SEQUENCE LISTING

<110> Nykode Therapeutics AS

<120> Co-expression of constructs and immunostimulatory compounds

<130> P5893PC00

<160> 173

<170> PatentIn version 3.5

<210> 1
<211> 237
<212> PRT
<213> Artificial Sequence

<220>
<223> Control/VB1026

<400> 1

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Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                  10                  15


Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30


Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45


Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60


Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80


Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95


Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110
```

```
Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
225                 230                 235
```

<210> 2
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Signal peptide

<400> 2

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Met Asn Phe Gly Leu Arg Leu Ile Phe Leu Val Leu Thr Leu Lys Gly
1               5                   10                  15

Val Gln Cys
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<210> 3
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> Signal peptide

<400> 3

Met Asp Ala Met Lys Arg Gly Leu Cys Cys Val Leu Leu Leu Cys Gly
1 5 10 15

Ala Val Phe Val Ser Pro
20

<210> 4
<211> 26
<212> PRT
<213> Homo sapiens

<400> 4

Met Thr Val Leu Ala Pro Ala Trp Ser Pro Thr Thr Tyr Leu Leu Leu
1 5 10 15

Leu Leu Leu Leu Ser Ser Gly Leu Ser Gly
20 25

<210> 5
<211> 528
<212> PRT
<213> Artificial Sequence

<220>
<223> VB4194

<400> 5

Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1 5 10 15

Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
20 25 30

```
Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45

Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60

Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80

Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95

Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
```

```
225                 230                 235                 240

Gly Leu Lys Ser Trp Ile His Cys Trp Lys Tyr Leu Ser Val Gln Ser
                245                 250                 255

Gln Leu Phe Arg Gly Ser Ser Leu Leu Phe Arg Arg Val Gly Gly Gly
            260                 265                 270

Gly Ser Gly Gly Gly Gly Ser Asn Asn Leu Gln Lys Tyr Ile Glu Ile
        275                 280                 285

Tyr Val Gln Lys Ile Asn Pro Ser Arg Leu Pro Val Val Ile Gly Gly
    290                 295                 300

Leu Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Ile Gln
305                 310                 315                 320

Thr Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu Ser Ala Trp
                325                 330                 335

Leu Leu Glu Leu Ala Pro His Gly Gly Gly Gly Ser Gly Gly Gly Gly
            340                 345                 350

Ser Val Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr
        355                 360                 365

Leu Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Pro Gly Gly Gly Gly
    370                 375                 380

Ser Gly Gly Gly Gly Ser Phe Val Ser Pro Met Ala His Tyr Val Pro
385                 390                 395                 400

Gly Ile Met Ala Ile Glu Ser Val Val Ala Arg Phe Gln Phe Ile Val
                405                 410                 415

Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Asp Val Lys Ile
            420                 425                 430
```

```
His Ala His Lys Val Val Leu Ala Asn Ile Ser Pro Tyr Phe Lys Ala
        435                 440                 445

Met Phe Thr Gly Asn Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    450                 455                 460

Thr Pro Leu Arg Lys His Thr Val His Ala Ile Arg Lys Phe Tyr Leu
465                 470                 475                 480

Glu Phe Lys Gly Ser Ser Pro Pro Pro Arg Leu Gly Gly Gly Gly Ser
                485                 490                 495

Gly Gly Gly Gly Ser Lys Ile Tyr Glu Phe Asp Tyr His Leu Tyr Gly
            500                 505                 510

Gln Asn Ile Thr Met Ile Met Thr Ser Val Ser Gly His Leu Leu Ala
        515                 520                 525
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<210> 6
<211> 733
<212> PRT
<213> Artificial Sequence

<220>
<223> VB4168

<400> 6

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Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                   10                  15

Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30

Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45

Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60
```

```
Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80

Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95

Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Lys Ser Trp Ile His Cys Trp Lys Tyr Leu Ser Val Gln Ser
                245                 250                 255

Gln Leu Phe Arg Gly Ser Ser Leu Leu Phe Arg Arg Val Gly Gly Gly
```

```
            260                 265                 270

Gly Ser Gly Gly Gly Gly Ser Asn Asn Leu Gln Lys Tyr Ile Glu Ile
        275                 280                 285

Tyr Val Gln Lys Ile Asn Pro Ser Arg Leu Pro Val Val Ile Gly Gly
    290                 295                 300

Leu Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Ile Gln
305                 310                 315                 320

Thr Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu Ser Ala Trp
                325                 330                 335

Leu Leu Glu Leu Ala Pro His Gly Gly Gly Gly Ser Gly Gly Gly Gly
            340                 345                 350

Ser Val Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr
        355                 360                 365

Leu Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Pro Gly Gly Gly Gly
    370                 375                 380

Ser Gly Gly Gly Gly Ser Phe Val Ser Pro Met Ala His Tyr Val Pro
385                 390                 395                 400

Gly Ile Met Ala Ile Glu Ser Val Val Ala Arg Phe Gln Phe Ile Val
                405                 410                 415

Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Asp Val Lys Ile
            420                 425                 430

His Ala His Lys Val Val Leu Ala Asn Ile Ser Pro Tyr Phe Lys Ala
        435                 440                 445

Met Phe Thr Gly Asn Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    450                 455                 460
```

```
Thr Pro Leu Arg Lys His Thr Val His Ala Ile Arg Lys Phe Tyr Leu
465                 470                 475                 480

Glu Phe Lys Gly Ser Ser Pro Pro Pro Arg Leu Gly Gly Gly Gly Ser
                485                 490                 495

Gly Gly Gly Gly Ser Lys Ile Tyr Glu Phe Asp Tyr His Leu Tyr Gly
            500                 505                 510

Gln Asn Ile Thr Met Ile Met Thr Ser Val Ser Gly His Leu Leu Ala
        515                 520                 525

Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val Glu
    530                 535                 540

Glu Asn Pro Gly Pro Met Thr Val Leu Ala Pro Ala Trp Ser Pro Thr
545                 550                 555                 560

Thr Tyr Leu Leu Leu Leu Leu Leu Leu Ser Ser Gly Leu Ser Gly Thr
                565                 570                 575

Gln Asp Cys Ser Phe Gln His Ser Pro Ile Ser Ser Asp Phe Ala Val
            580                 585                 590

Lys Ile Arg Glu Leu Ser Asp Tyr Leu Leu Gln Asp Tyr Pro Val Thr
        595                 600                 605

Val Ala Ser Asn Leu Gln Asp Glu Glu Leu Cys Gly Gly Leu Trp Arg
    610                 615                 620

Leu Val Leu Ala Gln Arg Trp Met Glu Arg Leu Lys Thr Val Ala Gly
625                 630                 635                 640

Ser Lys Met Gln Gly Leu Leu Glu Arg Val Asn Thr Glu Ile His Phe
                645                 650                 655

Val Thr Lys Cys Ala Phe Gln Pro Pro Pro Ser Cys Leu Arg Phe Val
```

660 665 670

Gln Thr Asn Ile Ser Arg Leu Leu Gln Glu Thr Ser Glu Gln Leu Val
675 680 685

Ala Leu Lys Pro Trp Ile Thr Arg Gln Asn Phe Ser Arg Cys Leu Glu
690 695 700

Leu Gln Cys Gln Pro Asp Ser Ser Thr Leu Pro Pro Pro Trp Ser Pro
705 710 715 720

Arg Pro Leu Glu Ala Thr Ala Pro Thr Ala Pro Gln Pro
725 730

<210> 7
<211> 896
<212> PRT
<213> Artificial Sequence

<220>
<223> VB4169

<400> 7

Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1 5 10 15

Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
20 25 30

Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
35 40 45

Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
50 55 60

Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65 70 75 80

Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys

```
                85                  90                  95

Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Lys Ser Trp Ile His Cys Trp Lys Tyr Leu Ser Val Gln Ser
                245                 250                 255

Gln Leu Phe Arg Gly Ser Ser Leu Leu Phe Arg Arg Val Gly Gly Gly
            260                 265                 270

Gly Ser Gly Gly Gly Gly Ser Asn Asn Leu Gln Lys Tyr Ile Glu Ile
        275                 280                 285
```

```
Tyr Val Gln Lys Ile Asn Pro Ser Arg Leu Pro Val Val Ile Gly Gly
    290                 295                 300

Leu Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Ile Gln
305                 310                 315                 320

Thr Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu Ser Ala Trp
                325                 330                 335

Leu Leu Glu Leu Ala Pro His Gly Gly Gly Gly Ser Gly Gly Gly Gly
            340                 345                 350

Ser Val Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr
        355                 360                 365

Leu Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Pro Gly Gly Gly Gly
    370                 375                 380

Ser Gly Gly Gly Gly Ser Phe Val Ser Pro Met Ala His Tyr Val Pro
385                 390                 395                 400

Gly Ile Met Ala Ile Glu Ser Val Val Ala Arg Phe Gln Phe Ile Val
                405                 410                 415

Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Asp Val Lys Ile
            420                 425                 430

His Ala His Lys Val Val Leu Ala Asn Ile Ser Pro Tyr Phe Lys Ala
        435                 440                 445

Met Phe Thr Gly Asn Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    450                 455                 460

Thr Pro Leu Arg Lys His Thr Val His Ala Ile Arg Lys Phe Tyr Leu
465                 470                 475                 480

Glu Phe Lys Gly Ser Ser Pro Pro Pro Arg Leu Gly Gly Gly Gly Ser
```

```
                485                 490                 495

Gly Gly Gly Gly Ser Lys Ile Tyr Glu Phe Asp Tyr His Leu Tyr Gly
            500                 505                 510

Gln Asn Ile Thr Met Ile Met Thr Ser Val Ser Gly His Leu Leu Ala
        515                 520                 525

Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val Glu
    530                 535                 540

Glu Asn Pro Gly Pro Met Thr Val Leu Ala Pro Ala Trp Ser Pro Thr
545                 550                 555                 560

Thr Tyr Leu Leu Leu Leu Leu Leu Leu Ser Ser Gly Leu Ser Gly Thr
                565                 570                 575

Gln Asp Cys Ser Phe Gln His Ser Pro Ile Ser Ser Asp Phe Ala Val
            580                 585                 590

Lys Ile Arg Glu Leu Ser Asp Tyr Leu Leu Gln Asp Tyr Pro Val Thr
        595                 600                 605

Val Ala Ser Asn Leu Gln Asp Glu Glu Leu Cys Gly Gly Leu Trp Arg
    610                 615                 620

Leu Val Leu Ala Gln Arg Trp Met Glu Arg Leu Lys Thr Val Ala Gly
625                 630                 635                 640

Ser Lys Met Gln Gly Leu Leu Glu Arg Val Asn Thr Glu Ile His Phe
                645                 650                 655

Val Thr Lys Cys Ala Phe Gln Pro Pro Pro Ser Cys Leu Arg Phe Val
            660                 665                 670

Gln Thr Asn Ile Ser Arg Leu Leu Gln Glu Thr Ser Glu Gln Leu Val
        675                 680                 685
```

```
Ala Leu Lys Pro Trp Ile Thr Arg Gln Asn Phe Ser Arg Cys Leu Glu
    690                 695                 700

Leu Gln Cys Gln Pro Asp Ser Ser Thr Leu Pro Pro Pro Trp Ser Pro
705                 710                 715                 720

Arg Pro Leu Glu Ala Thr Ala Pro Thr Ala Pro Gln Pro Gly Ser Gly
                725                 730                 735

Ala Thr Asn Phe Ser Leu Leu Lys Gln Ala Gly Asp Val Glu Glu Asn
            740                 745                 750

Pro Gly Pro Met Trp Leu Gln Asn Leu Leu Phe Leu Gly Ile Val Val
        755                 760                 765

Tyr Ser Leu Ser Ala Pro Thr Arg Ser Pro Ile Thr Val Thr Arg Pro
    770                 775                 780

Trp Lys His Val Glu Ala Ile Lys Glu Ala Leu Asn Leu Leu Asp Asp
785                 790                 795                 800

Met Pro Val Thr Leu Asn Glu Glu Val Glu Val Val Ser Asn Glu Phe
                805                 810                 815

Ser Phe Lys Lys Leu Thr Cys Val Gln Thr Arg Leu Lys Ile Phe Glu
            820                 825                 830

Gln Gly Leu Arg Gly Asn Phe Thr Lys Leu Lys Gly Ala Leu Asn Met
        835                 840                 845

Thr Ala Ser Tyr Tyr Gln Thr Tyr Cys Pro Pro Thr Pro Glu Thr Asp
    850                 855                 860

Cys Glu Thr Gln Val Thr Thr Tyr Ala Asp Phe Ile Asp Ser Leu Lys
865                 870                 875                 880

Thr Phe Leu Thr Asp Ile Pro Phe Glu Cys Lys Lys Pro Val Gln Lys
```

885 890 895

<210> 8
<211> 1010
<212> PRT
<213> Artificial Sequence

<220>
<223> VB4170

<400> 8

Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1 5 10 15

Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
20 25 30

Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
35 40 45

Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
50 55 60

Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65 70 75 80

Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
85 90 95

Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
100 105 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
115 120 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
130 135 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys

```
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Lys Ser Trp Ile His Cys Trp Lys Tyr Leu Ser Val Gln Ser
                245                 250                 255

Gln Leu Phe Arg Gly Ser Ser Leu Leu Phe Arg Arg Val Gly Gly Gly
            260                 265                 270

Gly Ser Gly Gly Gly Gly Ser Asn Asn Leu Gln Lys Tyr Ile Glu Ile
        275                 280                 285

Tyr Val Gln Lys Ile Asn Pro Ser Arg Leu Pro Val Val Ile Gly Gly
    290                 295                 300

Leu Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Ile Gln
305                 310                 315                 320

Thr Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu Ser Ala Trp
                325                 330                 335

Leu Leu Glu Leu Ala Pro His Gly Gly Gly Gly Ser Gly Gly Gly Gly
            340                 345                 350
```

```
Ser Val Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr
        355                 360                 365

Leu Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Pro Gly Gly Gly Gly
    370                 375                 380

Ser Gly Gly Gly Gly Ser Phe Val Ser Pro Met Ala His Tyr Val Pro
385                 390                 395                 400

Gly Ile Met Ala Ile Glu Ser Val Val Ala Arg Phe Gln Phe Ile Val
                405                 410                 415

Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Asp Val Lys Ile
            420                 425                 430

His Ala His Lys Val Val Leu Ala Asn Ile Ser Pro Tyr Phe Lys Ala
        435                 440                 445

Met Phe Thr Gly Asn Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    450                 455                 460

Thr Pro Leu Arg Lys His Thr Val His Ala Ile Arg Lys Phe Tyr Leu
465                 470                 475                 480

Glu Phe Lys Gly Ser Ser Pro Pro Pro Arg Leu Gly Gly Gly Gly Ser
                485                 490                 495

Gly Gly Gly Gly Ser Lys Ile Tyr Glu Phe Asp Tyr His Leu Tyr Gly
            500                 505                 510

Gln Asn Ile Thr Met Ile Met Thr Ser Val Ser Gly His Leu Leu Ala
        515                 520                 525

Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val Glu
    530                 535                 540

Glu Asn Pro Gly Pro Met Thr Val Leu Ala Pro Ala Trp Ser Pro Thr
```

```
545                 550                 555                 560

Thr Tyr Leu Leu Leu Leu Leu Leu Leu Ser Ser Gly Leu Ser Gly Thr
                565                 570                 575

Gln Asp Cys Ser Phe Gln His Ser Pro Ile Ser Ser Asp Phe Ala Val
            580                 585                 590

Lys Ile Arg Glu Leu Ser Asp Tyr Leu Leu Gln Asp Tyr Pro Val Thr
        595                 600                 605

Val Ala Ser Asn Leu Gln Asp Glu Glu Leu Cys Gly Gly Leu Trp Arg
    610                 615                 620

Leu Val Leu Ala Gln Arg Trp Met Glu Arg Leu Lys Thr Val Ala Gly
625                 630                 635                 640

Ser Lys Met Gln Gly Leu Leu Glu Arg Val Asn Thr Glu Ile His Phe
                645                 650                 655

Val Thr Lys Cys Ala Phe Gln Pro Pro Pro Ser Cys Leu Arg Phe Val
            660                 665                 670

Gln Thr Asn Ile Ser Arg Leu Leu Gln Glu Thr Ser Glu Gln Leu Val
        675                 680                 685

Ala Leu Lys Pro Trp Ile Thr Arg Gln Asn Phe Ser Arg Cys Leu Glu
    690                 695                 700

Leu Gln Cys Gln Pro Asp Ser Ser Thr Leu Pro Pro Pro Trp Ser Pro
705                 710                 715                 720

Arg Pro Leu Glu Ala Thr Ala Pro Thr Ala Pro Gln Pro Gly Ser Gly
                725                 730                 735

Ala Thr Asn Phe Ser Leu Leu Lys Gln Ala Gly Asp Val Glu Glu Asn
            740                 745                 750
```

```
Pro Gly Pro Met Trp Leu Gln Asn Leu Leu Phe Leu Gly Ile Val Val
        755                 760                 765

Tyr Ser Leu Ser Ala Pro Thr Arg Ser Pro Ile Thr Val Thr Arg Pro
    770                 775                 780

Trp Lys His Val Glu Ala Ile Lys Glu Ala Leu Asn Leu Leu Asp Asp
785                 790                 795                 800

Met Pro Val Thr Leu Asn Glu Glu Val Glu Val Val Ser Asn Glu Phe
                805                 810                 815

Ser Phe Lys Lys Leu Thr Cys Val Gln Thr Arg Leu Lys Ile Phe Glu
            820                 825                 830

Gln Gly Leu Arg Gly Asn Phe Thr Lys Leu Lys Gly Ala Leu Asn Met
        835                 840                 845

Thr Ala Ser Tyr Tyr Gln Thr Tyr Cys Pro Pro Thr Pro Glu Thr Asp
    850                 855                 860

Cys Glu Thr Gln Val Thr Thr Tyr Ala Asp Phe Ile Asp Ser Leu Lys
865                 870                 875                 880

Thr Phe Leu Thr Asp Ile Pro Phe Glu Cys Lys Lys Pro Val Gln Lys
                885                 890                 895

Gly Ser Gly Gln Cys Thr Asn Tyr Ala Leu Leu Lys Leu Ala Gly Asp
            900                 905                 910

Val Glu Ser Asn Pro Gly Pro Met Lys Ile Ser Ala Ala Ala Leu Thr
        915                 920                 925

Ile Ile Leu Thr Ala Ala Ala Leu Cys Thr Pro Ala Pro Ala Ser Pro
    930                 935                 940

Tyr Gly Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Leu Ser Leu Ala
```

945 950 955 960

Leu Pro Arg Ala His Val Lys Glu Tyr Phe Tyr Thr Ser Ser Lys Cys
965 970 975

Ser Asn Leu Ala Val Val Phe Val Thr Arg Arg Asn Arg Gln Val Cys
980 985 990

Ala Asn Pro Glu Lys Lys Trp Val Gln Glu Tyr Ile Asn Tyr Leu Glu
995 1000 1005

Met Ser
1010

<210> 9
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Self-cleaving peptide

<400> 9

Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val Glu Glu Asn Pro
1 5 10 15

Gly Pro

<210> 10
<211> 158
<212> PRT
<213> Homo sapiens

<400> 10

Thr Gln Asp Cys Ser Phe Gln His Ser Pro Ile Ser Ser Asp Phe Ala
1 5 10 15

Val Lys Ile Arg Glu Leu Ser Asp Tyr Leu Leu Gln Asp Tyr Pro Val
20 25 30

```
Thr Val Ala Ser Asn Leu Gln Asp Glu Glu Leu Cys Gly Gly Leu Trp
        35                  40                  45

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

Gly Ser Lys Met Gln Gly Leu Leu Glu Arg Val Asn Thr Glu Ile His
65                  70                  75                  80

Phe Val Thr Lys Cys Ala Phe Gln Pro Pro Pro Ser Cys Leu Arg Phe
                85                  90                  95

Val Gln Thr Asn Ile Ser Arg Leu Leu Gln Glu Thr Ser Glu Gln Leu
            100                 105                 110

Val Ala Leu Lys Pro Trp Ile Thr Arg Gln Asn Phe Ser Arg Cys Leu
        115                 120                 125

Glu Leu Gln Cys Gln Pro Asp Ser Ser Thr Leu Pro Pro Pro Trp Ser
    130                 135                 140

Pro Arg Pro Leu Glu Ala Thr Ala Pro Thr Ala Pro Gln Pro
145                 150                 155


<210>  11
<211>  19
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Self-cleaving peptide

<400>  11

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


Pro Gly Pro
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<210> 12
<211> 17
<212> PRT
<213> Mus Musculus

<400> 12

Met Trp Leu Gln Asn Leu Leu Phe Leu Gly Ile Val Val Tyr Ser Leu
1 5 10 15

Ser

<210> 13
<211> 124
<212> PRT
<213> Mus Musculus

<400> 13

Ala Pro Thr Arg Ser Pro Ile Thr Val Thr Arg Pro Trp Lys His Val
1 5 10 15

Glu Ala Ile Lys Glu Ala Leu Asn Leu Leu Asp Asp Met Pro Val Thr
20 25 30

Leu Asn Glu Glu Val Glu Val Val Ser Asn Glu Phe Ser Phe Lys Lys
35 40 45

Leu Thr Cys Val Gln Thr Arg Leu Lys Ile Phe Glu Gln Gly Leu Arg
50 55 60

Gly Asn Phe Thr Lys Leu Lys Gly Ala Leu Asn Met Thr Ala Ser Tyr
65 70 75 80

Tyr Gln Thr Tyr Cys Pro Pro Thr Pro Glu Thr Asp Cys Glu Thr Gln
85 90 95

Val Thr Thr Tyr Ala Asp Phe Ile Asp Ser Leu Lys Thr Phe Leu Thr
100 105 110

Asp Ile Pro Phe Glu Cys Lys Lys Pro Val Gln Lys
        115   120

<210> 14
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Self-cleaving peptide

<400> 14

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

Asn Pro Gly Pro
            20

<210> 15
<211> 23
<212> PRT
<213> Mus Musculus

<400> 15

Met Lys Ile Ser Ala Ala Ala Leu Thr Ile Ile Leu Thr Ala Ala Ala
1   5   10   15

Leu Cys Thr Pro Ala Pro Ala
            20

<210> 16
<211> 68
<212> PRT
<213> Mus Musculus

<400> 16

Ser Pro Tyr Gly Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Leu Ser
1   5   10   15

```
Leu Ala Leu Pro Arg Ala His Val Lys Glu Tyr Phe Tyr Thr Ser Ser
            20                  25                  30


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


Val Cys Ala Asn Pro Glu Lys Lys Trp Val Gln Glu Tyr Ile Asn Tyr
    50                  55                  60


Leu Glu Met Ser
65


<210>  17
<211>  10
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Linker

<400>  17

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


<210>  18
<211>  690
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  VB4202

<400>  18

Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                   10                  15


Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30


Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45
```

```
Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60

Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80

Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95

Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240
```

```
Gly Leu Lys Ser Trp Ile His Cys Trp Lys Tyr Leu Ser Val Gln Ser
                245                 250                 255

Gln Leu Phe Arg Gly Ser Ser Leu Leu Phe Arg Arg Val Gly Gly Gly
            260                 265                 270

Gly Ser Gly Gly Gly Gly Ser Asn Asn Leu Gln Lys Tyr Ile Glu Ile
        275                 280                 285

Tyr Val Gln Lys Ile Asn Pro Ser Arg Leu Pro Val Val Ile Gly Gly
    290                 295                 300

Leu Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Ile Gln
305                 310                 315                 320

Thr Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu Ser Ala Trp
                325                 330                 335

Leu Leu Glu Leu Ala Pro His Gly Gly Gly Gly Ser Gly Gly Gly Gly
            340                 345                 350

Ser Val Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr
        355                 360                 365

Leu Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Pro Gly Gly Gly Gly
    370                 375                 380

Ser Gly Gly Gly Gly Ser Phe Val Ser Pro Met Ala His Tyr Val Pro
385                 390                 395                 400

Gly Ile Met Ala Ile Glu Ser Val Val Ala Arg Phe Gln Phe Ile Val
                405                 410                 415

Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Asp Val Lys Ile
            420                 425                 430

His Ala His Lys Val Val Leu Ala Asn Ile Ser Pro Tyr Phe Lys Ala
        435                 440                 445
```

```
Met Phe Thr Gly Asn Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    450                 455                 460

Thr Pro Leu Arg Lys His Thr Val His Ala Ile Arg Lys Phe Tyr Leu
465                 470                 475                 480

Glu Phe Lys Gly Ser Ser Pro Pro Pro Arg Leu Gly Gly Gly Gly Ser
                485                 490                 495

Gly Gly Gly Gly Ser Lys Ile Tyr Glu Phe Asp Tyr His Leu Tyr Gly
            500                 505                 510

Gln Asn Ile Thr Met Ile Met Thr Ser Val Ser Gly His Leu Leu Ala
        515                 520                 525

Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val Glu
    530                 535                 540

Glu Asn Pro Gly Pro Met Trp Leu Gln Asn Leu Leu Phe Leu Gly Ile
545                 550                 555                 560

Val Val Tyr Ser Leu Ser Ala Pro Thr Arg Ser Pro Ile Thr Val Thr
                565                 570                 575

Arg Pro Trp Lys His Val Glu Ala Ile Lys Glu Ala Leu Asn Leu Leu
            580                 585                 590

Asp Asp Met Pro Val Thr Leu Asn Glu Glu Val Glu Val Val Ser Asn
        595                 600                 605

Glu Phe Ser Phe Lys Lys Leu Thr Cys Val Gln Thr Arg Leu Lys Ile
    610                 615                 620

Phe Glu Gln Gly Leu Arg Gly Asn Phe Thr Lys Leu Lys Gly Ala Leu
625                 630                 635                 640
```

```
Asn Met Thr Ala Ser Tyr Tyr Gln Thr Tyr Cys Pro Pro Thr Pro Glu
                645                 650                 655


Thr Asp Cys Glu Thr Gln Val Thr Thr Tyr Ala Asp Phe Ile Asp Ser
            660                 665                 670


Leu Lys Thr Phe Leu Thr Asp Ile Pro Phe Glu Cys Lys Lys Pro Val
        675                 680                 685


Gln Lys
    690
```

<210> 19
<211> 501
<212> PRT
<213> Artificial Sequence

<220>
<223> VB1020

<400> 19

```
Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                   10                  15


Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30


Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45


Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60


Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80


Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95
```

```
Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp
                245                 250                 255

Leu Gln Pro Glu Thr Thr Asp Leu Tyr Gly Tyr Gly Gln Leu Asn Asp
            260                 265                 270

Ser Ser Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu
        275                 280                 285

Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp
    290                 295                 300
```

```
Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr
305                 310                 315                 320

Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys
                325                 330                 335

Ser Gln Lys Pro Gly Gly Gly Ser Ser Gly Gly Gly Ser Gly Met Phe
            340                 345                 350

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

Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr Cys Lys
    370                 375                 380

Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Arg Arg Asp Leu
385                 390                 395                 400

Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp Lys Cys
                405                 410                 415

Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys Tyr Ser
            420                 425                 430

Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu Cys Asp
        435                 440                 445

Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro Glu Glu
    450                 455                 460

Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile Arg Gly
465                 470                 475                 480

Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg Thr Arg
                485                 490                 495
```

Arg Glu Thr Gln Leu
500

<210> 20
<211> 706
<212> PRT
<213> Artificial Sequence

<220>
<223> VB4195

<400> 20

Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1 5 10 15

Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
20 25 30

Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
35 40 45

Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
50 55 60

Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65 70 75 80

Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
85 90 95

Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
100 105 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
115 120 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
130 135 140

```
Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp
                245                 250                 255

Leu Gln Pro Glu Thr Thr Asp Leu Tyr Gly Tyr Gly Gln Leu Asn Asp
            260                 265                 270

Ser Ser Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu
        275                 280                 285

Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp
    290                 295                 300

Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr
305                 310                 315                 320

Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys
                325                 330                 335

Ser Gln Lys Pro Gly Gly Gly Ser Ser Gly Gly Gly Ser Gly Met Phe
            340                 345                 350
```

```
Gln Asp Pro Gln Glu Arg Pro Arg Lys Leu Pro Gln Leu Cys Thr Glu
        355                 360                 365

Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr Cys Lys
    370                 375                 380

Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Arg Arg Asp Leu
385                 390                 395                 400

Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp Lys Cys
                405                 410                 415

Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys Tyr Ser
            420                 425                 430

Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu Cys Asp
        435                 440                 445

Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro Glu Glu
    450                 455                 460

Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile Arg Gly
465                 470                 475                 480

Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg Thr Arg
                485                 490                 495

Arg Glu Thr Gln Leu Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr
            500                 505                 510

Cys Gly Asp Val Glu Glu Asn Pro Gly Pro Met Thr Val Leu Ala Pro
        515                 520                 525

Ala Trp Ser Pro Thr Thr Tyr Leu Leu Leu Leu Leu Leu Leu Ser Ser
    530                 535                 540
```

```
Gly Leu Ser Gly Thr Gln Asp Cys Ser Phe Gln His Ser Pro Ile Ser
545                 550                 555                 560


Ser Asp Phe Ala Val Lys Ile Arg Glu Leu Ser Asp Tyr Leu Leu Gln
                565                 570                 575


Asp Tyr Pro Val Thr Val Ala Ser Asn Leu Gln Asp Glu Glu Leu Cys
            580                 585                 590


Gly Gly Leu Trp Arg Leu Val Leu Ala Gln Arg Trp Met Glu Arg Leu
        595                 600                 605


Lys Thr Val Ala Gly Ser Lys Met Gln Gly Leu Leu Glu Arg Val Asn
    610                 615                 620


Thr Glu Ile His Phe Val Thr Lys Cys Ala Phe Gln Pro Pro Pro Ser
625                 630                 635                 640


Cys Leu Arg Phe Val Gln Thr Asn Ile Ser Arg Leu Leu Gln Glu Thr
                645                 650                 655


Ser Glu Gln Leu Val Ala Leu Lys Pro Trp Ile Thr Arg Gln Asn Phe
            660                 665                 670


Ser Arg Cys Leu Glu Leu Gln Cys Gln Pro Asp Ser Ser Thr Leu Pro
        675                 680                 685


Pro Pro Trp Ser Pro Arg Pro Leu Glu Ala Thr Ala Pro Thr Ala Pro
    690                 695                 700


Gln Pro
705
```

<210> 21
<211> 869
<212> PRT
<213> Artificial Sequence

<220>

<223> VB4196

<400> 21

```
Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                  10                  15


Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30


Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45


Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60


Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80


Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95


Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110


Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125


Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140


Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160


Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175


Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190
```

```
Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp
                245                 250                 255

Leu Gln Pro Glu Thr Thr Asp Leu Tyr Gly Tyr Gly Gln Leu Asn Asp
            260                 265                 270

Ser Ser Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu
        275                 280                 285

Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp
    290                 295                 300

Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr
305                 310                 315                 320

Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys
                325                 330                 335

Ser Gln Lys Pro Gly Gly Gly Ser Ser Gly Gly Gly Ser Gly Met Phe
            340                 345                 350

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

Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr Cys Lys
    370                 375                 380
```

```
Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Arg Arg Asp Leu
385                 390                 395                 400

Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp Lys Cys
                405                 410                 415

Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys Tyr Ser
            420                 425                 430

Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu Cys Asp
        435                 440                 445

Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro Glu Glu
    450                 455                 460

Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile Arg Gly
465                 470                 475                 480

Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg Thr Arg
                485                 490                 495

Arg Glu Thr Gln Leu Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr
            500                 505                 510

Cys Gly Asp Val Glu Glu Asn Pro Gly Pro Met Thr Val Leu Ala Pro
        515                 520                 525

Ala Trp Ser Pro Thr Thr Tyr Leu Leu Leu Leu Leu Leu Leu Ser Ser
    530                 535                 540

Gly Leu Ser Gly Thr Gln Asp Cys Ser Phe Gln His Ser Pro Ile Ser
545                 550                 555                 560

Ser Asp Phe Ala Val Lys Ile Arg Glu Leu Ser Asp Tyr Leu Leu Gln
                565                 570                 575

Asp Tyr Pro Val Thr Val Ala Ser Asn Leu Gln Asp Glu Glu Leu Cys
            580                 585                 590
```

```
Gly Gly Leu Trp Arg Leu Val Leu Ala Gln Arg Trp Met Glu Arg Leu
        595                 600                 605

Lys Thr Val Ala Gly Ser Lys Met Gln Gly Leu Leu Glu Arg Val Asn
    610                 615                 620

Thr Glu Ile His Phe Val Thr Lys Cys Ala Phe Gln Pro Pro Pro Ser
625                 630                 635                 640

Cys Leu Arg Phe Val Gln Thr Asn Ile Ser Arg Leu Leu Gln Glu Thr
                645                 650                 655

Ser Glu Gln Leu Val Ala Leu Lys Pro Trp Ile Thr Arg Gln Asn Phe
            660                 665                 670

Ser Arg Cys Leu Glu Leu Gln Cys Gln Pro Asp Ser Ser Thr Leu Pro
        675                 680                 685

Pro Pro Trp Ser Pro Arg Pro Leu Glu Ala Thr Ala Pro Thr Ala Pro
    690                 695                 700

Gln Pro Gly Ser Gly Ala Thr Asn Phe Ser Leu Leu Lys Gln Ala Gly
705                 710                 715                 720

Asp Val Glu Glu Asn Pro Gly Pro Met Trp Leu Gln Asn Leu Leu Phe
                725                 730                 735

Leu Gly Ile Val Val Tyr Ser Leu Ser Ala Pro Thr Arg Ser Pro Ile
            740                 745                 750

Thr Val Thr Arg Pro Trp Lys His Val Glu Ala Ile Lys Glu Ala Leu
        755                 760                 765

Asn Leu Leu Asp Asp Met Pro Val Thr Leu Asn Glu Glu Val Glu Val
    770                 775                 780
```

```
Val Ser Asn Glu Phe Ser Phe Lys Lys Leu Thr Cys Val Gln Thr Arg
785                 790                 795                 800


Leu Lys Ile Phe Glu Gln Gly Leu Arg Gly Asn Phe Thr Lys Leu Lys
                805                 810                 815


Gly Ala Leu Asn Met Thr Ala Ser Tyr Tyr Gln Thr Tyr Cys Pro Pro
            820                 825                 830


Thr Pro Glu Thr Asp Cys Glu Thr Gln Val Thr Thr Tyr Ala Asp Phe
        835                 840                 845


Ile Asp Ser Leu Lys Thr Phe Leu Thr Asp Ile Pro Phe Glu Cys Lys
    850                 855                 860


Lys Pro Val Gln Lys
865


<210>  22
<211>  663
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  VB4204

<400>  22

Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                   10                  15


Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30


Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45


Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60
```

```
Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80

Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95

Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp
                245                 250                 255

Leu Gln Pro Glu Thr Thr Asp Leu Tyr Gly Tyr Gly Gln Leu Asn Asp
            260                 265                 270
```

```
Ser Ser Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu
        275                 280                 285

Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp
    290                 295                 300

Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr
305                 310                 315                 320

Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys
                325                 330                 335

Ser Gln Lys Pro Gly Gly Gly Ser Ser Gly Gly Gly Ser Gly Met Phe
            340                 345                 350

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

Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr Cys Lys
    370                 375                 380

Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Arg Arg Asp Leu
385                 390                 395                 400

Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp Lys Cys
                405                 410                 415

Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys Tyr Ser
            420                 425                 430

Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu Cys Asp
        435                 440                 445

Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro Glu Glu
    450                 455                 460
```

```
Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile Arg Gly
465                 470                 475                 480

Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg Thr Arg
                485                 490                 495

Arg Glu Thr Gln Leu Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr
            500                 505                 510

Cys Gly Asp Val Glu Glu Asn Pro Gly Pro Met Trp Leu Gln Asn Leu
        515                 520                 525

Leu Phe Leu Gly Ile Val Val Tyr Ser Leu Ser Ala Pro Thr Arg Ser
    530                 535                 540

Pro Ile Thr Val Thr Arg Pro Trp Lys His Val Glu Ala Ile Lys Glu
545                 550                 555                 560

Ala Leu Asn Leu Leu Asp Asp Met Pro Val Thr Leu Asn Glu Glu Val
                565                 570                 575

Glu Val Val Ser Asn Glu Phe Ser Phe Lys Lys Leu Thr Cys Val Gln
            580                 585                 590

Thr Arg Leu Lys Ile Phe Glu Gln Gly Leu Arg Gly Asn Phe Thr Lys
        595                 600                 605

Leu Lys Gly Ala Leu Asn Met Thr Ala Ser Tyr Tyr Gln Thr Tyr Cys
    610                 615                 620

Pro Pro Thr Pro Glu Thr Asp Cys Glu Thr Gln Val Thr Thr Tyr Ala
625                 630                 635                 640

Asp Phe Ile Asp Ser Leu Lys Thr Phe Leu Thr Asp Ile Pro Phe Glu
                645                 650                 655

Cys Lys Lys Pro Val Gln Lys
            660
```

<210> 23
<211> 613
<212> PRT
<213> Artificial Sequence

<220>
<223> VB4205

<400> 23

```
Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                   10                  15


Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30


Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45


Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60


Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80


Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95


Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110


Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125


Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140


Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160
```

```
Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp
                245                 250                 255

Leu Gln Pro Glu Thr Thr Asp Leu Tyr Gly Tyr Gly Gln Leu Asn Asp
            260                 265                 270

Ser Ser Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu
        275                 280                 285

Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp
    290                 295                 300

Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr
305                 310                 315                 320

Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys
                325                 330                 335

Ser Gln Lys Pro Gly Gly Gly Ser Ser Gly Gly Gly Ser Gly Met Phe
            340                 345                 350
```

```
Gln Asp Pro Gln Glu Arg Pro Arg Lys Leu Pro Gln Leu Cys Thr Glu
        355                 360                 365

Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr Cys Lys
    370                 375                 380

Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Arg Arg Asp Leu
385                 390                 395                 400

Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp Lys Cys
                405                 410                 415

Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys Tyr Ser
            420                 425                 430

Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu Cys Asp
        435                 440                 445

Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro Glu Glu
    450                 455                 460

Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile Arg Gly
465                 470                 475                 480

Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg Thr Arg
                485                 490                 495

Arg Glu Thr Gln Leu Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr
            500                 505                 510

Cys Gly Asp Val Glu Glu Asn Pro Gly Pro Met Lys Ile Ser Ala Ala
        515                 520                 525

Ala Leu Thr Ile Ile Leu Thr Ala Ala Ala Leu Cys Thr Pro Ala Pro
    530                 535                 540

Ala Ser Pro Tyr Gly Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Leu
545                 550                 555                 560
```

```
Ser Leu Ala Leu Pro Arg Ala His Val Lys Glu Tyr Phe Tyr Thr Ser
                565                 570                 575


Ser Lys Cys Ser Asn Leu Ala Val Val Phe Val Thr Arg Arg Asn Arg
            580                 585                 590


Gln Val Cys Ala Asn Pro Glu Lys Lys Trp Val Gln Glu Tyr Ile Asn
        595                 600                 605


Tyr Leu Glu Met Ser
    610


<210>  24
<211>  404
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  VB4208

<400>  24

Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                   10                  15


Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30


Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45


Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60


Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80


Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95
```

```
Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp
                245                 250                 255

Val Glu Glu Asn Pro Gly Pro Met Trp Leu Gln Asn Leu Leu Phe Leu
            260                 265                 270

Gly Ile Val Val Tyr Ser Leu Ser Ala Pro Thr Arg Ser Pro Ile Thr
        275                 280                 285
```

```
Val Thr Arg Pro Trp Lys His Val Glu Ala Ile Lys Glu Ala Leu Asn
    290                 295                 300

Leu Leu Asp Asp Met Pro Val Thr Leu Asn Glu Glu Val Glu Val Val
305                 310                 315                 320

Ser Asn Glu Phe Ser Phe Lys Lys Leu Thr Cys Val Gln Thr Arg Leu
                325                 330                 335

Lys Ile Phe Glu Gln Gly Leu Arg Gly Asn Phe Thr Lys Leu Lys Gly
            340                 345                 350

Ala Leu Asn Met Thr Ala Ser Tyr Tyr Gln Thr Tyr Cys Pro Pro Thr
        355                 360                 365

Pro Glu Thr Asp Cys Glu Thr Gln Val Thr Thr Tyr Ala Asp Phe Ile
    370                 375                 380

Asp Ser Leu Lys Thr Phe Leu Thr Asp Ile Pro Phe Glu Cys Lys Lys
385                 390                 395                 400

Pro Val Gln Lys
```

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

<220>
<223> Encoding part of SEQ ID NO 1

<400> 25
gcaccacttg ctgctgacac gccgaccgcc tgctgcttca gctacacctc ccgacagatt 60

ccacagaatt tcatagctga ctactttgag acgagcagcc agtgctccaa gcccagtgtc 120

atcttcctaa ccaagagagg ccggcaggtc tgtgctgacc ccagtgagga gtgggtccag 180

aaatacgtca gtgacctgga gctgagtgcc 210

<210> 26
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Encoding part of SEQ ID NO 1

<400> 26
gagctcaaaa ccccacttgg tgacacaact cacacagagc ccaaatcttg tgacacacct 60

cccccgtgcc caaggtgccc a 81

<210> 27
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Encoding part of SEQ ID NO 1

<400> 27
ggacagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag 60

aaccaggtca gcctgacctg cctggtcaaa ggcttctacc ccagcgacat cgccgtggag 120

tgggagagca gcgggcagcc ggagaacaac tacaacacca cgcctcccat gctggactcc 180

gacggctcct tcttcctcta cagcaagctc accgtggaca agagcaggtg gcagcagggg 240

aacatcttct catgctccgt gatgcatgag gctctgcaca accgcttcac gcagaagagc 300

ctctccctgt ctccgggtaa a 321

<210> 28
<211> 432
<212> DNA
<213> Artificial Sequence

<220>
<223> Encoding part of SEQ ID NO 1

<400> 28
gagctcaaaa ccccacttgg tgacacaact cacacagagc ccaaatcttg tgacacacct 60

cccccgtgcc caaggtgccc aggcggtgga agcagcggag gtggaagtgg aggacagccc 120

cgagaaccac aggtgtacac cctgccccca tcccgggagg agatgaccaa gaaccaggtc 180

agcctgacct gcctggtcaa aggcttctac cccagcgaca tcgccgtgga gtgggagagc 240

agcgggcagc cggagaacaa ctacaacacc acgcctccca tgctggactc cgacggctcc 300

ttcttcctct acagcaagct caccgtggac aagagcaggt ggcagcaggg gaacatcttc 360

tcatgctccg tgatgcatga ggctctgcac aaccgcttca cgcagaagag cctctccctg 420

tctccgggta aa 432

<210> 29
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
<223> Encoding part of SEQ ID NO 1

<400> 29
atgcaggtct ccactgctgc ccttgccgtc ctcctctgca ccatggctct ctgcaaccag 60

gtcctctct 69

<210> 30
<211> 223
<212> PRT
<213> Artificial Sequence

<220>
<223> SARS-COV-2 RBD (amino acids 319-542)

<400> 30

Arg Val Gln Pro Thr Glu Ser Ile Val Arg Phe Pro Asn Ile Thr Asn
1 5 10 15

Leu Cys Pro Phe Gly Glu Val Phe Asn Ala Thr Arg Phe Ala Ser Val
20 25 30

Tyr Ala Trp Asn Arg Lys Arg Ile Ser Asn Cys Val Ala Asp Tyr Ser
35 40 45

Val Leu Tyr Asn Ser Ala Ser Phe Ser Thr Phe Lys Cys Tyr Gly Val
50 55 60

```
Ser Pro Thr Lys Leu Asn Asp Leu Cys Phe Thr Asn Val Tyr Ala Asp
65                  70                  75                  80

Ser Phe Val Ile Arg Gly Asp Glu Val Arg Gln Ile Ala Pro Gly Gln
                85                  90                  95

Thr Gly Lys Ile Ala Asp Tyr Asn Tyr Lys Leu Pro Asp Asp Phe Thr
            100                 105                 110

Gly Cys Val Ile Ala Trp Asn Ser Asn Asn Leu Asp Ser Lys Val Gly
        115                 120                 125

Gly Asn Tyr Asn Tyr Leu Tyr Arg Leu Phe Arg Lys Ser Asn Leu Lys
    130                 135                 140

Pro Phe Glu Arg Asp Ile Ser Thr Glu Ile Tyr Gln Ala Gly Ser Thr
145                 150                 155                 160

Pro Cys Asn Gly Val Glu Gly Phe Asn Cys Tyr Phe Pro Leu Gln Ser
                165                 170                 175

Tyr Gly Phe Gln Pro Thr Asn Gly Val Gly Tyr Gln Pro Tyr Arg Val
            180                 185                 190

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

Pro Lys Lys Ser Thr Asn Leu Val Lys Asn Lys Cys Val Asn Phe
    210                 215                 220
```

<210> 31
<211> 627
<212> PRT
<213> Artificial Sequence

<220>
<223> TECH001-CV021

<400> 31

```
Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                  10                  15

Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30

Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45

Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60

Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80

Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95

Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190
```

```
Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Arg Val Gln Pro Thr Glu Ser Ile Val Arg Phe Pro Asn Ile
                245                 250                 255

Thr Asn Leu Cys Pro Phe Gly Glu Val Phe Asn Ala Thr Arg Phe Ala
            260                 265                 270

Ser Val Tyr Ala Trp Asn Arg Lys Arg Ile Ser Asn Cys Val Ala Asp
        275                 280                 285

Tyr Ser Val Leu Tyr Asn Ser Ala Ser Phe Ser Thr Phe Lys Cys Tyr
    290                 295                 300

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

Ala Asp Ser Phe Val Ile Arg Gly Asp Glu Val Arg Gln Ile Ala Pro
                325                 330                 335

Gly Gln Thr Gly Lys Ile Ala Asp Tyr Asn Tyr Lys Leu Pro Asp Asp
            340                 345                 350

Phe Thr Gly Cys Val Ile Ala Trp Asn Ser Asn Asn Leu Asp Ser Lys
        355                 360                 365

Val Gly Gly Asn Tyr Asn Tyr Leu Tyr Arg Leu Phe Arg Lys Ser Asn
    370                 375                 380

Leu Lys Pro Phe Glu Arg Asp Ile Ser Thr Glu Ile Tyr Gln Ala Gly
385                 390                 395                 400
```

```
Ser Thr Pro Cys Asn Gly Val Glu Gly Phe Asn Cys Tyr Phe Pro Leu
                405                 410                 415

Gln Ser Tyr Gly Phe Gln Pro Thr Asn Gly Val Gly Tyr Gln Pro Tyr
            420                 425                 430

Arg Val Val Val Leu Ser Phe Glu Leu Leu His Ala Pro Ala Thr Val
        435                 440                 445

Cys Gly Pro Lys Lys Ser Thr Asn Leu Val Lys Asn Lys Cys Val Asn
    450                 455                 460

Phe Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val
465                 470                 475                 480

Glu Glu Asn Pro Gly Pro Met Trp Leu Gln Asn Leu Leu Phe Leu Gly
                485                 490                 495

Ile Val Val Tyr Ser Leu Ser Ala Pro Thr Arg Ser Pro Ile Thr Val
            500                 505                 510

Thr Arg Pro Trp Lys His Val Glu Ala Ile Lys Glu Ala Leu Asn Leu
        515                 520                 525

Leu Asp Asp Met Pro Val Thr Leu Asn Glu Glu Val Glu Val Val Ser
    530                 535                 540

Asn Glu Phe Ser Phe Lys Lys Leu Thr Cys Val Gln Thr Arg Leu Lys
545                 550                 555                 560

Ile Phe Glu Gln Gly Leu Arg Gly Asn Phe Thr Lys Leu Lys Gly Ala
                565                 570                 575

Leu Asn Met Thr Ala Ser Tyr Tyr Gln Thr Tyr Cys Pro Pro Thr Pro
            580                 585                 590
```

```
Glu Thr Asp Cys Glu Thr Gln Val Thr Thr Tyr Ala Asp Phe Ile Asp
        595                 600                 605


Ser Leu Lys Thr Phe Leu Thr Asp Ile Pro Phe Glu Cys Lys Lys Pro
    610                 615                 620


Val Gln Lys
625
```

<210> 32
<211> 1054
<212> PRT
<213> Artificial Sequence

<220>
<223> TECH001-CV022

<400> 32

```
Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                   10                  15


Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30


Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45


Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60


Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80


Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95


Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110
```

```
Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205

Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Arg Val Gln Pro Thr Glu Ser Ile Val Arg Phe Pro Asn Ile
                245                 250                 255

Thr Asn Leu Cys Pro Phe Gly Glu Val Phe Asn Ala Thr Arg Phe Ala
            260                 265                 270

Ser Val Tyr Ala Trp Asn Arg Lys Arg Ile Ser Asn Cys Val Ala Asp
        275                 280                 285

Tyr Ser Val Leu Tyr Asn Ser Ala Ser Phe Ser Thr Phe Lys Cys Tyr
    290                 295                 300

Gly Val Ser Pro Thr Lys Leu Asn Asp Leu Cys Phe Thr Asn Val Tyr
305                 310                 315                 320
```

```
Ala Asp Ser Phe Val Ile Arg Gly Asp Glu Val Arg Gln Ile Ala Pro
               325                 330                 335

Gly Gln Thr Gly Lys Ile Ala Asp Tyr Asn Tyr Lys Leu Pro Asp Asp
            340                 345                 350

Phe Thr Gly Cys Val Ile Ala Trp Asn Ser Asn Asn Leu Asp Ser Lys
        355                 360                 365

Val Gly Gly Asn Tyr Asn Tyr Leu Tyr Arg Leu Phe Arg Lys Ser Asn
    370                 375                 380

Leu Lys Pro Phe Glu Arg Asp Ile Ser Thr Glu Ile Tyr Gln Ala Gly
385                 390                 395                 400

Ser Thr Pro Cys Asn Gly Val Glu Gly Phe Asn Cys Tyr Phe Pro Leu
               405                 410                 415

Gln Ser Tyr Gly Phe Gln Pro Thr Asn Gly Val Gly Tyr Gln Pro Tyr
            420                 425                 430

Arg Val Val Val Leu Ser Phe Glu Leu Leu His Ala Pro Ala Thr Val
        435                 440                 445

Cys Gly Pro Lys Lys Ser Thr Asn Leu Val Lys Asn Lys Cys Val Asn
    450                 455                 460

Phe Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val
465                 470                 475                 480

Glu Glu Asn Pro Gly Pro Met Cys Gln Ser Arg Tyr Leu Leu Phe Leu
               485                 490                 495

Ala Thr Leu Ala Leu Leu Asn His Leu Ser Leu Ala Arg Val Ile Pro
            500                 505                 510
```

```
Val Ser Gly Pro Ala Arg Cys Leu Ser Gln Ser Arg Asn Leu Leu Lys
        515                 520                 525

Thr Thr Asp Asp Met Val Lys Thr Ala Arg Glu Lys Leu Lys His Tyr
    530                 535                 540

Ser Cys Thr Ala Glu Asp Ile Asp His Glu Asp Ile Thr Arg Asp Gln
545                 550                 555                 560

Thr Ser Thr Leu Lys Thr Cys Leu Pro Leu Glu Leu His Lys Asn Glu
                565                 570                 575

Ser Cys Leu Ala Thr Arg Glu Thr Ser Ser Thr Thr Arg Gly Ser Cys
            580                 585                 590

Leu Pro Pro Gln Lys Thr Ser Leu Met Met Thr Leu Cys Leu Gly Ser
        595                 600                 605

Ile Tyr Glu Asp Leu Lys Met Tyr Gln Thr Glu Phe Gln Ala Ile Asn
    610                 615                 620

Ala Ala Leu Gln Asn His Asn His Gln Gln Ile Ile Leu Asp Lys Gly
625                 630                 635                 640

Met Leu Val Ala Ile Asp Glu Leu Met Gln Ser Leu Asn His Asn Gly
                645                 650                 655

Glu Thr Leu Arg Gln Lys Pro Pro Val Gly Glu Ala Asp Pro Tyr Arg
            660                 665                 670

Val Lys Met Lys Leu Cys Ile Leu Leu His Ala Phe Ser Thr Arg Val
        675                 680                 685

Val Thr Ile Asn Arg Val Met Gly Tyr Leu Ser Ser Ala Glu Gly Arg
    690                 695                 700

Gly Ser Leu Leu Thr Cys Gly Asp Val Glu Glu Asn Pro Gly Pro Met
705                 710                 715                 720
```

```
Cys Pro Gln Lys Leu Thr Ile Ser Trp Phe Ala Ile Val Leu Leu Val
               725                 730                 735

Ser Pro Leu Met Ala Met Trp Glu Leu Glu Lys Asp Val Tyr Val Val
            740                 745                 750

Glu Val Asp Trp Thr Pro Asp Ala Pro Gly Glu Thr Val Asn Leu Thr
        755                 760                 765

Cys Asp Thr Pro Glu Glu Asp Asp Ile Thr Trp Thr Ser Asp Gln Arg
    770                 775                 780

His Gly Val Ile Gly Ser Gly Lys Thr Leu Thr Ile Thr Val Lys Glu
785                 790                 795                 800

Phe Leu Asp Ala Gly Gln Tyr Thr Cys His Lys Gly Gly Glu Thr Leu
               805                 810                 815

Ser His Ser His Leu Leu Leu His Lys Lys Glu Asn Gly Ile Trp Ser
            820                 825                 830

Thr Glu Ile Leu Lys Asn Phe Lys Asn Lys Thr Phe Leu Lys Cys Glu
        835                 840                 845

Ala Pro Asn Tyr Ser Gly Arg Phe Thr Cys Ser Trp Leu Val Gln Arg
    850                 855                 860

Asn Met Asp Leu Lys Phe Asn Ile Lys Ser Ser Ser Ser Ser Pro Asp
865                 870                 875                 880

Ser Arg Ala Val Thr Cys Gly Met Ala Ser Leu Ser Ala Glu Lys Val
               885                 890                 895

Thr Leu Asp Gln Arg Asp Tyr Glu Lys Tyr Ser Val Ser Cys Gln Glu
            900                 905                 910
```

```
Asp Val Thr Cys Pro Thr Ala Glu Glu Thr Leu Pro Ile Glu Leu Ala
        915                 920                 925

Leu Glu Ala Arg Gln Gln Asn Lys Tyr Glu Asn Tyr Ser Thr Ser Phe
    930                 935                 940

Phe Ile Arg Asp Ile Ile Lys Pro Asp Pro Pro Lys Asn Leu Gln Met
945                 950                 955                 960

Lys Pro Leu Lys Asn Ser Gln Val Glu Val Ser Trp Glu Tyr Pro Asp
                965                 970                 975

Ser Trp Ser Thr Pro His Ser Tyr Phe Ser Leu Lys Phe Phe Val Arg
            980                 985                 990

Ile Gln Arg Lys Lys Glu Lys Met  Lys Glu Thr Glu Glu  Gly Cys Asn
        995                 1000                1005

Gln Lys  Gly Ala Phe Leu Val  Glu Lys Thr Ser Thr  Glu Val Gln
    1010                1015                1020

Cys Lys  Gly Gly Asn Val Cys  Val Gln Ala Gln Asp  Arg Tyr Tyr
    1025                1030                1035

Asn Ser  Ser Cys Ser Lys Trp  Ala Cys Val Pro Cys  Arg Val Arg
    1040                1045                1050

Ser
```

<210> 33
<211> 632
<212> PRT
<213> Artificial Sequence

<220>
<223> TECH001-CV023

<400> 33

```
Met Gln Val Ser Thr Ala Ala Leu Ala Val Leu Leu Cys Thr Met Ala
1               5                  10                  15

Leu Cys Asn Gln Val Leu Ser Ala Pro Leu Ala Ala Asp Thr Pro Thr
            20                  25                  30

Ala Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe Ile
        35                  40                  45

Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Ser Val Ile
    50                  55                  60

Phe Leu Thr Lys Arg Gly Arg Gln Val Cys Ala Asp Pro Ser Glu Glu
65                  70                  75                  80

Trp Val Gln Lys Tyr Val Ser Asp Leu Glu Leu Ser Ala Glu Leu Lys
                85                  90                  95

Thr Pro Leu Gly Asp Thr Thr His Thr Glu Pro Lys Ser Cys Asp Thr
            100                 105                 110

Pro Pro Pro Cys Pro Arg Cys Pro Gly Gly Gly Ser Ser Gly Gly Gly
        115                 120                 125

Ser Gly Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
    130                 135                 140

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
145                 150                 155                 160

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln
                165                 170                 175

Pro Glu Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly
            180                 185                 190

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
        195                 200                 205
```

```
Gln Gly Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
    210                 215                 220

Arg Phe Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly
225                 230                 235                 240

Gly Leu Arg Val Gln Pro Thr Glu Ser Ile Val Arg Phe Pro Asn Ile
                245                 250                 255

Thr Asn Leu Cys Pro Phe Gly Glu Val Phe Asn Ala Thr Arg Phe Ala
            260                 265                 270

Ser Val Tyr Ala Trp Asn Arg Lys Arg Ile Ser Asn Cys Val Ala Asp
        275                 280                 285

Tyr Ser Val Leu Tyr Asn Ser Ala Ser Phe Ser Thr Phe Lys Cys Tyr
    290                 295                 300

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

Ala Asp Ser Phe Val Ile Arg Gly Asp Glu Val Arg Gln Ile Ala Pro
                325                 330                 335

Gly Gln Thr Gly Lys Ile Ala Asp Tyr Asn Tyr Lys Leu Pro Asp Asp
            340                 345                 350

Phe Thr Gly Cys Val Ile Ala Trp Asn Ser Asn Asn Leu Asp Ser Lys
        355                 360                 365

Val Gly Gly Asn Tyr Asn Tyr Leu Tyr Arg Leu Phe Arg Lys Ser Asn
    370                 375                 380

Leu Lys Pro Phe Glu Arg Asp Ile Ser Thr Glu Ile Tyr Gln Ala Gly
385                 390                 395                 400
```

```
Ser Thr Pro Cys Asn Gly Val Glu Gly Phe Asn Cys Tyr Phe Pro Leu
                405                 410                 415

Gln Ser Tyr Gly Phe Gln Pro Thr Asn Gly Val Gly Tyr Gln Pro Tyr
            420                 425                 430

Arg Val Val Val Leu Ser Phe Glu Leu Leu His Ala Pro Ala Thr Val
        435                 440                 445

Cys Gly Pro Lys Lys Ser Thr Asn Leu Val Lys Asn Lys Cys Val Asn
    450                 455                 460

Phe Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val
465                 470                 475                 480

Glu Glu Asn Pro Gly Pro Met Glu Arg Thr Leu Val Cys Leu Val Val
                485                 490                 495

Ile Phe Leu Gly Thr Val Ala His Lys Ser Ser Pro Gln Gly Pro Asp
            500                 505                 510

Arg Leu Leu Ile Arg Leu Arg His Leu Ile Asp Ile Val Glu Gln Leu
        515                 520                 525

Lys Ile Tyr Glu Asn Asp Leu Asp Pro Glu Leu Leu Ser Ala Pro Gln
    530                 535                 540

Asp Val Lys Gly His Cys Glu His Ala Ala Phe Ala Cys Phe Gln Lys
545                 550                 555                 560

Ala Lys Leu Lys Pro Ser Asn Pro Gly Asn Asn Lys Thr Phe Ile Ile
                565                 570                 575

Asp Leu Val Ala Gln Leu Arg Arg Arg Leu Pro Ala Arg Arg Gly Gly
            580                 585                 590

Lys Lys Gln Lys His Ile Ala Lys Cys Pro Ser Cys Asp Ser Tyr Glu
        595                 600                 605
```

```
Lys Arg Thr Pro Lys Glu Phe Leu Glu Arg Leu Lys Trp Leu Leu Gln
    610                 615                 620


Lys Met Ile His Gln His Leu Ser
625                 630


<210>  34
<211>  22
<212>  PRT
<213>  Mus Musculus

<400>  34

Met Cys Gln Ser Arg Tyr Leu Leu Phe Leu Ala Thr Leu Ala Leu Leu
1               5                   10                  15


Asn His Leu Ser Leu Ala
            20


<210>  35
<211>  193
<212>  PRT
<213>  Mus Musculus

<400>  35

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


Asn Leu Leu Lys Thr Thr Asp Asp Met Val Lys Thr Ala Arg Glu Lys
            20                  25                  30


Leu Lys His Tyr Ser Cys Thr Ala Glu Asp Ile Asp His Glu Asp Ile
        35                  40                  45


Thr Arg Asp Gln Thr Ser Thr Leu Lys Thr Cys Leu Pro Leu Glu Leu
    50                  55                  60


His Lys Asn Glu Ser Cys Leu Ala Thr Arg Glu Thr Ser Ser Thr Thr
65                  70                  75                  80
```

```
Arg Gly Ser Cys Leu Pro Pro Gln Lys Thr Ser Leu Met Met Thr Leu
                85                  90                  95

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

Gln Ala Ile Asn Ala Ala Leu Gln Asn His Asn His Gln Gln Ile Ile
        115                 120                 125

Leu Asp Lys Gly Met Leu Val Ala Ile Asp Glu Leu Met Gln Ser Leu
    130                 135                 140

Asn His Asn Gly Glu Thr Leu Arg Gln Lys Pro Pro Val Gly Glu Ala
145                 150                 155                 160

Asp Pro Tyr Arg Val Lys Met Lys Leu Cys Ile Leu Leu His Ala Phe
                165                 170                 175

Ser Thr Arg Val Val Thr Ile Asn Arg Val Met Gly Tyr Leu Ser Ser
            180                 185                 190

Ala
```

<210> 36
<211> 22
<212> PRT
<213> Mus Musculus

<400> 36

```
Met Cys Pro Gln Lys Leu Thr Ile Ser Trp Phe Ala Ile Val Leu Leu
1               5                   10                  15

Val Ser Pro Leu Met Ala
            20
```

<210> 37

<211> 313
<212> PRT
<213> Mus Musculus

<400> 37

```
Met Trp Glu Leu Glu Lys Asp Val Tyr Val Val Glu Val Asp Trp Thr
1               5                  10                  15


Pro Asp Ala Pro Gly Glu Thr Val Asn Leu Thr Cys Asp Thr Pro Glu
            20                  25                  30


Glu Asp Asp Ile Thr Trp Thr Ser Asp Gln Arg His Gly Val Ile Gly
        35                  40                  45


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


Gln Tyr Thr Cys His Lys Gly Gly Glu Thr Leu Ser His Ser His Leu
65                  70                  75                  80


Leu Leu His Lys Lys Glu Asn Gly Ile Trp Ser Thr Glu Ile Leu Lys
                85                  90                  95


Asn Phe Lys Asn Lys Thr Phe Leu Lys Cys Glu Ala Pro Asn Tyr Ser
            100                 105                 110


Gly Arg Phe Thr Cys Ser Trp Leu Val Gln Arg Asn Met Asp Leu Lys
        115                 120                 125


Phe Asn Ile Lys Ser Ser Ser Ser Ser Pro Asp Ser Arg Ala Val Thr
    130                 135                 140


Cys Gly Met Ala Ser Leu Ser Ala Glu Lys Val Thr Leu Asp Gln Arg
145                 150                 155                 160


Asp Tyr Glu Lys Tyr Ser Val Ser Cys Gln Glu Asp Val Thr Cys Pro
                165                 170                 175
```

```
Thr Ala Glu Glu Thr Leu Pro Ile Glu Leu Ala Leu Glu Ala Arg Gln
            180                 185                 190


Gln Asn Lys Tyr Glu Asn Tyr Ser Thr Ser Phe Phe Ile Arg Asp Ile
        195                 200                 205


Ile Lys Pro Asp Pro Pro Lys Asn Leu Gln Met Lys Pro Leu Lys Asn
    210                 215                 220


Ser Gln Val Glu Val Ser Trp Glu Tyr Pro Asp Ser Trp Ser Thr Pro
225                 230                 235                 240


His Ser Tyr Phe Ser Leu Lys Phe Phe Val Arg Ile Gln Arg Lys Lys
                245                 250                 255


Glu Lys Met Lys Glu Thr Glu Glu Gly Cys Asn Gln Lys Gly Ala Phe
            260                 265                 270


Leu Val Glu Lys Thr Ser Thr Glu Val Gln Cys Lys Gly Gly Asn Val
        275                 280                 285


Cys Val Gln Ala Gln Asp Arg Tyr Tyr Asn Ser Ser Cys Ser Lys Trp
    290                 295                 300


Ala Cys Val Pro Cys Arg Val Arg Ser
305                 310


<210>  38
<211>  17
<212>  PRT
<213>  Mus Musculus

<400>  38

Met Glu Arg Thr Leu Val Cys Leu Val Val Ile Phe Leu Gly Thr Val
1               5                   10                  15


Ala
```

<210> 39
<211> 129
<212> PRT
<213> Mus Musculus

<400> 39

```
His Lys Ser Ser Pro Gln Gly Pro Asp Arg Leu Leu Ile Arg Leu Arg
1               5                   10                  15


His Leu Ile Asp Ile Val Glu Gln Leu Lys Ile Tyr Glu Asn Asp Leu
            20                  25                  30


Asp Pro Glu Leu Leu Ser Ala Pro Gln Asp Val Lys Gly His Cys Glu
        35                  40                  45


His Ala Ala Phe Ala Cys Phe Gln Lys Ala Lys Leu Lys Pro Ser Asn
    50                  55                  60


Pro Gly Asn Asn Lys Thr Phe Ile Ile Asp Leu Val Ala Gln Leu Arg
65                  70                  75                  80


Arg Arg Leu Pro Ala Arg Arg Gly Gly Lys Lys Gln Lys His Ile Ala
                85                  90                  95


Lys Cys Pro Ser Cys Asp Ser Tyr Glu Lys Arg Thr Pro Lys Glu Phe
            100                 105                 110


Leu Glu Arg Leu Lys Trp Leu Leu Gln Lys Met Ile His Gln His Leu
        115                 120                 125


Ser
```

<210> 40
<211> 17
<212> PRT
<213> Homo sapiens

<400> 40

```
Met Trp Leu Gln Ser Leu Leu Leu Leu Gly Thr Val Ala Cys Ser Ile
1               5                  10                  15


Ser
```

<210> 41
<211> 127
<212> PRT
<213> Homo sapiens

<400> 41

```
Ala Pro Ala Arg Ser Pro Ser Pro Ser Thr Gln Pro Trp Glu His Val
1               5                  10                  15


Asn Ala Ile Gln Glu Ala Arg Arg Leu Leu Asn Leu Ser Arg Asp Thr
            20                  25                  30


Ala Ala Glu Met Asn Glu Thr Val Glu Val Ile Ser Glu Met Phe Asp
        35                  40                  45


Leu Gln Glu Pro Thr Cys Leu Gln Thr Arg Leu Glu Leu Tyr Lys Gln
    50                  55                  60


Gly Leu Arg Gly Ser Leu Thr Lys Leu Lys Gly Pro Leu Thr Met Met
65                  70                  75                  80


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


Ala Thr Gln Ile Ile Thr Phe Glu Ser Phe Lys Glu Asn Leu Lys Asp
            100                 105                 110


Phe Leu Leu Val Ile Pro Phe Asp Cys Trp Glu Pro Val Gln Glu
        115                 120                 125
```

<210> 42
<211> 23

<212> PRT
<213> Homo sapiens

<400> 42

Met Lys Val Ser Ala Ala Ala Leu Ala Val Ile Leu Ile Ala Thr Ala
1   5   10   15

Leu Cys Ala Pro Ala Ser Ala
            20

<210> 43
<211> 68
<212> PRT
<213> Homo sapiens

<400> 43

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Ile Ala
1   5   10   15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly
            20   25   30

Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Lys Asn Arg Gln
        35   40   45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser
    50   55   60

Leu Glu Met Ser
65

<210> 44
<211> 22
<212> PRT
<213> Homo sapiens

<400> 44

Met Cys Pro Ala Arg Ser Leu Leu Leu Val Ala Thr Leu Val Leu Leu
1   5   10   15

Asp His Leu Ser Leu Ala
            20

<210> 45
<211> 197
<212> PRT
<213> Homo sapiens

<400> 45

Arg Asn Leu Pro Val Ala Thr Pro Asp Pro Gly Met Phe Pro Cys Leu
1   5   10   15

His His Ser Gln Asn Leu Leu Arg Ala Val Ser Asn Met Leu Gln Lys
            20   25   30

Ala Arg Gln Thr Leu Glu Phe Tyr Pro Cys Thr Ser Glu Glu Ile Asp
        35   40   45

His Glu Asp Ile Thr Lys Asp Lys Thr Ser Thr Val Glu Ala Cys Leu
    50   55   60

Pro Leu Glu Leu Thr Lys Asn Glu Ser Cys Leu Asn Ser Arg Glu Thr
65   70   75   80

Ser Phe Ile Thr Asn Gly Ser Cys Leu Ala Ser Arg Lys Thr Ser Phe
                85   90   95

Met Met Ala Leu Cys Leu Ser Ser Ile Tyr Glu Asp Leu Lys Met Tyr
            100   105   110

Gln Val Glu Phe Lys Thr Met Asn Ala Lys Leu Leu Met Asp Pro Lys
        115   120   125

Arg Gln Ile Phe Leu Asp Gln Asn Met Leu Ala Val Ile Asp Glu Leu
    130   135   140

Met Gln Ala Leu Asn Phe Asn Ser Glu Thr Val Pro Gln Lys Ser Ser
145   150   155   160

```
Leu Glu Glu Pro Asp Phe Tyr Lys Thr Lys Ile Lys Leu Cys Ile Leu
                165                 170                 175


Leu His Ala Phe Arg Ile Arg Ala Val Thr Ile Asp Arg Val Met Ser
            180                 185                 190


Tyr Leu Asn Ala Ser
        195


<210>  46
<211>  22
<212>  PRT
<213>  Homo sapiens

<400>  46

Met Cys His Gln Gln Leu Val Ile Ser Trp Phe Ser Leu Val Phe Leu
1               5                   10                  15


Ala Ser Pro Leu Val Ala
            20


<210>  47
<211>  306
<212>  PRT
<213>  Homo sapiens

<400>  47

Ile Trp Glu Leu Lys Lys Asp Val Tyr Val Val Glu Leu Asp Trp Tyr
1               5                   10                  15


Pro Asp Ala Pro Gly Glu Met Val Val Leu Thr Cys Asp Thr Pro Glu
            20                  25                  30


Glu Asp Gly Ile Thr Trp Thr Leu Asp Gln Ser Ser Glu Val Leu Gly
        35                  40                  45


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

```
Gln Tyr Thr Cys His Lys Gly Gly Glu Val Leu Ser His Ser Leu Leu
65                  70                  75                  80

Leu Leu His Lys Lys Glu Asp Gly Ile Trp Ser Thr Asp Ile Leu Lys
                85                  90                  95

Asp Gln Lys Glu Pro Lys Asn Lys Thr Phe Leu Arg Cys Glu Ala Lys
            100                 105                 110

Asn Tyr Ser Gly Arg Phe Thr Cys Trp Trp Leu Thr Thr Ile Ser Thr
        115                 120                 125

Asp Leu Thr Phe Ser Val Lys Ser Ser Arg Gly Ser Ser Asp Pro Gln
    130                 135                 140

Gly Val Thr Cys Gly Ala Ala Thr Leu Ser Ala Glu Arg Val Arg Gly
145                 150                 155                 160

Asp Asn Lys Glu Tyr Glu Tyr Ser Val Glu Cys Gln Glu Asp Ser Ala
                165                 170                 175

Cys Pro Ala Ala Glu Glu Ser Leu Pro Ile Glu Val Met Val Asp Ala
            180                 185                 190

Val His Lys Leu Lys Tyr Glu Asn Tyr Thr Ser Ser Phe Phe Ile Arg
        195                 200                 205

Asp Ile Ile Lys Pro Asp Pro Pro Lys Asn Leu Gln Leu Lys Pro Leu
    210                 215                 220

Lys Asn Ser Arg Gln Val Glu Val Ser Trp Glu Tyr Pro Asp Thr Trp
225                 230                 235                 240

Ser Thr Pro His Ser Tyr Phe Ser Leu Thr Phe Cys Val Gln Val Gln
                245                 250                 255
```

```
Gly Lys Ser Lys Arg Glu Lys Lys Asp Arg Val Phe Thr Asp Lys Thr
            260                 265                 270


Ser Ala Thr Val Ile Cys Arg Lys Asn Ala Ser Ile Ser Val Arg Ala
        275                 280                 285


Gln Asp Arg Tyr Tyr Ser Ser Ser Trp Ser Glu Trp Ala Ser Val Pro
    290                 295                 300


Cys Ser
305


<210>  48
<211>  24
<212>  PRT
<213>  Homo sapiens

<400>  48

Met Arg Ser Ser Pro Gly Asn Met Glu Arg Ile Val Ile Cys Leu Met
1               5                   10                  15


Val Ile Phe Leu Gly Thr Leu Val
            20


<210>  49
<211>  138
<212>  PRT
<213>  Homo sapiens

<400>  49

His Lys Ser Ser Ser Gln Gly Gln Asp Arg His Met Ile Arg Met Arg
1               5                   10                  15


Gln Leu Ile Asp Ile Val Asp Gln Leu Lys Asn Tyr Val Asn Asp Leu
            20                  25                  30


Val Pro Glu Phe Leu Pro Ala Pro Glu Asp Val Glu Thr Asn Cys Glu
        35                  40                  45
```

```
Trp Ser Ala Phe Ser Cys Phe Gln Lys Ala Gln Leu Lys Ser Ala Asn
    50                  55                  60

Thr Gly Asn Asn Glu Arg Ile Ile Asn Val Ser Ile Lys Lys Leu Lys
65                  70                  75                  80

Arg Lys Pro Pro Ser Thr Asn Ala Gly Arg Arg Gln Lys His Arg Leu
                85                  90                  95

Thr Cys Pro Ser Cys Asp Ser Tyr Glu Lys Lys Pro Pro Lys Glu Phe
            100                 105                 110

Leu Glu Arg Phe Lys Ser Leu Leu Gln Lys Met Ile His Gln His Leu
        115                 120                 125

Ser Ser Arg Thr His Gly Ser Glu Asp Ser
    130                 135
```

<210> 50
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> self-cleaving peptide

<220>
<221> misc_feature
<222> (2)..(2)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<400> 50

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Asp Xaa Glu Xaa Asn Pro Gly Pro
1               5
```

<210> 51

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

<220>
<223> self-cleaving peptide

<400> 51

Val Lys Gln Thr Leu Asn Phe Asp Leu Leu Lys Leu Ala Gly Asp Val
1 5 10 15

Glu Ser Asn Pro Gly Pro
20

<210> 52
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> self-cleaving peptide

<400> 52

Gly Ser Gly Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val Glu
1 5 10 15

Glu Asn Pro Gly Pro
20

<210> 53
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> self-cleaving peptide

<400> 53

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

Glu Glu Asn Pro Gly Pro

20

<210> 54
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> self-cleaving peptide

<400> 54

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

Val Glu Ser Asn Pro Gly Pro
20

<210> 55
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> self-cleaving peptide

<400> 55

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

Gly Asp Val Glu Ser Asn Pro Gly Pro
20 25

<210> 56
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> trimerization unit

<400> 56

Gly Tyr Ile Pro Glu Ala Pro Arg Asp Gly Gln Ala Tyr Val Arg Lys

1 5 10 15

Asp Gly Glu Trp Val Leu Leu Ser Thr Phe Leu
20 25

<210> 57
<211> 117
<212> DNA
<213> Artificial Sequence

<220>
<223> tetramerization unit

<400> 57
aagcctctgg acggagagta tttcactctc cagatccggg gccccgaaag gttcgaaatg 60

ttccgggagc ttaacgaggc cttggagctg aaagacgcac aggccggaaa ggaaccg 117

<210> 58
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 58

Gly Gly Gly Gly Ser
1 5

<210> 59
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 59

Gly Gly Gly Ser Ser
1 5

<210> 60

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

<220>
<223> Linker

<400> 60

Gly Gly Gly Ser Gly
1   5

<210> 61
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 61

Gly Gly Ser Gly Gly
1   5

<210> 62
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 62

Ser Gly Ser Ser Gly Ser
1   5

<210> 63
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<220>
<221> SITE
<222> (1)..(4)
<223> can be repeated m times, where m is an integer from 1 to 5

<400> 63

Glu Ala Ala Lys Gly Ser
1   5

<210> 64
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<220>
<221> SITE
<222> (1)..(5)
<223> can be repeated m times, where m is an integer from 1 to 5

<400> 64

Gly Gly Gly Gly Ser
1   5

<210> 65
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<220>
<221> SITE
<222> (1)..(5)
<223> can be repeated m times, where m is an integer from 1 to 5

<400> 65

Gly Gly Gly Ser Ser
1   5

<210> 66
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<220>
<221> SITE
<222> (1)..(5)
<223> can be repeated m times, where m is an integer from 1 to 5

<400> 66

Gly Gly Ser Gly Gly
1   5

<210> 67
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<220>
<221> SITE
<222> (1)..(5)
<223> can be repeated m times, where m is an integer from 1 to 5

<400> 67

Gly Gly Gly Ser Gly
1   5

<210> 68
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 68

Ser Gly Ser Ser Gly Ser
1   5

<210> 69
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 69

Leu Gly Gly Gly Ser
1   5

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

<220>
<223> Linker

<400> 70

Gly Leu Gly Gly Ser
1   5

<210> 71
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 71

Gly Gly Leu Gly Ser
1   5

<210> 72
<211> 5
<212> PRT

<213> Artificial Sequence

<220>
<223> Linker

<400> 72

Gly Gly Gly Leu Ser
1   5

<210> 73
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 73

Gly Gly Gly Gly Leu
1   5

<210> 74
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 74

Leu Gly Gly Ser Gly
1   5

<210> 75
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 75

Gly Leu Gly Ser Gly

1 5

<210> 76
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 76

Gly Gly Leu Ser Gly
1 5

<210> 77
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 77

Gly Gly Gly Leu Gly
1 5

<210> 78
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 78

Gly Gly Gly Ser Leu
1 5

<210> 79
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 79

Leu Gly Gly Ser Ser
1   5

<210> 80
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 80

Gly Leu Gly Ser Ser
1   5

<210> 81
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 81

Gly Gly Leu Ser Ser
1   5

<210> 82
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> T cell epitope

<400> 82

Cys Thr Glu Leu Lys Leu Ser Asp Tyr
1   5

<210> 83
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> T cell epitope

<400> 83

Asn Leu Val Pro Met Val Ala Thr Val
1 5

<210> 84
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> T cell epitope

<400> 84

Lys Leu Val Ala Asn Asn Thr Arg Leu
1 5

<210> 85
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 85

Leu Gly Leu Gly Ser
1 5

<210> 86
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 86

Gly Leu Gly Leu Ser
1   5

<210> 87
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 87

Gly Leu Leu Gly Ser
1   5

<210> 88
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 88

Leu Gly Gly Leu Ser
1   5

<210> 89
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 89

Gly Leu Gly Gly Leu
1   5

<210> 90

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

<220>
<223> Linker

<400> 90

Leu Gly Leu Ser Gly
1   5

<210> 91
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 91

Gly Leu Leu Ser Gly
1   5

<210> 92
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 92

Gly Gly Leu Ser Leu
1   5

<210> 93
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 93

Gly Gly Leu Leu Gly
1 5

<210> 94
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 94

Gly Leu Gly Ser Leu
1 5

<210> 95
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 95

Leu Gly Leu Ser Ser
1 5

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

<220>
<223> Linker

<400> 96

Gly Gly Leu Leu Ser
1 5

<210> 97
<211> 10
<212> PRT

<213> Artificial Sequence

<220>
<223> Linker

<400> 97

Leu Gly Gly Gly Ser Gly Gly Gly Gly Ser
1   5   10

<210> 98
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 98

Gly Leu Gly Gly Ser Gly Gly Gly Gly Ser
1   5   10

<210> 99
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 99

Gly Gly Leu Gly Ser Gly Gly Gly Gly Ser
1   5   10

<210> 100
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 100

Gly Gly Gly Leu Ser Gly Gly Gly Gly Ser

1 5 10

<210> 101
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 101

Gly Gly Gly Gly Leu Gly Gly Gly Gly Ser
1 5 10

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

<220>
<223> Linker

<400> 102

Leu Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10

<210> 103
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 103

Gly Leu Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10

<210> 104
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 104

Gly Gly Leu Ser Gly Gly Gly Gly Ser Gly
1   5   10

<210> 105
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 105

Gly Gly Gly Leu Gly Gly Gly Gly Ser Gly
1   5   10

<210> 106
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 106

Gly Gly Gly Ser Leu Gly Gly Gly Ser Gly
1   5   10

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

<220>
<223> Linker

<400> 107

Leu Gly Gly Ser Ser Gly Gly Gly Ser Ser
1   5   10

<210> 108
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 108

Gly Leu Gly Ser Ser Gly Gly Gly Ser Ser
1   5   10

<210> 109
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 109

Gly Gly Leu Ser Ser Gly Gly Gly Ser Ser
1   5   10

<210> 110
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 110

Gly Gly Gly Leu Ser Gly Gly Gly Ser Ser
1   5   10

<210> 111
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 111

Gly Gly Gly Ser Leu Gly Gly Gly Ser Ser
1 5 10

<210> 112
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 112

Leu Gly Gly Gly Ser Leu Gly Gly Gly Ser
1 5 10

<210> 113
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 113

Gly Leu Gly Gly Ser Gly Leu Gly Gly Ser
1 5 10

<210> 114
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 114

Gly Gly Leu Gly Ser Gly Gly Leu Gly Ser
1 5 10

<210> 115

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

<220>
<223> Linker

<400> 115

Gly Gly Gly Leu Ser Gly Gly Gly Leu Ser
1   5   10

<210> 116
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 116

Gly Gly Gly Gly Leu Gly Gly Gly Gly Leu
1   5   10

<210> 117
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 117

Leu Gly Gly Ser Gly Leu Gly Gly Ser Gly
1   5   10

<210> 118
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 118

Gly Leu Gly Ser Gly Gly Leu Gly Ser Gly
1   5   10

<210> 119
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 119

Gly Gly Leu Ser Gly Gly Gly Leu Ser Gly
1   5   10

<210> 120
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 120

Gly Gly Gly Leu Gly Gly Gly Gly Leu Gly
1   5   10

<210> 121
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 121

Gly Gly Gly Ser Leu Gly Gly Gly Ser Leu
1   5   10

<210> 122
<211> 10
<212> PRT

<213> Artificial Sequence

<220>
<223> Linker

<400> 122

Leu Gly Gly Ser Ser Leu Gly Gly Ser Ser
1 5 10

<210> 123
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 123

Gly Leu Gly Ser Ser Gly Leu Gly Ser Ser
1 5 10

<210> 124
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 124

Gly Gly Leu Ser Ser Gly Gly Leu Ser Ser
1 5 10

<210> 125
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 125

Gly Ser Gly Gly Gly Ala

1 5

<210> 126
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 126

Gly Ser Gly Gly Gly Ala Gly Ser Gly Gly Gly Ala
1 5 10

<210> 127
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 127

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

Gly Ala

<210> 128
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 128

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

Gly Ala Gly Ser Gly Gly Gly Ala

20

<210> 129
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 129

Gly Glu Asn Leu Tyr Phe Gln Ser Gly Gly
1 5 10

<210> 130
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 130

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

<210> 131
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 131

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

<210> 132
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 132

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

<210> 133
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 133

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

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

<220>
<223> Linker

<400> 134

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

<210> 135
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 135

Gly Gly Gly Ser Ser Ser
1   5

<210> 136
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 136

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

<210> 137
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 137

Gly Leu Gly Gly Leu Ala Ala Ala
1   5

<210> 138
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 138

Lys Pro Glu Pro Lys Pro Ala Pro Ala Pro Lys Pro
1   5   10

<210> 139
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 139

Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Ala
1   5   10

<210> 140
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<220>
<221> SITE
<222> (1)..(5)
<223> can be repeated m times, where m is an integer from 1 to 5

<400> 140

Glu Ala Ala Ala Lys
1   5

<210> 141
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 141

Pro Ser Arg Leu Glu Glu Glu Leu Arg Arg Arg Leu Thr Glu Pro
1   5   10   15

<210> 142
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 142

Ser Ala Cys Tyr Cys Glu Leu Ser
1   5

<210> 143
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 143

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

<210> 144
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 144

Ser Leu Ser Leu Ser Pro Gly Lys Gly Leu Gly Gly Leu
1   5   10

<210> 145
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 145

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

Gly Ala Ser Gly Thr Gly Thr Ala Gly Gly Thr Gly Ser Gly Ser Gly
            20   25   30

Thr Gly Ser Gly
35

<210> 146
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 146

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

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

Gly Gly Gly Ser
35

<210> 147
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 147

Glu Leu Lys Thr Pro Leu Gly Asp Thr Thr His Thr
1 5 10

<210> 148
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 148

Glu Pro Lys Ser Cys Asp Thr Pro Pro Pro Cys Pro Arg Cys Pro
1   5   10   15

<210> 149
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 149

Gly Leu Ser Gly Leu
1   5

<210> 150
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 150

Glu Ala Ala Ala Lys
1   5

<210> 151
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<220>
<221> SITE
<222> (1)..(5)
<223> can be repeated m times, where m is an integer from 1 to 5

<400> 151

Glu Ala Ala Ala Lys Gly Ser

1 5

<210> 152
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 152

Gly Pro Ser Arg Leu Glu Glu Glu Leu Arg Arg Arg Leu Thr Glu Pro
1 5 10 15

Gly

<210> 153
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 153

His Glu Tyr Gly Ala Glu Ala Leu Glu Arg Ala Gly
1 5 10

<210> 154
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> CT26 epitope

<400> 154

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

Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Pro

20 25

<210> 155
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> CT26 epitope

<400> 155

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

Glu Ser Ala Trp Leu Leu Glu Leu Ala Pro His
20 25

<210> 156
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> CT26 epitope

<400> 156

Lys Ser Trp Ile His Cys Trp Lys Tyr Leu Ser Val Gln Ser Gln Leu
1 5 10 15

Phe Arg Gly Ser Ser Leu Leu Phe Arg Arg Val
20 25

<210> 157
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> CT26 epitope

<400> 157

Gly Asp Val Lys Ile His Ala His Lys Val Val Leu Ala Asn Ile Ser

1 5 10 15

Pro Tyr Phe Lys Ala Met Phe Thr Gly Asn Leu
20 25

<210> 158
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> CT26 epitope

<400> 158

Phe Val Ser Pro Met Ala His Tyr Val Pro Gly Ile Met Ala Ile Glu
1 5 10 15

Ser Val Val Ala Arg Phe Gln Phe Ile Val Pro
20 25

<210> 159
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> CT26 epitope

<400> 159

Lys Ile Tyr Glu Phe Asp Tyr His Leu Tyr Gly Gln Asn Ile Thr Met
1 5 10 15

Ile Met Thr Ser Val Ser Gly His Leu Leu Ala
20 25

<210> 160
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> CT26 epitope

<400> 160

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

Ser Arg Leu Pro Val Val Ile Gly Gly Leu Leu
20 25

<210> 161
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> CT26 epitope

<400> 161

Thr Pro Leu Arg Lys His Thr Val His Ala Ile Arg Lys Phe Tyr Leu
1 5 10 15

Glu Phe Lys Gly Ser Ser Pro Pro Pro Arg Leu
20 25

<210> 162
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 162

Arg Ala His Tyr Asn Ile Val Thr Phe
1 5

<210> 163
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 163

Met Phe Gln Asp Pro Gln Glu Arg Pro Arg Lys Leu Pro Gln Leu
1 5 10 15

<210> 164
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 164

Arg Pro Arg Lys Leu Pro Gln Leu Cys Thr Glu Leu Gln Thr Thr
1 5 10 15

<210> 165
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 165

Leu Cys Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu
1 5 10 15

<210> 166
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 166

Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr Cys Lys Gln Gln
1 5 10 15

<210> 167

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

<220>
<223> HPV epitope

<400> 167

Glu Cys Val Tyr Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr
1 5 10 15

<210> 168
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 168

Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Arg Arg Asp Leu
1 5 10 15

<210> 169
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 169

Tyr Asp Phe Ala Arg Arg Asp Leu Cys Ile Val Tyr Arg Asp Gly
1 5 10 15

<210> 170
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 170

Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp
1   5   10   15

<210> 171
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 171

Gly Asn Pro Tyr Ala Val Arg Asp Lys Cys Leu Lys Phe Tyr Ser
1   5   10   15

<210> 172
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> HPV epitope

<400> 172

Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His
1   5   10   15

<210> 173
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> self-cleaving peptide

<400> 173

Asp Val Glu Ser Asn Pro Gly Pro
1   5