SEQUENCE LISTING

<110> Vaccibody AS

<120> Individualized therapeutic anticancer vaccine

<130> P5629PC00

<160> 249

<170> PatentIn version 3.5

<210> 1
<211> 93
<212> PRT
<213> Homo sapiens

<400> 1

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
85 90

<210> 2
<211> 242
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(242)
<223> vaccibody sequence

<400> 2

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
```

<210> 3
<211> 5
<212> PRT
<213> Artificial

<220>
<223> Linker

<220>
<221> MISC_FEATURE
<222> (1)..(5)
<223> Linker

<400> 3

Gly Leu Ser Gly Leu
1 5

<210> 4
<211> 5
<212> PRT
<213> Artificial

<220>
<223> Linker

<220>
<221> MISC_FEATURE
<222> (1)..(5)
<223> Linker

<400> 4

Gly Leu Gly Gly Leu
1 5

<210> 5
<211> 12
<212> PRT
<213> Homo sapiens

<400> 5

Glu Leu Lys Thr Pro Leu Gly Asp Thr Thr His Thr
1 5 10

<210> 6
<211> 15
<212> PRT
<213> Homo sapiens

<400> 6

Glu Pro Lys Ser Cys Asp Thr Pro Pro Pro Cys Pro Arg Cys Pro
1 5 10 15

<210> 7
<211> 10
<212> PRT
<213> Artificial

<220>
<223> Linker

<400> 7

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

<210> 8
<211> 107
<212> PRT
<213> Homo sapiens

<400> 8

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

Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe
            20                  25                  30

Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Ser Gly Gln Pro Glu
        35                  40                  45

Asn Asn Tyr Asn Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser Phe
    50                  55                  60

Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly
65                  70                  75                  80

Asn Ile Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn Arg Phe
                85                  90                  95

Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
            100                 105
```

<210> 9
<211> 19
<212> PRT
<213> Homo sapiens

<400> 9

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

Val Gln Cys
```

<210> 10
<211> 22
<212> PRT
<213> Homo sapiens

<400> 10

```
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> 11
<211> 151
<212> PRT
<213> Herpes simplex virus 16

<400> 11

```
Met Phe Gln Asp Pro Gln Glu Arg Pro Arg Lys Leu Pro Gln Leu Cys
1               5                   10                  15
```

```
Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr
            20                  25                  30

Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Arg Arg
        35                  40                  45

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

Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys
65                  70                  75                  80

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

Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro
            100                 105                 110

Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile
        115                 120                 125

Arg Gly Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg
    130                 135                 140

Thr Arg Arg Glu Thr Gln Leu
145                 150
```

<210> 12
<211> 98
<212> PRT
<213> Herpes simplex virus 16

<400> 12

```
Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln
1               5                   10                  15

Pro Glu Thr Thr Asp Leu Tyr Gly Tyr Gly Gln Leu Asn Asp Ser Ser
            20                  25                  30

Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu Pro Asp
        35                  40                  45

Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp Ser Thr
    50                  55                  60

Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu
65                  70                  75                  80

Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln
                85                  90                  95

Lys Pro
```

<210> 13
<211> 180
<212> PRT
<213> Homo sapiens

<400> 13

Met Gln Ala Glu Gly Arg Gly Thr Gly Gly Ser Thr Gly Asp Ala Asp
1 5 10 15

Gly Pro Gly Gly Pro Gly Ile Pro Asp Gly Pro Gly Gly Asn Ala Gly
20 25 30

Gly Pro Gly Glu Ala Gly Ala Thr Gly Gly Arg Gly Pro Arg Gly Ala
35 40 45

Gly Ala Ala Arg Ala Ser Gly Pro Gly Gly Gly Ala Pro Arg Gly Pro
50 55 60

His Gly Gly Ala Ala Ser Gly Leu Asn Gly Cys Cys Arg Cys Gly Ala
65 70 75 80

Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe Tyr Leu Ala Met Pro Phe
85 90 95

Ala Thr Pro Met Glu Ala Glu Leu Ala Arg Arg Ser Leu Ala Gln Asp
100 105 110

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

Ser Gly Asn Ile Leu Thr Ile Arg Leu Thr Ala Ala Asp His Arg Gln
130 135 140

Leu Gln Leu Ser Ile Ser Ser Cys Leu Gln Gln Leu Ser Leu Leu Met
145 150 155 160

Trp Ile Thr Gln Cys Phe Leu Pro Val Phe Leu Ala Gln Pro Pro Ser
165 170 175

Gly Gln Arg Arg
180

<210> 14
<211> 302
<212> PRT
<213> Artificial

<220>
<223> Antigenic unit

<220>
<221> MISC_FEATURE
<222> (1)..(302)

<223> Antigenic unit

<400> 14

```
Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met
1               5                  10                  15

Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln Lys Pro Gly Gly
            20                  25                  30

Gly Gly Ser Gly Gly Gly Gly Ser Ala Arg Gly Pro Glu Ser Arg Leu
        35                  40                  45

Leu Glu Phe Tyr Leu Ala Met Pro Phe Ala Thr Pro Met Glu Ala Glu
    50                  55                  60

Leu Ala Arg Arg Ser Leu Ala Gln Asp Ala Pro Pro Leu Pro Val Pro
65                  70                  75                  80

Gly Val Leu Leu Lys Glu Phe Thr Val Ser Gly Asn Ile Leu Thr Ile
                85                  90                  95

Arg Leu Thr Ala Ala Asp His Arg Gln Leu Gln Leu Ser Ile Ser Ser
            100                 105                 110

Cys Leu Gln Gln Leu Ser Leu Leu Met Trp Ile Thr Gln Cys Phe Leu
        115                 120                 125

Pro Val Phe Leu Ala Gln Pro Pro Ser Gly Gln Arg Arg Ser Gly Gly
    130                 135                 140

Gly Gly Ser Gly Gly Gly Gly Met Phe Gln Asp Pro Gln Glu Arg Pro
145                 150                 155                 160

Arg Lys Leu Pro Gln Leu Cys Thr Glu Leu Gln Thr Thr Ile His Asp
                165                 170                 175

Ile Ile Leu Glu Cys Val Tyr Cys Lys Gln Gln Leu Leu Arg Arg Glu
            180                 185                 190

Val Tyr Asp Phe Ala Arg Arg Asp Leu Cys Ile Val Tyr Arg Asp Gly
        195                 200                 205

Asn Pro Tyr Ala Val Arg Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile
    210                 215                 220

Ser Glu Tyr Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu
225                 230                 235                 240

Gln Gln Tyr Asn Lys Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn
                245                 250                 255

Arg Gln Lys Pro Leu Cys Pro Glu Glu Lys Gln Arg His Leu Asp Lys
```

```
            260                 265                 270

Lys Gln Arg Phe His Asn Ile Arg Gly Arg Trp Thr Gly Arg Cys Met
        275                 280                 285

Ser Cys Cys Arg Ser Ser Arg Thr Arg Arg Glu Thr Gln Leu
    290                 295                 300


<210>  15
<211>  924
<212>  PRT
<213>  Artificial

<220>
<223>  Antigenic unit


<220>
<221>  MISC_FEATURE
<222>  (1)..(924)
<223>  antigenic unit

<400>  15

His Asn Glu Gly Asp Asp Gln Gln Gly Ser Arg Tyr Ser Leu Ile Pro
1               5                   10                  15

Gln Ile Gln Lys Val Cys Glu Val Val Asp Gly Gly Ser Ser Gly Gly
            20                  25                  30

Gly Ser Ser Gly Gly Ser Glu Gln Glu Arg Met Lys Ser Ser Leu Leu
        35                  40                  45

Lys Glu His Met Leu Arg Lys Gln Ala Glu Leu Glu Ser Ala Gln Cys
    50                  55                  60

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Glu Leu Arg Glu Asn Leu
65                  70                  75                  80

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

Leu Asp Leu Gly Asn Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln
            100                 105                 110

Glu Val Phe Ser Ser Tyr Lys Phe Asn His Leu Val Arg Arg Leu Val
        115                 120                 125

Leu Gln Arg Glu Lys His Phe His Tyr Leu Ser Gly Gly Gly Gly Ser
    130                 135                 140

Gly Gly Gly Gly Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu
145                 150                 155                 160

Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln
                165                 170                 175
```

```
Lys Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ile Glu Lys Asn
            180                 185                 190

Ala Asp Leu Cys Tyr Leu Ser Thr Val His Trp Ser Leu Ile Leu Asp
        195                 200                 205

Ala Val Ser Asn Asn Tyr Ile Gly Gly Gly Gly Ser Gly Gly Gly Gly
    210                 215                 220

Ser Leu Ala Thr Ala Gly Glu Pro Tyr His Asp Ile Arg Phe Lys Leu
225                 230                 235                 240

Met Ala Val Val Pro Asp Arg Arg Ile Lys Tyr Glu Gly Gly Gly Gly
                245                 250                 255

Ser Gly Gly Gly Gly Ser Ala Arg Gly Pro Glu Ser Arg Leu Leu Glu
            260                 265                 270

Phe Tyr Leu Ala Met Pro Phe Ala Thr Pro Met Glu Ala Glu Leu Ala
        275                 280                 285

Arg Arg Ser Leu Ala Gln Asp Ala Pro Pro Leu Pro Val Pro Gly Val
    290                 295                 300

Leu Leu Lys Glu Phe Thr Val Ser Gly Asn Ile Leu Thr Ile Arg Leu
305                 310                 315                 320

Thr Ala Ala Asp His Arg Gln Leu Gln Leu Ser Ile Ser Ser Cys Leu
                325                 330                 335

Gln Gln Leu Ser Leu Leu Met Trp Ile Thr Gln Cys Phe Leu Pro Val
            340                 345                 350

Phe Leu Ala Gln Pro Pro Ser Gly Gln Arg Arg Ser Gly Gly Gly Gly
        355                 360                 365

Ser Gly Gly Gly Gly Met Leu Arg Leu Pro Thr Val Phe Arg Gln Ile
    370                 375                 380

Arg Pro Val Ser Arg Val Leu Ala Pro His Leu Thr Arg Ser Gly Gly
385                 390                 395                 400

Gly Gly Ser Gly Gly Gly Gly Ile Gln Ile Met Glu Asn Pro Phe Val
                405                 410                 415

Gln Ser Met Leu Trp Asn Pro Asp Leu Met Arg Gln Leu Ile Met Ala
            420                 425                 430

Asn Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Leu Leu Arg Phe
        435                 440                 445
```

```
Leu Phe Leu Gly Leu Ser Ala Leu Ala Leu Pro Ser Arg Ala Gln Leu
    450                 455                 460

Gln Leu His Leu Pro Ala Asn Gly Gly Gly Gly Ser Gly Gly Gly Gly
465                 470                 475                 480

Ser Met Gly Lys Asn Pro Val Arg Pro Pro Arg Ala Phe Pro Pro Val
                485                 490                 495

Pro Ser Ile Asp Asp Ile Pro Leu Ser Arg Gly Ser Gly Gly Gly Gly
            500                 505                 510

Ser Gly Gly Gly Gly His Val Asp Phe Thr Ile Glu Val Glu Arg Ala
        515                 520                 525

Leu Thr Val Leu Asp Gly Ala Val Leu Val Leu Cys Ala Val Gly Ser
    530                 535                 540

Ser Gly Gly Gly Ser Ser Gly Gly Gly Glu Tyr Lys Leu Met Tyr Gly
545                 550                 555                 560

Met Leu Phe Ser Ile Arg Leu Phe Val Ser Lys Met Ser Pro Leu Asp
                565                 570                 575

Met Lys Asp Gly Gly Ser Ser Gly Gly Gly Ser Ser Gly Gly Ser Gln
            580                 585                 590

Gly Ala Gly Val Glu Ser Leu Asp Phe Arg Leu Tyr Leu Arg Tyr Glu
        595                 600                 605

Phe Leu Met Leu Gly Ile Gln Pro Val Gly Gly Gly Gly Ser Gly Gly
    610                 615                 620

Gly Gly Ser Ala Ala Lys Thr Leu Val Leu Cys Val Ser Asp Ile Ile
625                 630                 635                 640

Leu Leu Ser Ala Asn Ile Ser Glu Thr Ser Ser Asn Lys Thr Ser Gly
                645                 650                 655

Gly Gly Gly Ser Gly Gly Gly Gly Cys Lys Asp Leu Gln Leu Tyr Leu
            660                 665                 670

Ser Asn Leu Ala Asn His Ile Asp Arg Glu Thr Gly Ile Gly Asp Val
        675                 680                 685

Pro Leu Val Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Lys
    690                 695                 700

His Thr Glu Ala Arg Glu Leu Met Tyr Ser Ala Ala Leu Leu Phe Phe
705                 710                 715                 720
```

```
Ser His Gly Gln Gln Asn Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly
                725                 730                 735

Gly Ser Met Thr Leu Ala Glu Ser Tyr Ala Gln Tyr Val Tyr Asn Leu
            740                 745                 750

Cys Asn Ser Leu Ser Ile Lys Val Glu Glu Ser Ser Gly Gly Gly Gly
        755                 760                 765

Ser Gly Gly Gly Gly Met Phe Gln Asp Pro Gln Glu Arg Pro Arg Lys
    770                 775                 780

Leu Pro Gln Leu Cys Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile
785                 790                 795                 800

Leu Glu Cys Val Tyr Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr
                805                 810                 815

Asp Phe Ala Arg Arg Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro
            820                 825                 830

Tyr Ala Val Arg Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu
        835                 840                 845

Tyr Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln
    850                 855                 860

Tyr Asn Lys Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln
865                 870                 875                 880

Lys Pro Leu Cys Pro Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln
                885                 890                 895

Arg Phe His Asn Ile Arg Gly Arg Trp Thr Gly Arg Cys Met Ser Cys
            900                 905                 910

Cys Arg Ser Ser Arg Thr Arg Arg Glu Thr Gln Leu
        915                 920


<210>  16
<211>  227
<212>  PRT
<213>  Artificial

<220>
<223>  Antigenic unit


<220>
<221>  MISC_FEATURE
<222>  (1)..(227)
<223>  Antigenic unit

<400>  16

Val Arg Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg
```

```
1               5                   10                  15

His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn
            20                  25                  30

Lys Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro
        35                  40                  45

Leu Cys Pro Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe
    50                  55                  60

His Asn Ile Arg Gly Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg
65                  70                  75                  80

Ser Ser Arg Thr Arg Arg Glu Thr Gln Leu Ser Gly Gly Gly Gly Ser
                85                  90                  95

Gly Gly Gly Gly Gly Ala Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe
            100                 105                 110

Tyr Leu Ala Met Pro Phe Ala Thr Pro Met Glu Ala Glu Leu Ala Arg
        115                 120                 125

Arg Ser Leu Ala Gln Asp Ala Pro Pro Leu Pro Val Pro Gly Val Leu
    130                 135                 140

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

Ala Ala Asp His Arg Gln Leu Gln Leu Ser Ile Gly Gly Gly Gly Ser
                165                 170                 175

Gly Gly Gly Gly Ser Ala Gly Gln Ala Glu Pro Asp Arg Ala His Tyr
            180                 185                 190

Asn Ile Val Thr Phe Cys Cys Lys Cys Asp Ser Thr Leu Arg Leu Cys
        195                 200                 205

Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met
    210                 215                 220

Gly Thr Leu
225
```

<210> 17
<211> 850
<212> PRT
<213> Artificial

<220>
<223> Antigenic unit

<220>

<221> MISC_FEATURE
<222> (1)..(850)
<223> Antigenic unit

<400> 17

```
Val Arg Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg
1               5                  10                  15

His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn
            20                  25                  30

Lys Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro
        35                  40                  45

Leu Cys Pro Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe
    50                  55                  60

His Asn Ile Arg Gly Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg
65                  70                  75                  80

Ser Ser Arg Thr Arg Arg Glu Thr Gln Leu Ser Gly Gly Gly Gly Ser
                85                  90                  95

Gly Gly Gly Gly Lys Lys Val Ser Lys Thr Arg His Thr Arg Glu Thr
            100                 105                 110

Val Phe Arg Arg Ala Lys Arg Arg Trp Ala Pro Ile Pro Cys Ser Ser
        115                 120                 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Asn Leu Lys His Glu Asn Ile
    130                 135                 140

Leu Gln Phe Leu Thr Ala Gln Glu Arg Lys Thr Glu Leu Gly Lys Gln
145                 150                 155                 160

Tyr Trp Leu Ile Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Val Gln
                165                 170                 175

Val Phe Gly Leu Tyr Phe Gly Glu Glu Phe His Glu Thr Phe Asp Cys
            180                 185                 190

Pro Ile Lys Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Gln Ala
        195                 200                 205

Ala Ala Ser Gln Ala Gly Gly Ala Arg Gly Tyr Ala Arg Gly Ala Gln
    210                 215                 220

Leu Trp Pro Pro Gly Ser Asp Pro Gly Gly Gly Gly Ser Gly Gly Gly
225                 230                 235                 240

Gly Ser Ser Ile Met Gln Thr Trp Phe Thr Leu Phe Thr Pro Thr Asp
                245                 250                 255
```

```
Ala Thr Ser Ile Val Ala Thr Thr Val Met Ser Asn Ser Ser Gly Gly
            260                 265                 270

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

Arg Ser Glu Ala Leu Leu Pro Asn Ala Gly Pro Arg Ser Ala Glu Ala
    290                 295                 300

Arg Val Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Ala Arg Gly
305                 310                 315                 320

Pro Glu Ser Arg Leu Leu Glu Phe Tyr Leu Ala Met Pro Phe Ala Thr
                325                 330                 335

Pro Met Glu Ala Glu Leu Ala Arg Arg Ser Leu Ala Gln Asp Ala Pro
            340                 345                 350

Pro Leu Pro Val Pro Gly Val Leu Leu Lys Glu Phe Thr Val Ser Gly
        355                 360                 365

Asn Ile Leu Thr Ile Arg Leu Thr Ala Ala Asp His Arg Gln Leu Gln
    370                 375                 380

Leu Ser Ile Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ala Phe
385                 390                 395                 400

Pro Asn Leu Lys Asp Phe Ile Ser Arg Phe Gln Val Met Pro Pro Ser
                405                 410                 415

Ser Phe Leu Phe Asp Ala Pro Cys Ser Gly Gly Gly Gly Ser Gly Gly
            420                 425                 430

Gly Gly Pro Ser Ser Leu Gln Val Lys Pro Glu Thr Pro Ala Ser Glu
        435                 440                 445

Ala Val Ala Val Ala Ala Ala Ala Ala Pro Thr Thr Thr Ser Gly Gly
    450                 455                 460

Gly Gly Ser Gly Gly Gly Gly Arg Phe Phe His Leu Ala Asp Leu Phe
465                 470                 475                 480

Leu Ser Ser Ser Gln Leu Pro Ala Tyr Leu Val Ala Ala Phe Ala Lys
                485                 490                 495

Arg Leu Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Leu Val Phe Leu
            500                 505                 510

Trp Leu His Ser Leu Arg Arg Leu Phe Gly Cys Leu Tyr Val Ser Val
        515                 520                 525
```

```
Phe Ser Asn Val Met Ile His Ser Gly Gly Gly Gly Ser Gly Gly Gly
    530                 535                 540

Gly Trp Glu Asn Ala Ile Ala Ala Leu Phe Arg Arg His Ile Ala Val
545                 550                 555                 560

Ser Trp Leu Ile Arg Ala Thr Leu Ser Glu Ser Glu Gly Gly Gly Gly
                565                 570                 575

Ser Gly Gly Gly Gly Ser Arg Tyr Ile Phe Val Lys Ser Ala Gly Ser
            580                 585                 590

Arg Ile Glu Glu Gly Val Leu Gln Phe Leu Val Leu Leu Val Ala Gly
        595                 600                 605

Arg Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Gln Glu Ile Glu Trp
    610                 615                 620

Leu Pro Phe Arg Cys Ile Lys Cys Leu Lys Leu Ser Phe Ser Thr Ala
625                 630                 635                 640

Glu Leu Leu Cys Met His Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
                645                 650                 655

Leu Val Ala Arg Cys Pro Pro Cys Leu Arg Leu Leu Arg Gln Ala Arg
            660                 665                 670

Asp Phe Gln Ala Ala Arg Tyr Asp Arg His Asp Gly Gly Gly Gly Ser
        675                 680                 685

Gly Gly Gly Gly Ser Ala Leu Gly Thr Pro Glu Asp Leu Asp Ser Tyr
    690                 695                 700

Ile Asp Leu Ser Leu Glu Ser Leu Asn Gln Met Ile Leu Glu Leu Asp
705                 710                 715                 720

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ser Gln Asp Met Leu Ser
                725                 730                 735

Ile Met Glu Lys Leu Glu Phe Leu Asp Phe Ser Tyr Asp Leu Asn Leu
            740                 745                 750

Cys Gly Leu Thr Glu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala
        755                 760                 765

Gly Gln Ala Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys
    770                 775                 780

Cys Lys Cys Asp Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val
785                 790                 795                 800

Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Gly Gly
```

805 810 815

Ser Gly Gly Gly Gly Ser Gly Arg Arg Glu Gln Tyr Ile Pro Asn Glu
820 825 830

Glu Phe Leu His Phe Asp Leu Leu Glu Asp Ser Lys Tyr Arg Lys Ile
835 840 845

Tyr Ser
850

<210> 18
<211> 221
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(221)
<223> Antigenic unit

<400> 18

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

Pro Phe Ala Thr Pro Met Glu Ala Glu Leu Ala Arg Arg Ser Leu Ala
20 25 30

Gln Asp Ala Pro Pro Leu Pro Val Pro Gly Val Leu Leu Lys Glu Phe
35 40 45

Thr Val Ser Gly Asn Ile Leu Thr Ile Arg Leu Thr Ala Ala Asp His
50 55 60

Arg Gln Leu Gln Leu Ser Ile Ser Ser Cys Leu Gln Gln Leu Ser Leu
65 70 75 80

Leu Met Trp Ile Thr Gln Cys Phe Leu Pro Val Phe Gly Gly Gly Gly
85 90 95

Ser Gly Gly Gly Gly Ser Ala Gly Gln Ala Glu Pro Asp Arg Ala His
100 105 110

Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp Ser Thr Leu Arg Leu
115 120 125

Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Ser Gly Gly Gly
130 135 140

Gly Ser Gly Gly Gly Gly Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg
145 150 155 160

```
His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn
                165                 170                 175

Lys Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro
            180                 185                 190

Leu Cys Pro Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe
        195                 200                 205

His Asn Ile Arg Gly Arg Trp Thr Gly Arg Cys Met Ser
    210                 215                 220


<210>  19
<211>  831
<212>  PRT
<213>  Artificial

<220>
<223>  Antigenic unit


<220>
<221>  MISC_FEATURE
<222>  (1)..(831)
<223>  Antigenic unit

<400>  19

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

Glu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Leu Lys Glu Glu Lys
            20                  25                  30

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

Leu Glu Lys Gln Leu Asn Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    50                  55                  60

Gln Arg Gln Lys Thr Ala Gly Lys Ile Phe Arg Ala Glu Val Ser Thr
65                  70                  75                  80

Gly Gln Asp Ala Pro Arg Gln Ala Gln Ala Arg Gly Gly Gly Ser Ser
                85                  90                  95

Gly Gly Gly Ser Ser Ile Leu Arg Pro Ser Thr Val Asn Glu Leu Glu
            100                 105                 110

Ser Gly Glu Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe
        115                 120                 125

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Thr Cys Ile Asn Glu
    130                 135                 140
```

```
Asp Val Glu Ser Leu Arg Lys Met Val Gln Asp Leu Leu Ala Lys Leu
145                 150                 155                 160

Gln Glu Ala Lys Arg Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Leu
                165                 170                 175

Arg Glu Glu Gly Thr Lys Tyr Lys Ser Phe Val Gln Arg Ala Arg Leu
            180                 185                 190

Val Phe Arg Glu Glu Gly Tyr Leu Ala Phe Gly Gly Gly Gly Ser Gly
        195                 200                 205

Gly Gly Gly Ser His Glu Gly Ala Arg Pro Met Arg Ala Ile Phe Leu
    210                 215                 220

Ala Asn Gly Asn Val Phe Thr Thr Gly Phe Ser Arg Met Ser Glu Gly
225                 230                 235                 240

Gly Gly Gly Ser Gly Gly Gly Gly Ser Ile Pro Asp Ala Ala Phe Ile
                245                 250                 255

Gln Ala Ala Arg Arg Lys Cys Glu Leu Ala Arg Ala Gln Asp Asp Tyr
            260                 265                 270

Ile Ser Leu Asp Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Met Glu
        275                 280                 285

Ile Ala Lys Met Arg Ala Gly Arg Arg Leu Trp Val His Leu Ile Glu
    290                 295                 300

Lys Met Phe Gln Pro Lys Asn Ser Lys Gly Gly Gly Gly Ser Gly Gly
305                 310                 315                 320

Gly Gly Ser Met Glu Leu Val Ser Phe Arg Asp Val Ala Ile Glu Phe
                325                 330                 335

Ser Pro Glu Glu Trp Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Thr
            340                 345                 350

Cys Val His Glu Ile Pro Phe His Phe Asp Leu Met Glu Leu Leu Pro
        355                 360                 365

Gln Cys Gln Gln Leu Gln Met Phe Phe Leu Gly Gly Gly Ser Gly Gly
    370                 375                 380

Gly Gly Ser Gly Gly Ala Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe
385                 390                 395                 400

Tyr Leu Ala Met Pro Phe Ala Thr Pro Met Glu Ala Glu Leu Ala Arg
                405                 410                 415
```

```
Arg Ser Leu Ala Gln Asp Ala Pro Pro Leu Pro Val Pro Gly Val Leu
            420                 425                 430

Leu Lys Glu Phe Thr Val Ser Gly Asn Ile Leu Thr Ile Arg Leu Thr
        435                 440                 445

Ala Ala Asp His Arg Gln Leu Gln Leu Ser Ile Ser Ser Cys Leu Gln
    450                 455                 460

Gln Leu Ser Leu Leu Met Trp Ile Thr Gln Cys Phe Leu Pro Val Phe
465                 470                 475                 480

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Val Arg Arg Val Phe Ile
                485                 490                 495

Thr Asp Asp Phe His Asp Met Ile Pro Lys Tyr Leu Asn Phe Val Lys
            500                 505                 510

Gly Val Val Asp Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Asn
        515                 520                 525

Phe His Ala His Arg Glu Lys Ala Pro Ser Leu Phe Cys Ser Arg Ile
    530                 535                 540

Leu Asn Lys Ala Val Tyr Leu Phe Tyr Gly Ser Ser Gly Gly Gly Ser
545                 550                 555                 560

Ser Gly Gly Gly Asp Ala Asn Lys Glu Gly Met Phe Leu Phe Arg Ala
                565                 570                 575

Ala His Lys Leu Arg Gln Phe Leu Lys Met Asn Ser Thr Gly Asp Gly
            580                 585                 590

Gly Gly Gly Ser Gly Gly Gly Gly Ser Leu Leu Ser Leu Gly Trp Ser
        595                 600                 605

Val Asp Val Gly Arg His Ser Gly Trp Thr Gly His Val Ser Thr Ser
    610                 615                 620

Trp Ser Ile Asn Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gly
625                 630                 635                 640

Gln Ala Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys
                645                 650                 655

Lys Cys Asp Ser Thr Leu Arg Leu Cys Val Gln Ser Thr His Val Asp
            660                 665                 670

Ile Arg Thr Leu Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Asn Thr
        675                 680                 685

Ile Phe Ser Leu Arg Lys Asp Leu Arg Gln Gly Lys Ala Arg Arg Leu
```

690 695 700

Arg Cys Met Glu Glu Lys Glu Met Phe Gly Gly Gly Gly Ser Gly Gly
705 710 715 720

Gly Gly Ser Asn His Phe Asn Asp Phe Glu Gly Asp Pro Ala Met Thr
725 730 735

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

Gly Gly Ser Gly Gly Gly Gly Ser Lys Phe Tyr Ser Lys Ile Ser Glu
755 760 765

Tyr Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln
770 775 780

Tyr Asn Lys Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln
785 790 795 800

Lys Pro Leu Cys Pro Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln
805 810 815

Arg Phe His Asn Ile Arg Gly Arg Trp Thr Gly Arg Cys Met Ser
820 825 830

<210> 20
<211> 602
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(602)
<223> Amino acid sequence of VB4097

<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 Lys Ile Tyr Glu Phe Asp Tyr His Leu Tyr Gly Gln Asn Ile
                245                 250                 255

Thr Met Ile Met Thr Ser Val Ser Gly His Leu Leu Ala Gly Gly Gly
            260                 265                 270

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

Val His Gly Val Pro Tyr Phe Arg Leu Glu His Tyr Leu Pro Ala Arg
    290                 295                 300

Val Met Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Ser Leu Phe
305                 310                 315                 320

Gly Ser Ser Arg Val Gln Tyr Val Val Asn Pro Ala Val Lys Ile Val
                325                 330                 335

Phe Leu Asn Ile Asp Pro Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
            340                 345                 350
```

```
Ser Leu Trp Val Tyr Leu Arg Pro Val Pro Arg Pro Ala Thr Ile Tyr
        355                 360                 365

Leu Gln Ile Leu Arg Leu Lys Pro Leu Thr Gly Glu Gly Gly Gly Gly
    370                 375                 380

Ser Gly Gly Gly Gly Ser Thr Leu Ala Phe Leu Val Leu Ser Thr Pro
385                 390                 395                 400

Ala Met Phe Asn Arg Ala Leu Lys Pro Phe Leu Lys Ser Cys His Phe
                405                 410                 415

Gln Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Phe Val Ser Pro Met
            420                 425                 430

Ala His Tyr Val Pro Gly Ile Met Ala Ile Glu Ser Val Val Ala Arg
        435                 440                 445

Phe Gln Phe Ile Val Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    450                 455                 460

Val Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr Leu
465                 470                 475                 480

Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Pro Gly Gly Gly Gly Ser
                485                 490                 495

Gly Gly Gly Gly Ser Glu Val Ile Gln Thr Ser Lys Tyr Tyr Met Arg
            500                 505                 510

Asp Val Ile Ala Ile Glu Ser Ala Trp Leu Leu Glu Leu Ala Pro His
        515                 520                 525

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Thr Leu Ser Ala Met
    530                 535                 540

Ser Asn Pro Arg Ala Met Gln Val Leu Leu Gln Ile Gln Gln Gly Leu
545                 550                 555                 560

Gln Thr Leu Ala Thr Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Lys
                565                 570                 575

Ser Trp Ile His Cys Trp Lys Tyr Leu Ser Val Gln Ser Gln Leu Phe
            580                 585                 590

Arg Gly Ser Ser Leu Leu Phe Arg Arg Val
        595                 600
```

<210> 21
<211> 422
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(422)
<223> Amino acid sequence of VB4100

<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 Gln Ala Glu Gly Arg Gly Thr Gly Gly Ser Thr Gly Asp
245 250 255

Ala Asp Gly Pro Gly Gly Pro Gly Ile Pro Asp Gly Pro Gly Gly Asn
260 265 270

Ala Gly Gly Pro Gly Glu Ala Gly Ala Thr Gly Gly Arg Gly Pro Arg
275 280 285

Gly Ala Gly Ala Ala Arg Ala Ser Gly Pro Gly Gly Gly Ala Pro Arg
290 295 300

Gly Pro His Gly Gly Ala Ala Ser Gly Leu Asn Gly Cys Cys Arg Cys
305 310 315 320

Gly Ala Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe Tyr Leu Ala Met
325 330 335

Pro Phe Ala Thr Pro Met Glu Ala Glu Leu Ala Arg Arg Ser Leu Ala
340 345 350

Gln Asp Ala Pro Pro Leu Pro Val Pro Gly Val Leu Leu Lys Glu Phe
355 360 365

Thr Val Ser Gly Asn Ile Leu Thr Ile Arg Leu Thr Ala Ala Asp His
370 375 380

Arg Gln Leu Gln Leu Ser Ile Ser Ser Cys Leu Gln Gln Leu Ser Leu
385 390 395 400

Leu Met Trp Ile Thr Gln Cys Phe Leu Pro Val Phe Leu Ala Gln Pro
405 410 415

Pro Ser Gly Gln Arg Arg
420

<210> 22
<211> 250
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(250)
<223> Amino acid sequence of VB4101

<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 Arg Gly Pro Glu Ser Arg Leu Leu
                245                 250
```

<210> 23
<211> 288
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(288)
<223> Amino acid sequence of VB4102

<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 Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe Tyr Leu Ala Met
                245                 250                 255

Pro Phe Ala Thr Pro Met Glu Ala Glu Leu Ala Arg Arg Ser Leu Ala
            260                 265                 270

Gln Asp Ala Pro Pro Leu Pro Val Pro Gly Val Leu Leu Lys Glu Phe
        275                 280                 285
```

<210> 24
<211> 792
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(792)
<223> Amino acid sequence of VB4105

<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 Lys Ile Tyr Glu Phe Asp Tyr His Leu Tyr Gly Gln Asn Ile
                245                 250                 255

Thr Met Ile Met Thr Ser Val Ser Gly His Leu Leu Ala Gly Gly Gly
            260                 265                 270

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

Val His Gly Val Pro Tyr Phe Arg Leu Glu His Tyr Leu Pro Ala Arg
    290                 295                 300

Val Met Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Ser Leu Phe
305                 310                 315                 320

Gly Ser Ser Arg Val Gln Tyr Val Val Asn Pro Ala Val Lys Ile Val
                325                 330                 335

Phe Leu Asn Ile Asp Pro Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
            340                 345                 350

Ser Leu Trp Val Tyr Leu Arg Pro Val Pro Arg Pro Ala Thr Ile Tyr
        355                 360                 365

Leu Gln Ile Leu Arg Leu Lys Pro Leu Thr Gly Glu Gly Gly Gly Gly
    370                 375                 380

Ser Gly Gly Gly Gly Ser Thr Leu Ala Phe Leu Val Leu Ser Thr Pro
385                 390                 395                 400

Ala Met Phe Asn Arg Ala Leu Lys Pro Phe Leu Lys Ser Cys His Phe
                405                 410                 415

Gln Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Phe Val Ser Pro Met
            420                 425                 430

Ala His Tyr Val Pro Gly Ile Met Ala Ile Glu Ser Val Val Ala Arg
        435                 440                 445
```

```
Phe Gln Phe Ile Val Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    450                 455                 460

Val Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr Leu
465                 470                 475                 480

Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Pro Gly Gly Gly Gly Ser
                485                 490                 495

Gly Gly Gly Gly Ser Glu Val Ile Gln Thr Ser Lys Tyr Tyr Met Arg
            500                 505                 510

Asp Val Ile Ala Ile Glu Ser Ala Trp Leu Leu Glu Leu Ala Pro His
        515                 520                 525

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Thr Leu Ser Ala Met
    530                 535                 540

Ser Asn Pro Arg Ala Met Gln Val Leu Leu Gln Ile Gln Gln Gly Leu
545                 550                 555                 560

Gln Thr Leu Ala Thr Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Lys
                565                 570                 575

Ser Trp Ile His Cys Trp Lys Tyr Leu Ser Val Gln Ser Gln Leu Phe
            580                 585                 590

Arg Gly Ser Ser Leu Leu Phe Arg Arg Val Gly Gly Gly Gly Ser Gly
        595                 600                 605

Gly Gly Gly Ser Met Gln Ala Glu Gly Arg Gly Thr Gly Gly Ser Thr
    610                 615                 620

Gly Asp Ala Asp Gly Pro Gly Gly Pro Gly Ile Pro Asp Gly Pro Gly
625                 630                 635                 640

Gly Asn Ala Gly Gly Pro Gly Glu Ala Gly Ala Thr Gly Gly Arg Gly
                645                 650                 655

Pro Arg Gly Ala Gly Ala Ala Arg Ala Ser Gly Pro Gly Gly Gly Ala
            660                 665                 670

Pro Arg Gly Pro His Gly Gly Ala Ala Ser Gly Leu Asn Gly Cys Cys
        675                 680                 685

Arg Cys Gly Ala Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe Tyr Leu
    690                 695                 700

Ala Met Pro Phe Ala Thr Pro Met Glu Ala Glu Leu Ala Arg Arg Ser
705                 710                 715                 720
```

Leu Ala Gln Asp Ala Pro Pro Leu Pro Val Pro Gly Val Leu Leu Lys
725 730 735

Glu Phe Thr Val Ser Gly Asn Ile Leu Thr Ile Arg Leu Thr Ala Ala
740 745 750

Asp His Arg Gln Leu Gln Leu Ser Ile Ser Ser Cys Leu Gln Gln Leu
755 760 765

Ser Leu Leu Met Trp Ile Thr Gln Cys Phe Leu Pro Val Phe Leu Ala
770 775 780

Gln Pro Pro Ser Gly Gln Arg Arg
785 790

<210> 25
<211> 237
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(237)
<223> Amino acid sequence of VB1026

<400> 25

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>  26
<211>  602
<212>  PRT
<213>  Artificial

<220>
<223>  Assembly of protein


<220>
<221>  MISC_FEATURE
<222>  (1)..(602)
<223>  Amino acid sequence of VB4118

<400>  26

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 Glu Gly Val Glu Leu Cys Pro Gly Asn Lys Tyr Glu Met
                245                 250                 255

Arg Arg His Gly Thr Thr His Ser Leu Val Ile His Asp Gly Gly Gly
            260                 265                 270

Gly Ser Gly Gly Gly Gly Ser Ser Ser Pro Asp Glu Val Ala Leu Val
        275                 280                 285

Glu Gly Val Gln Ser Leu Gly Phe Thr Tyr Leu Arg Leu Lys Asp Asn
    290                 295                 300

Tyr Met Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Leu Lys Asp Phe
305                 310                 315                 320

Phe Phe Ser Arg Gly Arg Phe Ser Ser Ala Leu Lys Arg Thr Leu Ile
                325                 330                 335

Leu Ser Ser Gly Phe Arg Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly
            340                 345                 350

Ser Lys Asn Ile Leu Ala Val Ser Phe Ala Pro Leu Val Gln Leu Ser
        355                 360                 365

Lys Asn Asp Asn Gly Thr Pro Asp Ser Val Gly Leu Gly Gly Gly Gly
    370                 375                 380
```

```
Ser Gly Gly Gly Gly Ser Leu Glu Ala Val Leu Arg Tyr Leu Glu Thr
385                 390                 395                 400

His Pro Arg Leu Pro Lys Pro Asp Pro Val Lys Ser Ser Ser Ser Val
                405                 410                 415

Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Pro Ala Ala Asp Arg
            420                 425                 430

Trp Glu Pro Arg Ala Pro Met Arg Ala Pro Arg Val Leu His Ala Met
        435                 440                 445

Leu Gly Ala Ala Gly Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    450                 455                 460

Val Leu Ser Ala Asp Leu Val His Tyr Leu Arg Leu Ser Leu Glu Tyr
465                 470                 475                 480

Leu Arg Ala Trp His Ser Glu Asp Val Ser Leu Gly Gly Gly Gly Ser
                485                 490                 495

Gly Gly Gly Gly Ser Tyr Leu Pro Gly Gly Gly Ala Gly His Leu Asp
            500                 505                 510

Gln Asn Val Phe Leu Arg Val Arg Ala Leu Cys Tyr Val Ile Ser Gly
        515                 520                 525

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Pro Ala Thr Ile Glu Met
    530                 535                 540

Ala Ile Glu Thr Leu Gln Lys Phe Asp Gly Leu Ser Thr His Arg Ser
545                 550                 555                 560

Ser Leu Leu Asn Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala
                565                 570                 575

Gly Lys Asp His Lys Ile Lys Gln Trp Asp Ala Asp Thr Phe Glu His
            580                 585                 590

Ile Gln Thr Leu Glu Gly His His Gln Glu
        595                 600
```

<210> 27
<211> 251
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE

<222> (1)..(251)
<223> Amino acid sequence of VB4119

<400> 27

```
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 Ser Val Tyr Asp Phe Phe Val Trp Leu
                245                 250
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<210> 28
<211> 387
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(387)
<223> Amino acid sequence of VB4127

<400> 28

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 Tyr Ile Ser Asp His Met Lys Val His Ser Pro Ser Pro Cys
245 250 255

Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Gly Trp Gln Thr
260 265 270

Cys Trp Gly Arg Ser Arg Lys His Trp Gly Ser Thr Trp Asn Gly Ser
275 280 285

Ala Arg Leu Ser Pro Gly Ser Thr Leu Trp Val Met Arg Ile Cys Leu
290 295 300

Arg Ser Leu Gly Ile Ala Arg Thr Trp Leu Ser Cys Arg Ser Thr Ser
305 310 315 320

Arg Lys Cys Ser Pro Ala Phe Pro Ala Ser Ser Gly Gly Gly Gly Gly
325 330 335

Ser Gly Gly Gly Gly Ser Leu Phe Arg Leu Leu Pro Ser Gly Pro Lys
340 345 350

Val Asn Asp Gly His Arg Ser Arg Arg Trp His Ser Leu Asp Leu Tyr
355 360 365

Pro His Leu Cys Ser His Leu Asp Leu Pro Lys Gln Ser Gln Glu Val
370 375 380

Ile Arg Leu
385

<210> 29
<211> 621
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(621)
<223> Amino acid sequence of VB4121

<400> 29

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

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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 Glu Gly Val Glu Leu Cys Pro Gly Asn Lys Tyr Glu Met
                245                 250                 255

Arg Arg His Gly Thr Thr His Ser Leu Val Ile His Asp Gly Gly Gly
            260                 265                 270

Gly Ser Gly Gly Gly Gly Ser Ser Ser Pro Asp Glu Val Ala Leu Val
        275                 280                 285

Glu Gly Val Gln Ser Leu Gly Phe Thr Tyr Leu Arg Leu Lys Asp Asn
    290                 295                 300
```

```
Tyr Met Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Leu Lys Asp Phe
305                 310                 315                 320

Phe Phe Ser Arg Gly Arg Phe Ser Ser Ala Leu Lys Arg Thr Leu Ile
                325                 330                 335

Leu Ser Ser Gly Phe Arg Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly
            340                 345                 350

Ser Lys Asn Ile Leu Ala Val Ser Phe Ala Pro Leu Val Gln Leu Ser
        355                 360                 365

Lys Asn Asp Asn Gly Thr Pro Asp Ser Val Gly Leu Gly Gly Gly Gly
    370                 375                 380

Ser Gly Gly Gly Gly Ser Leu Glu Ala Val Leu Arg Tyr Leu Glu Thr
385                 390                 395                 400

His Pro Arg Leu Pro Lys Pro Asp Pro Val Lys Ser Ser Ser Ser Val
                405                 410                 415

Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Pro Ala Ala Asp Arg
            420                 425                 430

Trp Glu Pro Arg Ala Pro Met Arg Ala Pro Arg Val Leu His Ala Met
        435                 440                 445

Leu Gly Ala Ala Gly Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
    450                 455                 460

Val Leu Ser Ala Asp Leu Val His Tyr Leu Arg Leu Ser Leu Glu Tyr
465                 470                 475                 480

Leu Arg Ala Trp His Ser Glu Asp Val Ser Leu Gly Gly Gly Gly Ser
                485                 490                 495

Gly Gly Gly Gly Ser Tyr Leu Pro Gly Gly Gly Ala Gly His Leu Asp
            500                 505                 510

Gln Asn Val Phe Leu Arg Val Arg Ala Leu Cys Tyr Val Ile Ser Gly
        515                 520                 525

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Pro Ala Thr Ile Glu Met
    530                 535                 540

Ala Ile Glu Thr Leu Gln Lys Phe Asp Gly Leu Ser Thr His Arg Ser
545                 550                 555                 560

Ser Leu Leu Asn Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala
                565                 570                 575
```

Gly Lys Asp His Lys Ile Lys Gln Trp Asp Ala Asp Thr Phe Glu His
580 585 590

Ile Gln Thr Leu Glu Gly His His Gln Glu Gly Gly Gly Gly Ser Gly
595 600 605

Gly Gly Gly Ser Ser Val Tyr Asp Phe Phe Val Trp Leu
610 615 620

<210> 30
<211> 757
<212> PRT
<213> Artificial

<220>
<223> Assembly of protein

<220>
<221> MISC_FEATURE
<222> (1)..(757)
<223> Amino acid sequence of VB4128

<400> 30

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

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                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 Tyr Ile Ser Asp His Met Lys Val His Ser Pro Ser Pro Cys
                245                 250                 255

Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Gly Trp Gln Thr
            260                 265                 270

Cys Trp Gly Arg Ser Arg Lys His Trp Gly Ser Thr Trp Asn Gly Ser
        275                 280                 285

Ala Arg Leu Ser Pro Gly Ser Thr Leu Trp Val Met Arg Ile Cys Leu
    290                 295                 300

Arg Ser Leu Gly Ile Ala Arg Thr Trp Leu Ser Cys Arg Ser Thr Ser
305                 310                 315                 320

Arg Lys Cys Ser Pro Ala Phe Pro Ala Ser Ser Gly Gly Gly Gly Gly
                325                 330                 335

Ser Gly Gly Gly Gly Ser Leu Phe Arg Leu Leu Pro Ser Gly Pro Lys
            340                 345                 350

Val Asn Asp Gly His Arg Ser Arg Arg Trp His Ser Leu Asp Leu Tyr
        355                 360                 365

Pro His Leu Cys Ser His Leu Asp Leu Pro Lys Gln Ser Gln Glu Val
    370                 375                 380

Ile Arg Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Arg Glu Gly
385                 390                 395                 400

Val Glu Leu Cys Pro Gly Asn Lys Tyr Glu Met Arg Arg His Gly Thr
                405                 410                 415

Thr His Ser Leu Val Ile His Asp Gly Gly Gly Gly Ser Gly Gly Gly
            420                 425                 430

Gly Ser Ser Ser Pro Asp Glu Val Ala Leu Val Glu Gly Val Gln Ser
        435                 440                 445
```

```
Leu Gly Phe Thr Tyr Leu Arg Leu Lys Asp Asn Tyr Met Gly Gly Gly
    450                 455                 460

Gly Ser Gly Gly Gly Gly Ser Leu Lys Asp Phe Phe Phe Ser Arg Gly
465                 470                 475                 480

Arg Phe Ser Ser Ala Leu Lys Arg Thr Leu Ile Leu Ser Ser Gly Phe
                485                 490                 495

Arg Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Lys Asn Ile Leu
            500                 505                 510

Ala Val Ser Phe Ala Pro Leu Val Gln Leu Ser Lys Asn Asp Asn Gly
        515                 520                 525

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

Ser Leu Glu Ala Val Leu Arg Tyr Leu Glu Thr His Pro Arg Leu Pro
545                 550                 555                 560

Lys Pro Asp Pro Val Lys Ser Ser Ser Ser Val Leu Gly Gly Gly Gly
                565                 570                 575

Ser Gly Gly Gly Gly Ser Pro Ala Ala Asp Arg Trp Glu Pro Arg Ala
            580                 585                 590

Pro Met Arg Ala Pro Arg Val Leu His Ala Met Leu Gly Ala Ala Gly
        595                 600                 605

Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Val Leu Ser Ala Asp
    610                 615                 620

Leu Val His Tyr Leu Arg Leu Ser Leu Glu Tyr Leu Arg Ala Trp His
625                 630                 635                 640

Ser Glu Asp Val Ser Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
                645                 650                 655

Tyr Leu Pro Gly Gly Gly Ala Gly His Leu Asp Gln Asn Val Phe Leu
            660                 665                 670

Arg Val Arg Ala Leu Cys Tyr Val Ile Ser Gly Gly Gly Gly Gly Ser
        675                 680                 685

Gly Gly Gly Gly Ser Pro Ala Thr Ile Glu Met Ala Ile Glu Thr Leu
    690                 695                 700

Gln Lys Phe Asp Gly Leu Ser Thr His Arg Ser Ser Leu Leu Asn Ser
705                 710                 715                 720
```

```
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gly Lys Asp His Lys
                725                 730                 735


Ile Lys Gln Trp Asp Ala Asp Thr Phe Glu His Ile Gln Thr Leu Glu
            740                 745                 750


Gly His His Gln Glu
        755


<210>  31
<211>  786
<212>  PRT
<213>  Artificial

<220>
<223>  Assembly of protein


<220>
<221>  MISC_FEATURE
<222>  (1)..(786)
<223>  Amino acid sequence of VB4130

<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
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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 Tyr Ile Ser Asp His Met Lys Val His Ser Pro Ser Pro Cys
                245                 250                 255

Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Gly Trp Gln Thr
            260                 265                 270

Cys Trp Gly Arg Ser Arg Lys His Trp Gly Ser Thr Trp Asn Gly Ser
        275                 280                 285

Ala Arg Leu Ser Pro Gly Ser Thr Leu Trp Val Met Arg Ile Cys Leu
    290                 295                 300

Arg Ser Leu Gly Ile Ala Arg Thr Trp Leu Ser Cys Arg Ser Thr Ser
305                 310                 315                 320

Arg Lys Cys Ser Pro Ala Phe Pro Ala Ser Ser Gly Gly Gly Gly Gly
                325                 330                 335

Ser Gly Gly Gly Gly Ser Leu Phe Arg Leu Leu Pro Ser Gly Pro Lys
            340                 345                 350

Val Asn Asp Gly His Arg Ser Arg Arg Trp His Ser Leu Asp Leu Tyr
        355                 360                 365

Pro His Leu Cys Ser His Leu Asp Leu Pro Lys Gln Ser Gln Glu Val
    370                 375                 380

Ile Arg Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Arg Glu Gly
385                 390                 395                 400

Val Glu Leu Cys Pro Gly Asn Lys Tyr Glu Met Arg Arg His Gly Thr
                405                 410                 415

Thr His Ser Leu Val Ile His Asp Gly Gly Gly Gly Ser Gly Gly Gly
            420                 425                 430

Gly Ser Ser Ser Pro Asp Glu Val Ala Leu Val Glu Gly Val Gln Ser
```

```
        435                 440                 445

Leu Gly Phe Thr Tyr Leu Arg Leu Lys Asp Asn Tyr Met Gly Gly Gly
    450                 455                 460

Gly Ser Gly Gly Gly Gly Ser Leu Lys Asp Phe Phe Phe Ser Arg Gly
465                 470                 475                 480

Arg Phe Ser Ser Ala Leu Lys Arg Thr Leu Ile Leu Ser Ser Gly Phe
                485                 490                 495

Arg Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Lys Asn Ile Leu
            500                 505                 510

Ala Val Ser Phe Ala Pro Leu Val Gln Leu Ser Lys Asn Asp Asn Gly
        515                 520                 525

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

Ser Leu Glu Ala Val Leu Arg Tyr Leu Glu Thr His Pro Arg Leu Pro
545                 550                 555                 560

Lys Pro Asp Pro Val Lys Ser Ser Ser Ser Val Leu Gly Gly Gly Gly
                565                 570                 575

Ser Gly Gly Gly Gly Ser Pro Ala Ala Asp Arg Trp Glu Pro Arg Ala
            580                 585                 590

Pro Met Arg Ala Pro Arg Val Leu His Ala Met Leu Gly Ala Ala Gly
        595                 600                 605

Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Val Leu Ser Ala Asp
    610                 615                 620

Leu Val His Tyr Leu Arg Leu Ser Leu Glu Tyr Leu Arg Ala Trp His
625                 630                 635                 640

Ser Glu Asp Val Ser Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
                645                 650                 655

Tyr Leu Pro Gly Gly Gly Ala Gly His Leu Asp Gln Asn Val Phe Leu
            660                 665                 670

Arg Val Arg Ala Leu Cys Tyr Val Ile Ser Gly Gly Gly Gly Gly Ser
        675                 680                 685

Gly Gly Gly Gly Ser Pro Ala Thr Ile Glu Met Ala Ile Glu Thr Leu
    690                 695                 700

Gln Lys Phe Asp Gly Leu Ser Thr His Arg Ser Ser Leu Leu Asn Ser
705                 710                 715                 720
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Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Gly Lys Asp His Lys
                725   730   735

Ile Lys Gln Trp Asp Ala Asp Thr Phe Glu His Ile Gln Thr Leu Glu
            740   745   750

Gly His His Gln Glu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ser
        755   760   765

Val Tyr Asp Phe Phe Val Trp Leu Gly Gly Gly Gly Ser Gly Gly Gly
    770   775   780

Gly Ser
785

<210> 32
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 32

Gln Glu Arg Pro Arg Lys Leu Pro Gln
1   5

<210> 33
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 33

Arg Pro Arg Lys Leu Pro Gln Leu Cys
1   5

<210> 34
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 34

Ile His Asp Ile Ile Leu Glu Cys Val
1 5

<210> 35
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 35

His Asp Ile Ile Leu Glu Cys Val Tyr
1 5

<210> 36
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 36

Ile Ile Leu Glu Cys Val Tyr Cys Lys
1 5

<210> 37
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 37

Gln Gln Leu Leu Arg Arg Glu Val Tyr
1 5

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

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 38

Val Tyr Asp Phe Ala Arg Arg Asp Leu
1 5

<210> 39
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 39

Tyr Asp Phe Ala Arg Arg Asp Leu Cys
1 5

<210> 40
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 40

Asp Phe Ala Arg Arg Asp Leu Cys Ile
1 5

<210> 41
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 41

Phe Ala Arg Arg Asp Leu Cys Ile Val
1 5

<210> 42
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 42

Tyr Ala Val Arg Asp Lys Cys Leu Lys
1 5

<210> 43
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 43

Val Arg Asp Lys Cys Leu Lys Phe Tyr
1 5

<210> 44
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 44

Tyr Ser Leu Tyr Gly Thr Thr Leu Glu
1 5

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

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 45

Phe His Asn Ile Arg Gly Arg Trp Thr
1 5

<210> 46
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 46

Arg Trp Thr Gly Arg Cys Met Ser Cys
1 5

<210> 47
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(9)
<223> Epitope

<400> 47

Ser Arg Thr Arg Arg Glu Thr Gln Leu
1 5

<210> 48
<211> 15
<212> PRT

<213> Artificial

<220>
<223> Epitope for binding

<400> 48

Cys Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys
1 5 10 15

<210> 49
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 49

Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val
1 5 10 15

<210> 50
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 50

Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr
1 5 10 15

<210> 51
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 51

Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr Cys
1 5 10 15

<210> 52
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 52

Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr Cys Lys
1 5 10 15

<210> 53
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 53

Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Arg Arg
1 5 10 15

<210> 54
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 54

Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg
1 5 10 15

<210> 55
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<400> 55

Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp
1 5 10 15

<210> 56
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 56

Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp Lys
1 5 10 15

<210> 57
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 57

His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr
1 5 10 15

<210> 58
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 58

Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro
1 5 10 15

<210> 59
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope for binding

<220>
<221> MISC_FEATURE
<222> (1)..(15)
<223> Epitope

<400> 59

Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu
1 5 10 15

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Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys
1 5 10 15

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Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro
1 5 10 15

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<400> 62

Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro Glu
1 5 10 15

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<400> 63

Lys Lys Gln Arg Phe His Asn Ile Arg Gly Arg Trp Thr Gly Arg
1 5 10 15

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<400> 64

Thr Leu His Glu Tyr Met Leu Asp Leu
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Leu Tyr Gly Tyr Gly Gln Leu Asn Asp
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Ile Asp Gly Pro Ala Gly Gln Ala Glu
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Asp Arg Ala His Tyr Asn Ile Val Thr
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<400> 68

Val Thr Phe Cys Cys Lys Cys Asp Ser
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Arg Leu Cys Val Gln Ser Thr His Val

1 5

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Thr His Val Asp Ile Arg Thr Leu Glu
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His Val Asp Ile Arg Thr Leu Glu Asp
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Gly Thr Leu Gly Ile Val Cys Pro Ile
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<400> 73

Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu
1 5 10 15

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Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr
1 5 10 15

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Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr
1 5 10 15

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Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr Asp
1 5 10 15

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Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr Asp Leu
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His Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr Asp Leu Tyr
1 5 10 15

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Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr Asp Leu Tyr Gly
1 5 10 15

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Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met
1 5 10 15

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<400> 81

Ser Thr His Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly
1 5 10 15

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Thr His Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly Thr
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His Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly Thr Leu
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Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly Thr Leu Gly
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Cys Thr Glu Leu Gln Thr Thr Ile His
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<400> 86

Val Tyr Asp Phe Ala Arg Arg Asp Leu
1 5

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<400> 87

Phe Ala Arg Arg Asp Leu Cys Ile Val
1 5

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<400> 88

Ile Val Tyr Arg Asp Gly Asn Pro Tyr
1 5

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<400> 89

Tyr Arg Asp Gly Asn Pro Tyr Ala Val
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<400> 90

Lys Phe Tyr Ser Lys Ile Ser Glu Tyr
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Ile Ser Glu Tyr Arg His Tyr Cys Tyr
1 5

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Glu Tyr Arg His Tyr Cys Tyr Ser Leu
1 5

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<400> 93

Cys Tyr Ser Leu Tyr Gly Thr Thr Leu
1 5

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Tyr Gly Thr Thr Leu Glu Gln Gln Tyr
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<400> 95

Leu Glu Gln Gln Tyr Asn Lys Pro Leu
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Gln Tyr Asn Lys Pro Leu Cys Asp Leu
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Arg His Leu Asp Lys Lys Gln Arg Phe

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Arg Phe His Asn Ile Arg Gly Arg Trp
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Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr
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Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg
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Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp
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Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Arg Asp Lys
1 5 10 15

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Ser Glu Tyr Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu
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Glu Tyr Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu
1 5 10 15

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Tyr Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln
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Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln
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His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr
1 5 10 15

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<400> 108

Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu
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Cys Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys
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Asp Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro
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Leu Leu Ile Arg Cys Ile Asn Arg Gln Lys Pro Leu Cys Pro Glu
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Lys Lys Gln Arg Phe His Asn Ile Arg Gly Arg Trp Thr Gly Arg
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Gly Asp Thr Pro Thr Leu His Glu Tyr
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Thr Leu His Glu Tyr Met Leu Asp Leu
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His Glu Tyr Met Leu Asp Leu Gln Pro
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Leu Gln Pro Glu Thr Thr Asp Leu Tyr
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<400> 117

Thr Thr Asp Leu Tyr Gly Tyr Gly Gln
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Thr Asp Leu Tyr Gly Tyr Gly Gln Leu

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Gln Ala Glu Pro Asp Arg Ala His Tyr
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<400> 120

Arg Ala His Tyr Asn Ile Val Thr Phe
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Ser Thr His Val Asp Ile Arg Thr Leu
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Leu Glu Asp Leu Leu Met Gly Thr Leu
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Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro
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Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu
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Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr
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Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr
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Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr Asp
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Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr Asp Leu
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Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met
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Ser Thr His Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly
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Val Asp Ile Arg Thr Leu Glu Asp Leu Leu Met Gly Thr Leu Gly
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His Asn Glu Gly Asp Asp Gln Gln Gly Ser Arg Tyr Ser Leu Ile Pro
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Gln Ile Gln Lys Val Cys Glu Val Val Asp Gly
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Ser Glu Gln Glu Arg Met Lys Ser Ser Leu Leu Lys Glu His Met Leu
1 5 10 15

Arg Lys Gln Ala Glu Leu Glu Ser Ala Gln Cys
20 25

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Glu Leu Arg Glu Asn Leu Leu Thr Tyr Leu Pro Asp Ser Val Thr Gln
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Leu Arg Arg Leu Glu Glu Leu Asp Leu Gly Asn
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Gln Glu Val Phe Ser Ser Tyr Lys Phe Asn His Leu Val Arg Arg Leu
1 5 10 15

Val Leu Gln Arg Glu Lys His Phe His Tyr Leu
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<400> 138

Ile Glu Lys Asn Ala Asp Leu Cys Tyr Leu Ser Thr Val His Trp Ser
1 5 10 15

Leu Ile Leu Asp Ala Val Ser Asn Asn Tyr Ile

20 25

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<400> 139

Leu Ala Thr Ala Gly Glu Pro Tyr His Asp Ile Arg Phe Lys Leu Met
1 5 10 15

Ala Val Val Pro Asp Arg Arg Ile Lys Tyr Glu
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<400> 140

Met Leu Arg Leu Pro Thr Val Phe Arg Gln Ile Arg Pro Val Ser Arg
1 5 10 15

Val Leu Ala Pro His Leu Thr Arg
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Ile Gln Ile Met Glu Asn Pro Phe Val Gln Ser Met Leu Trp Asn Pro
1 5 10 15

Asp Leu Met Arg Gln Leu Ile Met Ala Asn Pro
20 25

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Leu Leu Arg Phe Leu Phe Leu Gly Leu Ser Ala Leu Ala Leu Pro Ser
1 5 10 15

Arg Ala Gln Leu Gln Leu His Leu Pro Ala Asn
20 25

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<400> 143

Met Gly Lys Asn Pro Val Arg Pro Pro Arg Ala Phe Pro Pro Val Pro
1 5 10 15

Ser Ile Asp Asp Ile Pro Leu Ser Arg
20 25

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

Asp Gly Ala Val Leu Val Leu Cys Ala Val Gly
20 25

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

Ser Lys Met Ser Pro Leu Asp Met Lys Asp Gly
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Ser Gln Gly Ala Gly Val Glu Ser Leu Asp Phe Arg Leu Tyr Leu Arg
1 5 10 15

Tyr Glu Phe Leu Met Leu Gly Ile Gln Pro Val
20 25

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<400> 147

Ala Ala Lys Thr Leu Val Leu Cys Val Ser Asp Ile Ile Leu Leu Ser
1 5 10 15

Ala Asn Ile Ser Glu Thr Ser Ser Asn Lys Thr
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Cys Lys Asp Leu Gln Leu Tyr Leu Ser Asn Leu Ala Asn His Ile Asp
1 5 10 15

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

Leu Phe Phe Ser His Gly Gln Gln Asn Ser Ala
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<400> 150

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

Ser Leu Ser Ile Lys Val Glu Glu Ser
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<400> 151

Lys Lys Val Ser Lys Thr Arg His Thr Arg Glu Thr Val Phe Arg Arg
1 5 10 15

Ala Lys Arg Arg Trp Ala Pro Ile Pro Cys Ser
20 25

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Asn Leu Lys His Glu Asn Ile Leu Gln Phe Leu Thr Ala Gln Glu Arg
1 5 10 15

Lys Thr Glu Leu Gly Lys Gln Tyr Trp Leu Ile
20 25

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

Asp Cys Pro Ile Lys
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<400> 154

Gly Gln Ala Ala Ala Ser Gln Ala Gly Gly Ala Arg Gly Tyr Ala Arg
1 5 10 15

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

Ser Ile Val Ala Thr Thr Val Met Ser Asn Ser
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<400> 156

Gln Glu Asn Val Arg Phe Val Leu Val Arg Ser Glu Ala Leu Leu Pro
1 5 10 15

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

Pro Pro Ser Ser Phe Leu Phe Asp Ala Pro Cys
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Pro Ser Ser Leu Gln Val Lys Pro Glu Thr Pro Ala Ser Glu Ala Val
1 5 10 15

Ala Val Ala Ala Ala Ala Ala Pro Thr Thr Thr
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Arg Phe Phe His Leu Ala Asp Leu Phe Leu Ser Ser Ser Gln Leu Pro
1 5 10 15

Ala Tyr Leu Val Ala Ala Phe Ala Lys Arg Leu
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Leu Val Phe Leu Trp Leu His Ser Leu Arg Arg Leu Phe Gly Cys Leu
1 5 10 15

Tyr Val Ser Val Phe Ser Asn Val Met Ile His
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<400> 161

Trp Glu Asn Ala Ile Ala Ala Leu Phe Arg Arg His Ile Ala Val Ser
1 5 10 15

Trp Leu Ile Arg Ala Thr Leu Ser Glu Ser Glu

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Arg Tyr Ile Phe Val Lys Ser Ala Gly Ser Arg Ile Glu Glu Gly Val
1 5 10 15

Leu Gln Phe Leu Val Leu Leu Val Ala Gly Arg
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<400> 163

Gln Glu Ile Glu Trp Leu Pro Phe Arg Cys Ile Lys Cys Leu Lys Leu
1 5 10 15

Ser Phe Ser Thr Ala Glu Leu Leu Cys Met His
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<400> 164

Leu Val Ala Arg Cys Pro Pro Cys Leu Arg Leu Leu Arg Gln Ala Arg
1 5 10 15

Asp Phe Gln Ala Ala Arg Tyr Asp Arg His Asp
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<400> 165

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

Glu Ser Leu Asn Gln Met Ile Leu Glu Leu Asp
20 25

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<400> 166

Ser Gln Asp Met Leu Ser Ile Met Glu Lys Leu Glu Phe Leu Asp Phe
1 5 10 15

Ser Tyr Asp Leu Asn Leu Cys Gly Leu Thr Glu
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<400> 167

Arg Arg Glu Gln Tyr Ile Pro Asn Glu Glu Phe Leu His Phe Asp Leu
1 5 10 15

Leu Glu Asp Ser Lys Tyr Arg Lys Ile Tyr Ser
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<400> 168

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

Glu

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Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Thr His Gln Thr
1 5 10 15

Tyr Ile Ile Gln Glu Leu Glu Lys Gln Leu Asn
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Gln Arg Gln Lys Thr Ala Gly Lys Ile Phe Arg Ala Glu Val Ser Thr
1 5 10 15

Gly Gln Asp Ala Pro Arg Gln Ala Gln Ala Arg
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<400> 171

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

Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe
20 25

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Asp Thr Cys Ile Asn Glu Asp Val Glu Ser Leu Arg Lys Met Val Gln
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Asp Leu Leu Ala Lys Leu Gln Glu Ala Lys Arg
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<400> 173

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

Leu Val Phe Arg Glu Glu Gly Tyr Leu Ala Phe
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His Glu Gly Ala Arg Pro Met Arg Ala Ile Phe Leu Ala Asn Gly Asn
1 5 10 15

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

Ala Arg Ala Gln Asp Asp Tyr Ile Ser Leu Asp
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<400> 176

Met Glu Ile Ala Lys Met Arg Ala Gly Arg Arg Leu Trp Val His Leu
1 5 10 15

Ile Glu Lys Met Phe Gln Pro Lys Asn Ser Lys
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<400> 177

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

Glu Trp

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Thr Cys Val His Glu Ile Pro Phe His Phe Asp Leu Met Glu Leu Leu
1 5 10 15

Pro Gln Cys Gln Gln Leu Gln Met Phe Phe Leu
20 25

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<400> 179

Val Arg Arg Val Phe Ile Thr Asp Asp Phe His Asp Met Ile Pro Lys
1 5 10 15

Tyr Leu Asn Phe Val Lys Gly Val Val Asp Ser
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<400> 180

Asn Phe His Ala His Arg Glu Lys Ala Pro Ser Leu Phe Cys Ser Arg
1 5 10 15

Ile Leu Asn Lys Ala Val Tyr Leu Phe Tyr Gly
20 25

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<400> 181

Asp Ala Asn Lys Glu Gly Met Phe Leu Phe Arg Ala Ala His Lys Leu
1 5 10 15

Arg Gln Phe Leu Lys Met Asn Ser Thr Gly Asp
20 25

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<400> 182

Leu Leu Ser Leu Gly Trp Ser Val Asp Val Gly Arg His Ser Gly Trp
1 5 10 15

Thr Gly His Val Ser Thr Ser Trp Ser Ile Asn
20 25

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<400> 183

Asn Thr Ile Phe Ser Leu Arg Lys Asp Leu Arg Gln Gly Lys Ala Arg
1 5 10 15

Arg Leu Arg Cys Met Glu Glu Lys Glu Met Phe
20 25

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<400> 184

Asn His Phe Asn Asp Phe Glu Gly Asp Pro Ala Met Thr Gln Phe Leu
1 5 10 15

Glu Glu Phe Glu Lys Asn Leu Glu Asp Thr Lys

20 25

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<400> 185

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

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Asp Thr Leu Ser Ala Met Ser Asn Pro Arg Ala Met Gln Val Leu Leu
1 5 10 15

Gln Ile Gln Gln Gly Leu Gln Thr Leu Ala Thr
20 25

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<400> 187

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

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<400> 188

Gly Ser Leu Phe Gly Ser Ser Arg Val Gln Tyr Val Val Asn Pro Ala
1 5 10 15

Val Lys Ile Val Phe Leu Asn Ile Asp Pro Ser
20 25

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<400> 189

Ala Glu Tyr Gly Asp Tyr Gln Pro Glu Val His Gly Val Pro Tyr Phe
1 5 10 15

Arg Leu Glu His Tyr Leu Pro Ala Arg Val Met
20 25

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<400> 190

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

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<400> 191

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

Leu Lys Pro Phe Leu Lys Ser Cys His Phe Gln
            20   25

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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

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<223> Epitope

<400> 193

Leu Trp Val Tyr Leu Arg Pro Val Pro Arg Pro Ala Thr Ile Tyr Leu
1 5 10 15

Gln Ile Leu Arg Leu Lys Pro Leu Thr Gly Glu
20 25

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<400> 194

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

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<400> 195

Arg Gly Pro Glu Ser Arg Leu Leu
1 5

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<400> 196

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

Ala Thr Pro Met Glu Ala Glu Leu Ala Arg Arg Ser Leu Ala Gln Asp
20 25 30

Ala Pro Pro Leu Pro Val Pro Gly Val Leu Leu Lys Glu Phe
35 40 45

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<400> 197

Met Gln Ala Glu Gly Arg Gly Thr Gly Gly Ser Thr Gly Asp Ala
1 5 10 15

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<400> 198

Thr Gly Gly Ser Thr Gly Asp Ala Asp Gly Pro Gly Gly Pro Gly
1 5 10 15

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<400> 199

Ala Asp Gly Pro Gly Gly Pro Gly Ile Pro Asp Gly Pro Gly Gly
1 5 10 15

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<400> 200

Gly Ile Pro Asp Gly Pro Gly Gly Asn Ala Gly Gly Pro Gly Glu
1 5 10 15

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<400> 201

Gly Asn Ala Gly Gly Pro Gly Glu Ala Gly Ala Thr Gly Gly Arg
1 5 10 15

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Glu Ala Gly Ala Thr Gly Gly Arg Gly Pro Arg Gly Ala Gly Ala
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Arg Gly Pro Arg Gly Ala Gly Ala Ala Arg Ala Ser Gly Pro Gly
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Ala Ala Arg Ala Ser Gly Pro Gly Gly Gly Ala Pro Arg Gly Pro
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Gly Gly Gly Ala Pro Arg Gly Pro His Gly Gly Ala Ala Ser Gly
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Pro His Gly Gly Ala Ala Ser Gly Leu Asn Gly Cys Cys Arg Cys
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Gly Leu Asn Gly Cys Cys Arg Cys Gly Ala Arg Gly Pro Glu Ser
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Cys Gly Ala Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe Tyr Leu
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Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe Tyr Leu Ala Met Pro
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Ser Arg Leu Leu Glu Phe Tyr Leu Ala Met Pro Phe Ala Thr Pro
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Leu Ala Met Pro Phe Ala Thr Pro Met Glu Ala Glu Leu Ala Arg
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Pro Met Glu Ala Glu Leu Ala Arg Arg Ser Leu Ala Gln Asp Ala
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Arg Arg Ser Leu Ala Gln Asp Ala Pro Pro Leu Pro Val Pro Gly
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Asp Ala Pro Pro Leu Pro Val Pro Gly Val Leu Leu Lys Glu Phe
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Ala Pro Pro Leu Pro Val Pro Gly Val Leu Leu Lys Glu Phe Thr
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Gly Val Leu Leu Lys Glu Phe Thr Val Ser Gly Asn Ile Leu Thr
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Thr Val Ser Gly Asn Ile Leu Thr Ile Arg Leu Thr Ala Ala Asp
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Thr Ile Arg Leu Thr Ala Ala Asp His Arg Gln Leu Gln Leu Ser
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Asp His Arg Gln Leu Gln Leu Ser Ile Ser Ser Cys Leu Gln Gln
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Ser Ile Ser Ser Cys Leu Gln Gln Leu Ser Leu Leu Met Trp Ile
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Gln Leu Ser Leu Leu Met Trp Ile Thr Gln Cys Phe Leu Pro Val
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Ile Thr Gln Cys Phe Leu Pro Val Phe Leu Ala Gln Pro Pro Ser
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Val Phe Leu Ala Gln Pro Pro Ser Gly Gln Arg Arg

1 5 10

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Arg Gly Pro Glu Ser Arg Leu Leu
1 5

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Arg Glu Gly Val Glu Leu Cys Pro Gly Asn Lys Tyr Glu Met Arg Arg
1 5 10 15

His Gly Thr Thr His Ser Leu Val Ile His Asp
20 25

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

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

Asn Asp Asn Gly Thr Pro Asp Ser Val Gly Leu
20 25

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Pro Ala Ala Asp Arg Trp Glu Pro Arg Ala Pro Met Arg Ala Pro Arg
1 5 10 15

Val Leu His Ala Met Leu Gly Ala Ala Gly Arg
20 25

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Val Leu Ser Ala Asp Leu Val His Tyr Leu Arg Leu Ser Leu Glu Tyr
1 5 10 15

Leu Arg Ala Trp His Ser Glu Asp Val Ser Leu
20 25

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Leu Glu Ala Val Leu Arg Tyr Leu Glu Thr His Pro Arg Leu Pro Lys
1 5 10 15

Pro Asp Pro Val Lys Ser Ser Ser Ser Val Leu
20 25

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<400> 231

Leu Lys Asp Phe Phe Phe Ser Arg Gly Arg Phe Ser Ser Ala Leu Lys
1 5 10 15

Arg Thr Leu Ile Leu Ser Ser Gly Phe Arg Leu
20 25

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<400> 232

Ala Gly Lys Asp His Lys Ile Lys Gln Trp Asp Ala Asp Thr Phe Glu
1   5   10   15

His Ile Gln Thr Leu Glu Gly His His Gln Glu
            20   25

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<400> 233

Pro Ala Thr Ile Glu Met Ala Ile Glu Thr Leu Gln Lys Phe Asp Gly
1   5   10   15

Leu Ser Thr His Arg Ser Ser Leu Leu Asn Ser
            20   25

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Tyr Leu Pro Gly Gly Gly Ala Gly His Leu Asp Gln Asn Val Phe Leu
1   5   10   15

Arg Val Arg Ala Leu Cys Tyr Val Ile Ser Gly
            20   25

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Ser Val Tyr Asp Phe Phe Val Trp Leu
1 5

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<400> 236

Tyr Ile Ser Asp His Met Lys Val His Ser Pro Ser Pro Cys Leu
1 5 10 15

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<400> 237

Glu Gly Trp Gln Thr Cys Trp Gly Arg Ser Arg Lys His Trp Gly Ser
1 5 10 15

Thr Trp Asn Gly Ser Ala Arg Leu Ser Pro Gly Ser Thr Leu Trp Val
20 25 30

Met Arg Ile Cys Leu Arg Ser Leu Gly Ile Ala Arg Thr Trp Leu Ser
35 40 45

Cys Arg Ser Thr Ser Arg Lys Cys Ser Pro Ala Phe Pro Ala Ser Ser
50 55 60

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<400> 238

Leu Phe Arg Leu Leu Pro Ser Gly Pro Lys Val Asn Asp Gly His Arg
1 5 10 15

Ser Arg Arg Trp His Ser Leu Asp Leu Tyr Pro His Leu Cys Ser His
20 25 30

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

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<400> 239

Tyr Ile Ser Asp His Met Lys Val His Ser Pro Ser Pro Cys Leu
1 5 10 15

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Glu Gly Trp Gln Thr Cys Trp Gly Arg Ser Arg Lys His Trp Gly
1 5 10 15

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Gly Arg Ser Arg Lys His Trp Gly Ser Thr Trp Asn Gly Ser Ala
1 5 10 15

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Gly Ser Thr Trp Asn Gly Ser Ala Arg Leu Ser Pro Gly Ser Thr
1 5 10 15

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

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<400> 244

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

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Cys Leu Arg Ser Leu Gly Ile Ala Arg Thr Trp Leu Ser Cys Arg
1 5 10 15

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Ala Arg Thr Trp Leu Ser Cys Arg Ser Thr Ser Arg Lys Cys Ser
1 5 10 15

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<400> 247

Arg Ser Thr Ser Arg Lys Cys Ser Pro Ala Phe Pro Ala Ser Ser
1 5 10 15

<210> 248
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<400> 248

Leu Phe Arg Leu Leu Pro Ser Gly Pro Lys Val Asn Asp Gly His Arg
1 5 10 15

Ser Arg Arg Trp His Ser Leu Asp Leu Tyr Pro
20 25

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<400> 249

Ser Arg Arg Trp His Ser Leu Asp Leu Tyr Pro His Leu Cys Ser His
1 5 10 15

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