 400

Ser Val Phe Gln Asn Leu Gln Val Ile Arg Gly Arg Ile Leu His Asn
                405                 410                 415
```

```
Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu Gly Ile Ser Trp Leu Gly
            420                 425                 430

Leu Arg Ser Leu Arg Glu Leu Gly Ser Gly Leu Ala Leu Ile His His
        435                 440                 445

Asn Thr His Leu Cys Phe Val His Thr Val Pro Trp Asp Gln Leu Phe
    450                 455                 460

Arg Asn Pro His Gln Ala Leu Leu His Thr Ala Asn Arg Pro Glu Asp
465                 470                 475                 480

Glu Cys Val Gly Glu Gly Leu Ala Cys His Gln Leu Cys Ala Arg Gly
                485                 490                 495

His Cys Trp Gly Pro Gly Pro Thr Gln Cys Val Asn Cys Ser Gln Phe
            500                 505                 510

Leu Arg Gly Gln Glu Cys Val Glu Glu Cys Arg Val Leu Gln Gly Leu
        515                 520                 525

Pro Arg Glu Tyr Val Asn Ala Arg His Cys Leu Pro Cys His Pro Glu
    530                 535                 540

Cys Gln Pro Gln Asn Gly Ser Val Thr Cys Phe Gly Pro Glu Ala Asp
545                 550                 555                 560

Gln Cys Val Ala Cys Ala His Tyr Lys Asp Pro Pro Phe Cys Val Ala
                565                 570                 575

Arg Cys Pro Ser Gly Val Lys Pro Asp Leu Ser Tyr Met Pro Ile Trp
            580                 585                 590

Lys Phe Pro Asp Glu Glu Gly Ala Cys Gln Pro Cys Pro Ile Asn Cys
        595                 600                 605

Thr His Ser Cys Val Asp Leu Asp Asp Lys Gly Cys Pro Ala Glu Gln
    610                 615                 620

Arg Ala Ser Pro Leu Thr Ser Ile Ile Ser Ala Val Val Gly Ile Leu
625                 630                 635                 640

Leu Val Val Val Leu Gly Val Val Phe Gly Ile Leu Ile Lys Arg Arg
                645                 650                 655

Gln Gln Lys Ile Arg Lys Tyr Thr Met Arg Arg Leu Leu Gln Glu Thr
            660                 665                 670

Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Ala Met Pro Asn Gln Ala
        675                 680                 685
```

```
Gln Met Arg Ile Leu Lys Glu Thr Glu Leu Arg Lys Val Lys Val Leu
    690                 695                 700

Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Ile Trp Ile Pro Asp
705                 710                 715                 720

Gly Glu Asn Val Lys Ile Pro Val Ala Ile Lys Val Leu Arg Glu Asn
                725                 730                 735

Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu Asp Glu Ala Tyr Val Met
            740                 745                 750

Ala Gly Val Gly Ser Pro Tyr Val Ser Arg Leu Leu Gly Ile Cys Leu
        755                 760                 765

Thr Ser Thr Val Gln Leu Val Thr Gln Leu Met Pro Tyr Gly Cys Leu
    770                 775                 780

Leu Asp His Val Arg Glu Asn Arg Gly Arg Leu Gly Ser Gln Asp Leu
785                 790                 795                 800

Leu Asn Trp Cys Met Gln Ile Ala Lys Gly Met Ser Tyr Leu Glu Asp
                805                 810                 815

Val Arg Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys
            820                 825                 830

Ser Pro Asn His Val Lys Ile Thr Asp Phe Gly Leu Ala Arg Leu Leu
        835                 840                 845

Asp Ile Asp Glu Thr Glu Tyr His Ala Asp Gly Gly Lys Val Pro Ile
    850                 855                 860

Lys Trp Met Ala Leu Glu Ser Ile Leu Arg Arg Arg Phe Thr His Gln
865                 870                 875                 880

Ser Asp Val Trp Ser Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe
                885                 890                 895

Gly Ala Lys Pro Tyr Asp Gly Ile Pro Ala Arg Glu Ile Pro Asp Leu
            900                 905                 910

Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp
        915                 920                 925

Val Tyr Met Ile Met Val Lys Cys Trp Met Ile Asp Ser Glu Cys Arg
    930                 935                 940

Pro Arg Phe Arg Glu Leu Val Ser Glu Phe Ser Arg Met Ala Arg Asp
945                 950                 955                 960
```

```
Pro Gln Arg Phe Val Val Ile Gln Asn Glu Asp Leu Gly Pro Ala Ser
               965                 970                 975

Pro Leu Asp Ser Thr Phe Tyr Arg Ser Leu Leu Glu Asp Asp Asp Met
           980                 985                 990

Gly Asp Leu Val Asp Ala Glu Glu  Tyr Leu Val Pro Gln  Gln Gly Phe
       995                 1000                1005

Phe Cys  Pro Asp Pro Ala Pro  Gly Ala Gly Gly Met  Val His His
   1010                1015                1020

Arg His  Arg Ser Ser Ser Thr  Arg Ser Gly Gly Gly  Asp Leu Thr
   1025                1030                1035

Leu Gly  Leu Glu Pro Ser Glu  Glu Glu Ala Pro Arg  Ser Pro Leu
   1040                1045                1050

Ala Pro  Ser Glu Gly Ala Gly  Ser Asp Val Phe Asp  Gly Asp Leu
   1055                1060                1065

Gly Met  Gly Ala Ala Lys Gly  Leu Gln Ser Leu Pro  Thr His Asp
   1070                1075                1080

Pro Ser  Pro Leu Gln Arg Tyr  Ser Glu Asp Pro Thr  Val Pro Leu
   1085                1090                1095

Pro Ser  Glu Thr Asp Gly Tyr  Val Ala Pro Leu Thr  Cys Ser Pro
   1100                1105                1110

Gln Pro  Glu Tyr Val Asn Gln  Pro Asp Val Arg Pro  Gln Pro Pro
   1115                1120                1125

Ser Pro  Arg Glu Gly Pro Leu  Pro Ala Ala Arg Pro  Ala Gly Ala
   1130                1135                1140

Thr Leu  Glu Arg Pro Lys Thr  Leu Ser Pro Gly Lys  Asn Gly Val
   1145                1150                1155

Val Lys  Asp Val Phe Ala Phe  Gly Gly Ala Val Glu  Asn Pro Glu
   1160                1165                1170

Tyr Leu  Thr Pro Gln Gly Gly  Ala Ala Pro Gln Pro  His Pro Pro
   1175                1180                1185

Pro Ala  Phe Ser Pro Ala Phe  Asp Asn Leu Tyr Tyr  Trp Asp Gln
   1190                1195                1200

Asp Pro  Pro Glu Arg Gly Ala  Pro Pro Ser Thr Phe  Lys Gly Thr
   1205                1210                1215
```

```
Pro Thr  Ala Glu Asn Pro Glu  Tyr Leu Gly Leu Asp  Val Pro Val
    1220                1225                1230


<210>  10
<211>  630
<212>  PRT
<213>  Homo Sapiens

<400>  10

Thr Gln Val Cys Thr Gly Thr Asp Met Lys Leu Arg Leu Pro Ala Ser
1               5                   10                  15


Pro Glu Thr His Leu Asp Met Leu Arg His Leu Tyr Gln Gly Cys Gln
            20                  25                  30


Val Val Gln Gly Asn Leu Glu Leu Thr Tyr Leu Pro Thr Asn Ala Ser
        35                  40                  45


Leu Ser Phe Leu Gln Asp Ile Gln Glu Val Gln Gly Tyr Val Leu Ile
    50                  55                  60


Ala His Asn Gln Val Arg Gln Val Pro Leu Gln Arg Leu Arg Ile Val
65                  70                  75                  80


Arg Gly Thr Gln Leu Phe Glu Asp Asn Tyr Ala Leu Ala Val Leu Asp
                85                  90                  95


Asn Gly Asp Pro Leu Asn Asn Thr Thr Pro Val Thr Gly Ala Ser Pro
            100                 105                 110


Gly Gly Leu Arg Glu Leu Gln Leu Arg Ser Leu Thr Glu Ile Leu Lys
        115                 120                 125


Gly Gly Val Leu Ile Gln Arg Asn Pro Gln Leu Cys Tyr Gln Asp Thr
    130                 135                 140


Ile Leu Trp Lys Asp Ile Phe His Lys Asn Asn Gln Leu Ala Leu Thr
145                 150                 155                 160


Leu Ile Asp Thr Asn Arg Ser Arg Ala Cys His Pro Cys Ser Pro Met
                165                 170                 175


Cys Lys Gly Ser Arg Cys Trp Gly Glu Ser Ser Glu Asp Cys Gln Ser
            180                 185                 190


Leu Thr Arg Thr Val Cys Ala Gly Gly Cys Ala Arg Cys Lys Gly Pro
        195                 200                 205


Leu Pro Thr Asp Cys Cys His Glu Gln Cys Ala Ala Gly Cys Thr Gly
    210                 215                 220
```

```
Pro Lys His Ser Asp Cys Leu Ala Cys Leu His Phe Asn His Ser Gly
225                 230                 235                 240

Ile Cys Glu Leu His Cys Pro Ala Leu Val Thr Tyr Asn Thr Asp Thr
                245                 250                 255

Phe Glu Ser Met Pro Asn Pro Glu Gly Arg Tyr Thr Phe Gly Ala Ser
            260                 265                 270

Cys Val Thr Ala Cys Pro Tyr Asn Tyr Leu Ser Thr Asp Val Gly Ser
        275                 280                 285

Cys Thr Leu Val Cys Pro Leu His Asn Gln Glu Val Thr Ala Glu Asp
    290                 295                 300

Gly Thr Gln Arg Cys Glu Lys Cys Ser Lys Pro Cys Ala Arg Val Cys
305                 310                 315                 320

Tyr Gly Leu Gly Met Glu His Leu Arg Glu Val Arg Ala Val Thr Ser
                325                 330                 335

Ala Asn Ile Gln Glu Phe Ala Gly Cys Lys Lys Ile Phe Gly Ser Leu
            340                 345                 350

Ala Phe Leu Pro Glu Ser Phe Asp Gly Asp Pro Ala Ser Asn Thr Ala
        355                 360                 365

Pro Leu Gln Pro Glu Gln Leu Gln Val Phe Glu Thr Leu Glu Glu Ile
    370                 375                 380

Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro Asp Ser Leu Pro Asp Leu
385                 390                 395                 400

Ser Val Phe Gln Asn Leu Gln Val Ile Arg Gly Arg Ile Leu His Asn
                405                 410                 415

Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu Gly Ile Ser Trp Leu Gly
            420                 425                 430

Leu Arg Ser Leu Arg Glu Leu Gly Ser Gly Leu Ala Leu Ile His His
        435                 440                 445

Asn Thr His Leu Cys Phe Val His Thr Val Pro Trp Asp Gln Leu Phe
    450                 455                 460

Arg Asn Pro His Gln Ala Leu Leu His Thr Ala Asn Arg Pro Glu Asp
465                 470                 475                 480

Glu Cys Val Gly Glu Gly Leu Ala Cys His Gln Leu Cys Ala Arg Gly
                485                 490                 495
```

```
His Cys Trp Gly Pro Gly Pro Thr Gln Cys Val Asn Cys Ser Gln Phe
            500                 505                 510

Leu Arg Gly Gln Glu Cys Val Glu Glu Cys Arg Val Leu Gln Gly Leu
        515                 520                 525

Pro Arg Glu Tyr Val Asn Ala Arg His Cys Leu Pro Cys His Pro Glu
    530                 535                 540

Cys Gln Pro Gln Asn Gly Ser Val Thr Cys Phe Gly Pro Glu Ala Asp
545                 550                 555                 560

Gln Cys Val Ala Cys Ala His Tyr Lys Asp Pro Pro Phe Cys Val Ala
                565                 570                 575

Arg Cys Pro Ser Gly Val Lys Pro Asp Leu Ser Tyr Met Pro Ile Trp
            580                 585                 590

Lys Phe Pro Asp Glu Glu Gly Ala Cys Gln Pro Cys Pro Ile Asn Cys
        595                 600                 605

Thr His Ser Cys Val Asp Leu Asp Asp Lys Gly Cys Pro Ala Glu Gln
    610                 615                 620

Arg Ala Ser Pro Leu Thr
625                 630


<210>  11
<211>  231
<212>  PRT
<213>  Homo Sapiens

<400>  11

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

Ser Pro Ala Leu Pro Pro Gln Leu Lys Glu Met Lys Ser Gln Glu Ser
            20                  25                  30

Ala Ala Gly Ser Lys Leu Val Leu Arg Cys Glu Thr Ser Ser Glu Tyr
        35                  40                  45

Ser Ser Leu Arg Phe Lys Trp Phe Lys Asn Gly Asn Glu Leu Asn Arg
    50                  55                  60

Lys Asn Lys Pro Gln Asn Ile Lys Ile Gln Lys Lys Pro Gly Lys Ser
65                  70                  75                  80

Glu Leu Arg Ile Asn Lys Ala Ser Leu Ala Asp Ser Gly Glu Tyr Met
                85                  90                  95
```

```
Cys Lys Val Ile Ser Lys Leu Gly Asn Asp Ser Ala Ser Ala Asn Ile
            100                 105                 110

Thr Ile Val Glu Ser Asn Glu Ile Ile Thr Gly Met Pro Ala Ser Thr
        115                 120                 125

Glu Gly Ala Tyr Val Ser Ser Glu Ser Pro Ile Arg Ile Ser Val Ser
    130                 135                 140

Thr Glu Gly Ala Asn Thr Ser Ser Ser Thr Ser Thr Ser Thr Thr Gly
145                 150                 155                 160

Thr Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val
                165                 170                 175

Asn Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg
            180                 185                 190

Tyr Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn
        195                 200                 205

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

Ala Glu Glu Leu Tyr Gln Lys
225                 230


<210>  12
<211>  65
<212>  PRT
<213>  Homo Sapiens

<400>  12

Ser His Leu Val Lys Cys Ala Glu Lys Glu Lys Thr Phe Cys Val Asn
1               5                   10                  15

Gly Gly Glu Cys Phe Met Val Lys Asp Leu Ser Asn Pro Ser Arg Tyr
            20                  25                  30

Leu Cys Lys Cys Pro Asn Glu Phe Thr Gly Asp Arg Cys Gln Asn Tyr
        35                  40                  45

Val Met Ala Ser Phe Tyr Lys His Leu Gly Ile Glu Phe Met Glu Ala
    50                  55                  60

Glu
65


<210>  13
<211>  133
<212>  PRT
<213>  Artificial
```

<220>
<223> TtSlyD-FKBP-Her3

<400> 13

```
Met Arg Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr Thr
1               5                   10                  15

Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr Leu
            20                  25                  30

His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu Gly
        35                  40                  45

Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys Ala
    50                  55                  60

Tyr Gly Ala Gly Ser Pro Gln Pro Leu Val Tyr Asn Lys Leu Thr Phe
65                  70                  75                  80

Gln Leu Glu Pro Asn Pro His Thr Lys Gly Ser Ser Gly Lys Asp Leu
                85                  90                  95

Asp Phe Gln Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu
            100                 105                 110

Leu Leu His Gly His Ala His Gly Gly Gly Ser Arg Lys His His His
        115                 120                 125

His His His His His
    130
```

<210> 14
<211> 166
<212> PRT
<213> Thermus thermophilus

<400> 14

```
Met Arg Gly Ser Lys Val Gly Gln Asp Lys Val Val Thr Ile Arg Tyr
1               5                   10                  15

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
            20                  25                  30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
        35                  40                  45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
    50                  55                  60

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

Ala Phe Pro Glu Asp Ala Glu Val Val Pro Gly Ala Gln Phe Tyr Ala
85 90 95

Gln Asp Met Glu Gly Asn Pro Met Pro Leu Thr Val Val Ala Val Glu
100 105 110

Gly Glu Glu Val Thr Val Asp Phe Asn His Pro Leu Ala Gly Lys Asp
115 120 125

Leu Asp Phe Gln Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu
130 135 140

Glu Leu Leu His Gly His Ala His Gly Gly Gly Ser Arg Lys His His
145 150 155 160

His His His His His His
165

<210> 15
<211> 113
<212> PRT
<213> Artificial

<220>
<223> TtSlyDcas

<400> 15

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

Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr Leu
20 25 30

His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu Gly
35 40 45

Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys Ala
50 55 60

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

Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu Leu Leu His Gly
85 90 95

His Ala His Gly Gly Gly Ser Arg Lys His His His His His His His
100 105 110

His

<210> 16
<211> 128

<212> PRT
<213> Artificial

<220>
<223> TgSlyDdeltaIF

<400> 16

Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1 5 10 15

Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
20 25 30

Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
35 40 45

Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
50 55 60

Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65 70 75 80

Gly Tyr Gly Ala Thr Gly His Pro Gly Ile Ile Pro Pro His Ala Thr
85 90 95

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

Leu Glu His His His His His His Leu Glu His His His His His His
115 120 125

<210> 17
<211> 133
<212> PRT
<213> Artificial

<220>
<223> TtSlyDcas-Her3

<400> 17

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

Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr Leu
20 25 30

His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu Gly
35 40 45

Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys Ala
50 55 60

Tyr Gly Ala Gly Ser Pro Gln Pro Leu Val Tyr Asn Lys Leu Thr Phe
65 70 75 80

Gln Leu Glu Pro Asn Pro His Thr Lys Gly Ser Ser Gly Lys Asp Leu
85 90 95

Asp Phe Gln Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu
100 105 110

Leu Leu His Gly His Ala His Gly Gly Gly Ser Arg Lys His His His
115 120 125

His His His His His
130

<210> 18
<211> 130
<212> PRT
<213> Artificial

<220>
<223> TtSlyDcys-Her3

<400> 18

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

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
20 25 30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
35 40 45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
50 55 60

Ala Tyr Gly Pro Cys Gly Pro Gln Pro Leu Val Tyr Asn Lys Leu Thr
65 70 75 80

Phe Gln Leu Glu Pro Asn Pro His Thr Gly Cys Gly Lys Asp Leu Asp
85 90 95

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

Leu His Gly His Ala His Gly Gly Gly Ser His His His His His His
115 120 125

His His
130

<210> 19
<211> 142
<212> PRT
<213> Artificial

<220>
<223> TgSlyDser-Her3

<400> 19

```
Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1               5                   10                  15


Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
            20                  25                  30


Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
        35                  40                  45


Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
    50                  55                  60


Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65                  70                  75                  80


Gly Tyr Gly Met Pro Ser Gly Pro Gln Pro Leu Val Tyr Asn Lys Leu
                85                  90                  95


Thr Phe Gln Leu Glu Pro Asn Pro His Thr Gly Ser Ala Gly Lys Thr
            100                 105                 110


Ala Ile Phe Glu Ile Glu Val Val Glu Ile Lys Lys Ala Gly Glu Ala
        115                 120                 125


Gly Gly Gly Ser Arg Lys His His His His His His His His
    130                 135                 140
```

<210> 20
<211> 143
<212> PRT
<213> Artificial

<220>
<223> TgSlyDcys-Her3

<400> 20

```
Met Arg Gly Ser Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr
1               5                   10                  15


Val Gly Arg Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser
            20                  25                  30


Val Ala Arg Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro
        35                  40                  45


Ile Gly Val Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu
    50                  55                  60
```

```
Ala Leu Leu Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro
65                  70                  75                  80

Pro Glu Lys Gly Tyr Gly Met Pro Cys Gly Pro Gln Pro Leu Val Tyr
                85                  90                  95

Asn Lys Leu Thr Phe Gln Leu Glu Pro Asn Pro His Thr Gly Cys Ala
            100                 105                 110

Gly Lys Thr Ala Ile Phe Glu Ile Glu Val Val Glu Ile Lys Lys Ala
        115                 120                 125

Gly Glu Ala Gly Gly Gly Ser His His His His His His His His
    130                 135                 140


<210>  21
<211>  133
<212>  PRT
<213>  Artificial

<220>
<223>  TtSlyDcas-Her4

<400>  21

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

Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr Leu
            20                  25                  30

His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu Gly
        35                  40                  45

Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys Ala
    50                  55                  60

Tyr Gly Ala Gly Ser Pro Gln Thr Phe Val Tyr Asn Pro Thr Thr Phe
65                  70                  75                  80

Gln Leu Glu His Asn Phe Asn Ala Lys Gly Ser Ser Gly Lys Asp Leu
                85                  90                  95

Asp Phe Gln Val Glu Val Val Lys Val Arg Glu Ala Thr Pro Glu Glu
            100                 105                 110

Leu Leu His Gly His Ala His Gly Gly Gly Ser Arg Lys His His His
        115                 120                 125

His His His His His His
    130


<210>  22
<211>  130
```

<212> PRT
<213> Artificial

<220>
<223> TtSlyDcys-Her4

<400> 22

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

Thr Leu Gln Val Glu Gly Glu Val Leu Asp Gln Gly Glu Leu Ser Tyr
20 25 30

Leu His Gly His Arg Asn Leu Ile Pro Gly Leu Glu Glu Ala Leu Glu
35 40 45

Gly Arg Glu Glu Gly Glu Ala Phe Gln Ala His Val Pro Ala Glu Lys
50 55 60

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

Phe Gln Leu Glu His Asn Phe Asn Ala Gly Cys Gly Lys Asp Leu Asp
85 90 95

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

Leu His Gly His Ala His Gly Gly Gly Ser His His His His His His
115 120 125

His His
130

<210> 23
<211> 142
<212> PRT
<213> Artificial

<220>
<223> TgSlyDser-Her4

<400> 23

Met Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr Val Gly Arg
1 5 10 15

Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser Val Ala Arg
20 25 30

Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro Ile Gly Val
35 40 45

Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu Ala Leu Leu
50 55 60

```
Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro Pro Glu Lys
65                  70                  75                  80


Gly Tyr Gly Met Pro Ser Gly Pro Gln Thr Phe Val Tyr Asn Pro Thr
                85                  90                  95


Thr Phe Gln Leu Glu His Asn Phe Asn Ala Gly Ser Ala Gly Lys Thr
            100                 105                 110


Ala Ile Phe Glu Ile Glu Val Val Glu Ile Lys Lys Ala Gly Glu Ala
        115                 120                 125


Gly Gly Gly Ser Arg Lys His His His His His His His His
    130                 135                 140


<210>  24
<211>  143
<212>  PRT
<213>  Artificial

<220>
<223>  TgSlyDcys-Her4

<400>  24

Met Arg Gly Ser Lys Val Glu Arg Gly Asp Phe Val Leu Phe Asn Tyr
1               5                   10                  15


Val Gly Arg Tyr Glu Asn Gly Glu Val Phe Asp Thr Ser Tyr Glu Ser
            20                  25                  30


Val Ala Arg Glu Gln Gly Ile Phe Val Glu Glu Arg Glu Tyr Ser Pro
        35                  40                  45


Ile Gly Val Thr Val Gly Ala Gly Glu Ile Ile Pro Gly Ile Glu Glu
    50                  55                  60


Ala Leu Leu Gly Met Glu Leu Gly Glu Lys Lys Glu Val Val Val Pro
65                  70                  75                  80


Pro Glu Lys Gly Tyr Gly Met Pro Cys Gly Pro Gln Thr Phe Val Tyr
                85                  90                  95


Asn Pro Thr Thr Phe Gln Leu Glu His Asn Phe Asn Ala Gly Cys Ala
            100                 105                 110


Gly Lys Thr Ala Ile Phe Glu Ile Glu Val Val Glu Ile Lys Lys Ala
        115                 120                 125


Gly Glu Ala Gly Gly Gly Ser His His His His His His His His
    130                 135                 140
```

<210> 25
<211> 5
<212> PRT
<213> Mus musculus

<400> 25

Ser Tyr Trp Met His
1 5

<210> 26
<211> 17
<212> PRT
<213> Mus musculus

<400> 26

Met Ile Asp Pro Ser Asp Gly Val Thr Arg Leu Asn Gln Lys Phe Lys
1 5 10 15

Asp

<210> 27
<211> 10
<212> PRT
<213> Mus musculus

<400> 27

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

<210> 28
<211> 15
<212> PRT
<213> Mus musculus

<400> 28

Arg Ala Ser Lys Ser Ile Ser Ile Ser Gly Tyr Ser Tyr Met His
1 5 10 15

<210> 29
<211> 7
<212> PRT
<213> Mus musculus

<400> 29

Leu Thr Ser Asn Leu Glu Ser
1 5

<210> 30
<211> 9
<212> PRT
<213> Mus musculus

<400> 30

His His Ser Arg Glu Leu Pro Phe Thr
1 5

<210> 31
<211> 119
<212> PRT
<213> Mus musculus

<400> 31

Gln Ala Tyr Leu Gln Gln Ser Gly Ala Glu Leu Met Arg Pro Gly Ala
1 5 10 15

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

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

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

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

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

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

Thr Leu Val Thr Val Ser Ala
115

<210> 32
<211> 107
<212> PRT
<213> Mus musculus

<400> 32

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

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

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

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

Ser Gly Ser Gly Thr Gln Phe Ser Leu Lys Ile Asn Ser Leu Gln Ser
65 70 75 80

Glu Asp Phe Gly Ser Tyr Tyr Cys Gln His Phe Trp Gly Pro Pro Tyr
85 90 95

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

<210> 33
<211> 5
<212> PRT
<213> Mus musculus

<400> 33

Ser Tyr Trp Ile His
1 5

<210> 34
<211> 17
<212> PRT
<213> Mus musculus

<400> 34

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

Gly

<210> 35
<211> 11
<212> PRT
<213> Mus musculus

<400> 35

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

<210> 36
<211> 11
<212> PRT
<213> Mus musculus

<400> 36

Arg Ala Ser Glu Asn Ile Tyr Ser Asn Leu Ala
1 5 10

<210> 37
<211> 7
<212> PRT
<213> Mus musculus

<400> 37

Ala Ala Thr Asn Leu Ala Asp
1 5

<210> 38

<211> 9
<212> PRT
<213> Mus musculus

<400> 38

Gln His Phe Tyr Gly Thr Pro Phe Thr
1 5

<210> 39
<211> 120
<212> PRT
<213> Mus musculus

<400> 39

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

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

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

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

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

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

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

Gly Thr Thr Leu Thr Val Ser Ser
115 120

<210> 40
<211> 107
<212> PRT
<213> Mus musculus

<400> 40

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

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

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

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

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

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

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

<210> 41
<211> 5
<212> PRT
<213> Mus musculus

<400> 41

Asn Tyr Trp Val His
1   5

<210> 42
<211> 17
<212> PRT
<213> Mus musculus

<400> 42

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

Gly

<210> 43
<211> 11
<212> PRT
<213> Mus musculus

<400> 43

Ser Gly Val Gly Tyr Asn Tyr Tyr Phe Asp Tyr
1   5   10

<210> 44
<211> 11
<212> PRT
<213> Mus musculus

<400> 44

Arg Ala Ser Glu Asn Ile Tyr Ser Asn Leu Ala
1   5   10

<210> 45
<211> 7
<212> PRT
<213> Mus musculus

<400> 45

Ile Ala Thr Asn Leu Ala Asp
1 5

<210> 46
<211> 9
<212> PRT
<213> Mus musculus

<400> 46

Gln His Phe Tyr Gly Thr Pro Phe Thr
1 5

<210> 47
<211> 120
<212> PRT
<213> Mus musculus

<400> 47

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

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

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

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

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

Met Asp Leu Ser Ser Leu Thr Asn Gly Asp Ser Ala Val Tyr Phe Cys
85 90 95

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

Gly Thr Thr Leu Thr Val Ser Ser
115 120

<210> 48
<211> 107
<212> PRT
<213> Mus musculus

<400> 48

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

```
Glu Thr Val Thr Ile Thr Cys Arg Ala Ser Glu Asn Ile Tyr Ser Asn
            20                  25                  30

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

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

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

Glu Asp Leu Gly Ser Tyr Tyr Cys Gln His Phe Tyr Gly Thr Pro Phe
                85                  90                  95

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


<210>  49
<211>  5
<212>  PRT
<213>  Mus musculus

<400>  49

Ser Tyr Trp Met His
1               5


<210>  50
<211>  17
<212>  PRT
<213>  Mus musculus

<400>  50

Met Ile Asp Pro Ser Asp Gly Val Thr Arg Leu Asn Gln Lys Phe Lys
1               5                   10                  15

Asp



<210>  51
<211>  10
<212>  PRT
<213>  Mus musculus

<400>  51

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


<210>  52
<211>  15
<212>  PRT
<213>  Mus musculus

<400>  52
```

```
Arg Ala Ser Lys Ser Ile Ser Ile Ser Gly Tyr Ser Tyr Met His
1               5                   10                  15


<210>  53
<211>  7
<212>  PRT
<213>  Mus musculus

<400>  53

Leu Thr Ser Asn Leu Glu Ser
1               5


<210>  54
<211>  9
<212>  PRT
<213>  Mus musculus

<400>  54

His His Ser Arg Glu Leu Pro Phe Thr
1               5


<210>  55
<211>  119
<212>  PRT
<213>  Mus musculus

<400>  55

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


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


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


Gly Met Ile Asp Pro Ser Asp Gly Val Thr Arg Leu Asn Gln Lys Phe
    50                  55                  60


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


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


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


Thr Thr Val Thr Val Ser Ser
        115


<210>  56
<211>  111
<212>  PRT
```

<213> Mus musculus

<400> 56

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

Gln Arg Ala Thr Ile Ser Cys Arg Ala Ser Lys Ser Ile Ser Ile Ser
20 25 30

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

Lys Leu Leu Ile Tyr Leu Thr Ser Asn Leu Glu Ser Gly Val 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 Thr Tyr Tyr Cys His His Ser Arg
85 90 95

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

<210> 57
<211> 12
<212> PRT
<213> Homo sapiens

<400> 57

Pro Leu Val Tyr Asn Lys Leu Thr Phe Gln Leu Glu
1 5 10

<210> 58
<211> 234
<212> PRT
<213> Artificial

<220>
<223> Pseudomonas exotoxin variant PE24LR8M_3G (including a GGG linker)

<400> 58

Met Gly Gly Gly Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu Tyr
1 5 10 15

Pro Thr Gly Ala Glu Phe Leu Gly Asp Gly Gly Ala Val Ser Phe Ser
20 25 30

Thr Arg Gly Thr Gln Asn Trp Thr Val Glu Arg Leu Leu Gln Ala His
35 40 45

Arg Gln Leu Glu Glu Gly Gly Tyr Val Phe Val Gly Tyr His Gly Thr
50 55 60

```
Phe Leu Glu Ala Ala Gln Ser Ile Val Phe Gly Gly Val Arg Ala Arg
65                  70                  75                  80

Ser Gln Asp Leu Asp Ala Ile Trp Ala Gly Phe Tyr Ile Ala Gly Asp
                85                  90                  95

Pro Ala Leu Ala Tyr Gly Tyr Ala Gln Asp Gln Glu Pro Asp Ala Ala
            100                 105                 110

Gly Arg Ile Arg Asn Gly Ala Leu Leu Arg Val Tyr Val Pro Arg Ser
        115                 120                 125

Ser Leu Pro Gly Phe Tyr Ala Thr Ser Leu Thr Leu Ala Ala Pro Glu
    130                 135                 140

Ala Ala Gly Glu Val Glu Arg Leu Ile Gly His Pro Leu Pro Leu Arg
145                 150                 155                 160

Leu Asp Ala Ile Thr Gly Pro Glu Glu Ser Gly Gly Arg Leu Glu Thr
                165                 170                 175

Ile Leu Gly Trp Pro Leu Ala Glu Arg Thr Val Val Ile Pro Ser Ala
            180                 185                 190

Ile Pro Thr Asp Pro Arg Asn Val Gly Gly Asp Leu Asp Pro Ser Ser
        195                 200                 205

Ile Pro Asp Ser Glu Ala Ala Ile Ser Ala Leu Pro Asp Tyr Ala Ser
    210                 215                 220

Gln Pro Gly Lys Pro Pro Arg Glu Asp Leu
225                 230


<210>  59
<211>  214
<212>  PRT
<213>  Artificial

<220>
<223>  Light chain of M-08-11 (M-08-11_LC)

<400>  59

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

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

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

Tyr Ala Ala Ile Lys Leu Ala Asp Gly Val Pro Leu Arg Phe Ser Gly
```

50 55 60

Ser Gly Ser Gly Thr Gln Phe Ser Leu Lys Ile Asn Ser Leu Gln Ser
65 70 75 80

Glu Asp Phe Gly Ser Tyr Tyr Cys Gln His Phe Trp Gly Pro Pro Tyr
85 90 95

Thr Phe Gly Ser Gly Thr Asn 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> 60
<211> 241
<212> PRT
<213> Artificial

<220>
<223> Heavy chain of M-08-11 HC with sortase tag (M-08-11_HC)

<400> 60

Gln Ala Tyr Leu Gln Gln Ser Gly Ala Glu Leu Met Arg Pro Gly Ala
1 5 10 15

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

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

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

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

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

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

Thr Leu Val Thr Val Ser Ala 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 Gly Gly
    210                 215                 220

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

His
```

<210> 61
<211> 463
<212> PRT
<213> Artificial

<220>
<223> Heavy chain of M-08-11 HC conjugated to Pseudomonas exotoxin variant PE24LR8M (Fab-011-PE heavy chain 1)

<400> 61

```
Gln Ala Tyr Leu Gln Gln Ser Gly Ala Glu Leu Met Arg Pro Gly Ala
1               5                   10                  15

Ser Val Arg Met Ser Cys Gln Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
            20                  25                  30
```

```
Thr Ile His Trp Leu Lys Gln Thr Pro Arg Gln Gly Leu Glu Trp Ile
        35                  40                  45

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

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

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

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

Thr Leu Val Thr Val Ser Ala 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 Gly Gly
    210                 215                 220

Gly Ser Leu Pro Glu Thr Gly Gly Gly Arg His Arg Gln Pro Arg Gly
225                 230                 235                 240

Trp Glu Gln Leu Tyr Pro Thr Gly Ala Glu Phe Leu Gly Asp Gly Gly
                245                 250                 255

Ala Val Ser Phe Ser Thr Arg Gly Thr Gln Asn Trp Thr Val Glu Arg
            260                 265                 270

Leu Leu Gln Ala His Arg Gln Leu Glu Glu Gly Gly Tyr Val Phe Val
        275                 280                 285

Gly Tyr His Gly Thr Phe Leu Glu Ala Ala Gln Ser Ile Val Phe Gly
    290                 295                 300
```

```
Gly Val Arg Ala Arg Ser Gln Asp Leu Asp Ala Ile Trp Ala Gly Phe
305                 310                 315                 320


Tyr Ile Ala Gly Asp Pro Ala Leu Ala Tyr Gly Tyr Ala Gln Asp Gln
                325                 330                 335


Glu Pro Asp Ala Ala Gly Arg Ile Arg Asn Gly Ala Leu Leu Arg Val
            340                 345                 350


Tyr Val Pro Arg Ser Ser Leu Pro Gly Phe Tyr Ala Thr Ser Leu Thr
        355                 360                 365


Leu Ala Ala Pro Glu Ala Ala Gly Glu Val Glu Arg Leu Ile Gly His
    370                 375                 380


Pro Leu Pro Leu Arg Leu Asp Ala Ile Thr Gly Pro Glu Glu Ser Gly
385                 390                 395                 400


Gly Arg Leu Glu Thr Ile Leu Gly Trp Pro Leu Ala Glu Arg Thr Val
                405                 410                 415


Val Ile Pro Ser Ala Ile Pro Thr Asp Pro Arg Asn Val Gly Gly Asp
            420                 425                 430


Leu Asp Pro Ser Ser Ile Pro Asp Ser Glu Ala Ala Ile Ser Ala Leu
        435                 440                 445


Pro Asp Tyr Ala Ser Gln Pro Gly Lys Pro Pro Arg Glu Asp Leu
    450                 455                 460


<210>  62
<211>  460
<212>  PRT
<213>  Artificial

<220>
<223>  Heavy chain of M-08-11HC conjugated to Pseudomonas exotoxin
       variant PE24LR8M (Fab-011-PE heavy chain 2) as direct PE24LR8M
       fusion

<400>  62

Gln Ala Tyr Leu Gln Gln Ser Gly Ala Glu Leu Met Arg Pro Gly Ala
1               5                   10                  15


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


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


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

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

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

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

Thr Leu Val Thr Val Ser Ala 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 Lys Ala
    210                 215                 220

Ser Gly Gly Arg His Arg Gln Pro Arg Gly Trp Glu Gln Leu Gly Gly
225                 230                 235                 240

Ser Pro Thr Gly Ala Glu Phe Leu Gly Asp Gly Gly Ala Val Ser Phe
                245                 250                 255

Ser Thr Arg Gly Thr Gln Asn Trp Thr Val Glu Arg Leu Leu Gln Ala
            260                 265                 270

His Arg Gln Leu Glu Glu Gly Gly Tyr Val Phe Val Gly Tyr His Gly
        275                 280                 285

Thr Phe Leu Glu Ala Ala Gln Ser Ile Val Phe Gly Gly Val Arg Ala
    290                 295                 300

Arg Ser Gln Asp Leu Asp Ala Ile Trp Ala Gly Phe Tyr Ile Ala Gly
305                 310                 315                 320

Asp Pro Ala Leu Ala Tyr Gly Tyr Ala Gln Asp Gln Glu Pro Asp Ala
                325                 330                 335
```

```
Ala Gly Arg Ile Arg Asn Gly Ala Leu Leu Arg Val Tyr Val Pro Arg
            340                 345                 350

Ser Ser Leu Pro Gly Phe Tyr Ala Thr Ser Leu Thr Leu Ala Ala Pro
        355                 360                 365

Glu Ala Ala Gly Glu Val Glu Arg Leu Ile Gly His Pro Leu Pro Leu
    370                 375                 380

Arg Leu Asp Ala Ile Thr Gly Pro Glu Glu Ser Gly Gly Arg Leu Glu
385                 390                 395                 400

Thr Ile Leu Gly Trp Pro Leu Ala Glu Arg Thr Val Val Ile Pro Ser
                405                 410                 415

Ala Ile Pro Thr Asp Pro Arg Asn Val Gly Gly Asp Leu Asp Pro Ser
            420                 425                 430

Ser Ile Pro Asp Ser Glu Ala Ala Ile Ser Ala Leu Pro Asp Tyr Ala
        435                 440                 445

Ser Gln Pro Gly Lys Pro Pro Arg Glu Asp Leu Lys
    450                 455                 460


<210>  63
<211>  147
<212>  PRT
<213>  Staphylococcus aureus

<400>  63

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

Ile Glu Ile Pro Asp Ala Asp Ile Lys Glu Pro Val Tyr Pro Gly Pro
            20                  25                  30

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

Glu Ser Leu Asp Asp Gln Asn Ile Ser Ile Ala Gly His Thr Phe Ile
    50                  55                  60

Asp Arg Pro Asn Tyr Gln Phe Thr Asn Leu Lys Ala Ala Lys Lys Gly
65                  70                  75                  80

Ser Met Val Tyr Phe Lys Val Gly Asn Glu Thr Arg Lys Tyr Lys Met
                85                  90                  95

Thr Ser Ile Arg Asp Val Lys Pro Thr Asp Val Gly Val Leu Asp Glu
            100                 105                 110

Gln Lys Gly Lys Asp Lys Gln Leu Thr Leu Ile Thr Cys Asp Asp Tyr
```

115 120 125

Asn Glu Lys Thr Gly Val Trp Glu Lys Arg Lys Ile Phe Val Ala Thr
130 135 140

Glu Val Lys
145

<210> 64
<211> 116
<212> PRT
<213> Mus musculus

<400> 64

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

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

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

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

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

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

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

Thr Val Ser Ser
115

<210> 65
<211> 106
<212> PRT
<213> Mus musculus

<400> 65

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

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

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

```
Ser Thr Ser Asn 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 Arg Met Glu Ala Glu
65                  70                  75                  80

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

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

<210>  66
<211>  107
<212>  PRT
<213>  Homo Sapiens

<400>  66

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
1               5                   10                  15

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
        35                  40                  45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
    50                  55                  60

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

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
                85                  90                  95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
            100                 105

<210>  67
<211>  105
<212>  PRT
<213>  Homo Sapiens

<400>  67

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

Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe
            20                  25                  30

Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val
```

35 40 45

Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys
50 55 60

Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser
65 70 75 80

His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu
85 90 95

Lys Thr Val Ala Pro Thr Glu Cys Ser
100 105

<210> 68
<211> 330
<212> PRT
<213> Homo Sapiens

<400> 68

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

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

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

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
130 135 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

```
Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
            180                 185                 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
        195                 200                 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
    210                 215                 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu
225                 230                 235                 240

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
                245                 250                 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
            260                 265                 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
        275                 280                 285

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

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305                 310                 315                 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
                325                 330
```

<210> 69
<211> 330
<212> PRT
<213> homo sapiens

<400> 69

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

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

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

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
    50                  55                  60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65                  70                  75                  80
```

```
Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
                85                  90                  95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
            100                 105                 110

Pro Ala Pro Glu Ala Ala Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
        115                 120                 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
    130                 135                 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145                 150                 155                 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
                165                 170                 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
            180                 185                 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
        195                 200                 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
    210                 215                 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu
225                 230                 235                 240

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
                245                 250                 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
            260                 265                 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
        275                 280                 285

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

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305                 310                 315                 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
                325                 330
```

<210> 70
<211> 330
<212> PRT

<213> homo sapiens

<400> 70

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

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

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

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
    50                  55                  60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65                  70                  75                  80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
                85                  90                  95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
            100                 105                 110

Pro Ala Pro Glu Ala Ala Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
        115                 120                 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
    130                 135                 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145                 150                 155                 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
                165                 170                 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
            180                 185                 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
        195                 200                 205

Lys Ala Leu Gly Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
    210                 215                 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu
225                 230                 235                 240

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
                245                 250                 255
```

```
Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
            260                 265                 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
        275                 280                 285

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

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305                 310                 315                 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
                325                 330
```

<210> 71
<211> 327
<212> PRT
<213> Homo Sapiens

<400> 71

```
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg
1               5                   10                  15

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

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

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
    50                  55                  60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr
65                  70                  75                  80

Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
                85                  90                  95

Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro
            100                 105                 110

Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
        115                 120                 125

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
    130                 135                 140

Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
145                 150                 155                 160

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe
```

```
                165                 170                 175

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
            180                 185                 190

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu
        195                 200                 205

Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
    210                 215                 220

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys
225                 230                 235                 240

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
                245                 250                 255

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
            260                 265                 270

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
        275                 280                 285

Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser
    290                 295                 300

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
305                 310                 315                 320

Leu Ser Leu Ser Leu Gly Lys
                325
```