SEQUENCE LISTING

<110> IMMUNOGEN, INC.

<120> ANTI-CD123 ANTIBODIES AND CONJUGATES AND DERIVATIVES THEREOF

<130> 121162-02820

<150> 62/346,730
<151> 2016-06-07

<150> 62/338,203
<151> 2016-05-18

<150> 62/186,161
<151> 2015-06-29

<160> 97

<170> PatentIn version 3.5

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Ser Tyr Val Met His
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<400> 2

Tyr Ile Lys Pro Tyr Lys Asp Gly Thr Lys
1 5 10

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<400> 3

Tyr Ile Lys Pro Tyr Lys Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys
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Gly

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Glu Gly Glu Asn Gly Tyr Tyr Asp Ala Met Asp Tyr
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Ser Ser Ile Met His
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Tyr Ile Lys Pro Tyr Asn Asp Gly Thr Lys
1 5 10

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<400> 7

Tyr Ile Arg Pro Tyr Asn Asp Gly Thr Arg
1 5 10

<210> 8
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<400> 8

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

Gly

<210> 9
<211> 17
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<400> 9

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

Gly

<210> 10
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<400> 10

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

Gly

<210> 11
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<400> 11

Glu Gly Gly Asn Asp Tyr Tyr Asp Thr Met Asp Tyr
1 5 10

<210> 12

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<220>
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<400> 12

Asn Tyr Ala Met Ser
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<400> 13

Thr Ile Asn Ser Gly Gly Ser Phe Thr Tyr
1 5 10

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<400> 14

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

Gly

<210> 15
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<400> 15

Gln Ser Glu Ala Tyr Tyr Gly Tyr Asp Lys Arg Thr
1 5 10

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<400> 16

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

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<400> 17

Tyr Thr Ser Thr Leu Gln Pro
1 5

<210> 18
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<400> 18

Leu Gln Tyr Asp Asn Leu Leu Tyr Thr
1 5

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<400> 19

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

<210> 20
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<220>
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<400> 20

Arg Ala Ser Gln Asp Ile Asn Ser Tyr Leu Ser
1 5 10

<210> 21
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<400> 21

Arg Val Asn Arg Leu Val Asp
1 5

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<400> 22

Leu Gln Tyr Asp Ala Phe Pro Tyr Thr
1 5

<210> 23
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<400> 23

Arg Ala Ser Gln Ser Val Gly Thr Ser Ile His
1 5 10

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<400> 24

Tyr Ala Ser Glu Ser Ile Ser
1 5

<210> 25
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<400> 25

Gln Gln Ser Lys Ser Trp Pro Leu Thr
1 5

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<400> 26

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

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

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

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

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

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

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

Gln Gly Thr Ser Val Thr Val Ser Ser
115 120

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<220>
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<400> 27

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

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

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

His Tyr Thr Ser Thr Leu Gln Pro Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Arg Asp Tyr Ser Phe Ser Ile Ser Asn Leu Glu Pro
65 70 75 80

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

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

<210> 28
<211> 121
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 28

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


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


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


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


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


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


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


Gln Gly Thr Ser Val Thr Val Ser Ser
        115                 120
```

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

<220>
<223> Synthetic Peptide

<400> 29

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


Glu Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Ile Asn Ser Tyr
```

20 25 30

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

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

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

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

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

<210> 30
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<213> Artificial

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<400> 30

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

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

Ala Met Ser Trp Val Arg Gln Asn Ser Glu Lys Arg Leu Glu Trp Val
35 40 45

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

```
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asp Ser Leu Tyr
65                  70                  75                  80


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


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


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


<210>  31
<211>  108
<212>  PRT
<213>  Artificial

<220>
<223>  Synthetic Peptide

<400>  31

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


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


Ile His Trp Tyr Gln Gln Arg Pro Asn Gly Phe Pro Arg Leu Leu Ile
        35                  40                  45


Lys Tyr Ala Ser Glu Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
    50                  55                  60


Ser Gly Ser Gly Thr Asp Phe Thr Leu Asn Ile Asn Ser Val Glu Ser
65                  70                  75                  80


Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Ser Lys Ser Trp Pro Leu
```

85 90 95

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

<210> 32
<211> 82
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 32

Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Tyr Ile Lys Pro Tyr Asn
1 5 10 15

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

Arg Asp Thr Ser Thr Ser Thr Val Tyr Met Glu Leu Ser Ser Leu Arg
35 40 45

Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Glu Gly Gly Asn Asp
50 55 60

Tyr Tyr Asp Thr Met Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
65 70 75 80

Ser Ser

<210> 33
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<400> 33

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

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

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

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

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

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

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
100 105

<210> 34
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<220>
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<222> (2)..(2)
<223> Phe or Val

<400> 34

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

1 5 10 15

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

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

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

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

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

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

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 35
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<212> PRT
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<220>
<223> Synthetic Peptide

<400> 35

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

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

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

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

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

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

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
100 105

<210> 36
<211> 378
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 36

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

Leu Gln Thr Lys Glu Asp Pro Asn Pro Pro Ile Thr Asn Leu Arg Met
20 25 30

Lys Ala Lys Ala Gln Gln Leu Thr Trp Asp Leu Asn Arg Asn Val Thr
35 40 45

Asp Ile Glu Cys Val Lys Asp Ala Asp Tyr Ser Met Pro Ala Val Asn
50 55 60

Asn Ser Tyr Cys Gln Phe Gly Ala Ile Ser Leu Cys Glu Val Thr Asn

```
65                  70                  75                  80

Tyr Thr Val Arg Val Ala Asn Pro Pro Phe Ser Thr Trp Ile Leu Phe
                85                  90                  95

Pro Glu Asn Ser Gly Lys Pro Trp Ala Gly Ala Glu Asn Leu Thr Cys
            100                 105                 110

Trp Ile His Asp Val Asp Phe Leu Ser Cys Ser Trp Ala Val Gly Pro
        115                 120                 125

Gly Ala Pro Ala Asp Val Gln Tyr Asp Leu Tyr Leu Asn Val Ala Asn
    130                 135                 140

Arg Arg Gln Gln Tyr Glu Cys Leu His Tyr Lys Thr Asp Ala Gln Gly
145                 150                 155                 160

Thr Arg Ile Gly Cys Arg Phe Asp Asp Ile Ser Arg Leu Ser Ser Gly
                165                 170                 175

Ser Gln Ser Ser His Ile Leu Val Arg Gly Arg Ser Ala Ala Phe Gly
            180                 185                 190

Ile Pro Cys Thr Asp Lys Phe Val Val Phe Ser Gln Ile Glu Ile Leu
        195                 200                 205

Thr Pro Pro Asn Met Thr Ala Lys Cys Asn Lys Thr His Ser Phe Met
    210                 215                 220

His Trp Lys Met Arg Ser His Phe Asn Arg Lys Phe Arg Tyr Glu Leu
225                 230                 235                 240

Gln Ile Gln Lys Arg Met Gln Pro Val Ile Thr Glu Gln Val Arg Asp
                245                 250                 255

Arg Thr Ser Phe Gln Leu Leu Asn Pro Gly Thr Tyr Thr Val Gln Ile
```

260 265 270

Arg Ala Arg Glu Arg Val Tyr Glu Phe Leu Ser Ala Trp Ser Thr Pro
275 280 285

Gln Arg Phe Glu Cys Asp Gln Glu Glu Gly Ala Asn Thr Arg Ala Trp
290 295 300

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

Val Phe Val Ile Cys Arg Arg Tyr Leu Val Met Gln Arg Leu Phe Pro
325 330 335

Arg Ile Pro His Met Lys Asp Pro Ile Gly Asp Ser Phe Gln Asn Asp
340 345 350

Lys Leu Val Val Trp Glu Ala Gly Lys Ala Gly Leu Glu Glu Cys Leu
355 360 365

Val Thr Glu Val Gln Val Val Gln Lys Thr
370 375

<210> 37
<211> 108
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 37

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

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

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


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


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


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


Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
            100                 105


<210>  38
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<220>
<221>  Xaa
<222>  (2)..(2)
<223>  Phe or Val

<400>  38

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


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


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

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

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

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

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

Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 39
<211> 121
<212> PRT
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<220>
<223> Synthetic Peptide

<400> 39

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

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

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

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

Gln Gly Lys Ala Thr Leu Thr Ser Asp Arg Ser Ser Ser Thr Ala Asn
```

65 70 75 80

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

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

Gln Gly Thr Ser Val Thr Val Ser Ser
115 120

<210> 40
<211> 121
<212> PRT
<213> Artificial

<220>
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<400> 40

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

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

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

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

Gln Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Asn
65 70 75 80

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

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


Gln Gly Thr Ser Val Thr Val Ser Ser
        115                 120


<210>  41
<211>  108
<212>  PRT
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<220>
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<400>  41

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


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


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


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


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


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


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


<210>  42
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<211> 445
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 42

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


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


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


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


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


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


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


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


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


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

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


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


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


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


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


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


Val Thr Cys Val Val Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln
            260                 265                 270


Phe Ser Trp Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln
        275                 280                 285


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


Pro Ile Met His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg
305                 310                 315                 320


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


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

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

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

Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro Ile Met Asn Thr Asn Gly
385 390 395 400

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

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

His His Thr Glu Lys Ser Leu Ser His Ser Pro Gly Lys
435 440 445

<210> 43
<211> 214
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 43

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

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

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

His Tyr Thr Ser Thr Leu Gln Pro Gly Ile Pro Ser Arg Phe Ser Gly

50 55 60

Ser Gly Ser Gly Arg Asp Tyr Ser Phe Ser Ile Ser Asn Leu Glu Pro
65 70 75 80

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

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

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

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

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

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

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

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

Phe Asn Arg Asn Glu Cys
210

<210> 44
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<400> 44

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


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


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


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


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


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


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


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


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


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


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

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

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

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

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

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

Val Thr Cys Val Val Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln
            260                 265                 270

Phe Ser Trp Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln
        275                 280                 285

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

Pro Ile Met His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg
305                 310                 315                 320

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

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

Lys Glu Gln Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr
        355                 360                 365
```

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

Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro Ile Met Asn Thr Asn Gly
385                 390                 395                 400

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

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

His His Thr Glu Lys Ser Leu Ser His Ser Pro Gly Lys
        435                 440                 445
```

<210> 45
<211> 214
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 45

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

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

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

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

Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Ser Ser Leu Glu Tyr
```

65 70 75 80

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

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

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

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

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

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

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

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

Phe Asn Arg Asn Glu Cys
210

<210> 46
<211> 449
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 46

```
Glu Val Lys Leu Val Glu Ser Gly Gly Asp Leu Val Lys Pro Gly Gly
1               5                   10                  15


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


Ala Met Ser Trp Val Arg Gln Asn Ser Glu Lys Arg Leu Glu Trp Val
        35                  40                  45


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


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


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


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


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


Thr Pro Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Ala Ala Gln Thr
    130                 135                 140


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


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


Thr Phe Pro Ala Val Leu Glu Ser Asp Leu Tyr Thr Leu Ser Ser Ser
            180                 185                 190
```

```
Val Thr Val Pro Ser Ser Pro Arg Pro Ser Glu Thr Val Thr Cys Asn
        195                 200                 205

Val Ala His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys Ile Val Pro
    210                 215                 220

Arg Asp Cys Gly Cys Lys Pro Cys Ile Cys Thr Val Pro Glu Val Ser
225                 230                 235                 240

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

Leu Thr Pro Lys Val Thr Cys Val Val Val Asp Ile Ser Lys Asp Asp
            260                 265                 270

Pro Glu Val Gln Phe Ser Trp Phe Val Asp Asp Val Glu Val His Thr
        275                 280                 285

Ala Gln Thr Gln Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Ser
    290                 295                 300

Val Ser Glu Leu Pro Ile Met His Gln Asp Trp Leu Asn Gly Lys Glu
305                 310                 315                 320

Phe Lys Cys Arg Val Asn Ser Ala Ala Phe Pro Ala Pro Ile Glu Lys
                325                 330                 335

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

Ile Pro Pro Pro Lys Glu Gln Met Ala Lys Asp Lys Val Ser Leu Thr
        355                 360                 365

Cys Met Ile Thr Asp Phe Phe Pro Glu Asp Ile Thr Val Glu Trp Gln
    370                 375                 380
```

```
Trp Asn Gly Gln Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro Ile Met
385                 390                 395                 400


Asn Thr Asn Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val Gln Lys
                405                 410                 415


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


Gly Leu His Asn His His Thr Glu Lys Ser Leu Ser His Ser Pro Gly
        435                 440                 445


Lys
```

<210> 47
<211> 214
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 47

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


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


Ile His Trp Tyr Gln Gln Arg Pro Asn Gly Phe Pro Arg Leu Leu Ile
        35                  40                  45


Lys Tyr Ala Ser Glu Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
    50                  55                  60


Ser Gly Ser Gly Thr Asp Phe Thr Leu Asn Ile Asn Ser Val Glu Ser
```

65 70 75 80

Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Ser Lys Ser Trp Pro Leu
85 90 95

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

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

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

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

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

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

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

Phe Asn Arg Asn Glu Cys
210

<210> 48
<211> 450
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 48

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


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


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


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


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


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


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


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


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


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


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


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

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

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

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

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

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

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

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

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

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

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

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

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

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


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


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


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


Pro Gly
    450


<210>  49
<211>  214
<212>  PRT
<213>  Artificial

<220>
<223>  Synthetic Peptide

<400>  49

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


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


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


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


Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
```

65 70 75 80

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

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

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

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

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

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

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

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

Phe Asn Arg Gly Glu Cys
210

<210> 50
<211> 450
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<220>
<221> Xaa
<222> (2)..(2)
<223> Phe or Val

<400> 50

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


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


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


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


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


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


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


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


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


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


Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala
```

```
                165                 170                 175

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

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

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

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

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

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

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

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

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

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

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

Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser
```

355 360 365

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

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

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

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

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

Pro Gly
450

<210> 51
<211> 214
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 51

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

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

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

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

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

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

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

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

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

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

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

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

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

Phe Asn Arg Gly Glu Cys
    210
```

<210> 52
<211> 1713
<212> PRT

<213> Artificial

<220>
<223> Synthetic Peptide

<400> 52

```
Gly Thr Cys Ala Gly Gly Thr Thr Cys Ala Thr Gly Gly Thr Thr Ala
1               5                   10                  15


Cys Gly Ala Ala Gly Cys Thr Gly Cys Thr Gly Ala Cys Cys Cys Cys
            20                  25                  30


Ala Gly Gly Ala Thr Cys Cys Cys Ala Gly Cys Cys Cys Gly Thr Gly
        35                  40                  45


Gly Gly Ala Gly Ala Gly Ala Ala Gly Gly Gly Gly Gly Thr Cys Thr
    50                  55                  60


Cys Thr Gly Ala Cys Ala Gly Cys Cys Cys Cys Cys Ala Cys Cys Cys
65                  70                  75                  80


Cys Thr Cys Cys Cys Cys Ala Cys Thr Gly Cys Cys Ala Gly Ala Thr
                85                  90                  95


Cys Cys Thr Thr Ala Thr Thr Gly Gly Gly Thr Cys Thr Gly Ala Gly
            100                 105                 110


Thr Thr Thr Cys Ala Gly Gly Gly Gly Thr Gly Gly Gly Gly Cys Cys
        115                 120                 125


Cys Cys Ala Gly Cys Thr Gly Gly Ala Gly Gly Thr Thr Ala Thr Ala
    130                 135                 140


Ala Ala Ala Cys Ala Gly Cys Thr Cys Ala Ala Thr Cys Gly Gly Gly
145                 150                 155                 160


Gly Ala Gly Thr Ala Cys Ala Ala Cys Cys Thr Thr Cys Gly Gly Thr
```

```
                165                 170                 175

Thr Thr Cys Thr Cys Thr Thr Cys Gly Gly Gly Gly Ala Ala Ala Gly
            180                 185                 190

Cys Thr Gly Cys Thr Thr Thr Cys Ala Gly Cys Gly Cys Ala Cys Ala
        195                 200                 205

Cys Gly Gly Gly Ala Ala Gly Ala Thr Ala Thr Cys Ala Gly Ala Ala
    210                 215                 220

Ala Cys Ala Thr Cys Cys Thr Ala Gly Gly Ala Thr Cys Ala Gly Gly
225                 230                 235                 240

Ala Cys Ala Cys Cys Cys Cys Ala Gly Ala Thr Cys Thr Thr Cys Thr
                245                 250                 255

Cys Ala Ala Cys Thr Gly Gly Ala Ala Cys Cys Ala Cys Gly Ala Ala
            260                 265                 270

Gly Gly Cys Thr Gly Thr Thr Thr Cys Thr Thr Cys Cys Ala Cys Ala
        275                 280                 285

Cys Ala Gly Thr Ala Cys Thr Thr Thr Gly Ala Thr Cys Thr Cys Cys
    290                 295                 300

Ala Thr Thr Thr Ala Ala Gly Cys Ala Gly Gly Cys Ala Cys Cys Thr
305                 310                 315                 320

Cys Thr Gly Thr Cys Cys Thr Gly Cys Gly Thr Thr Cys Cys Gly Gly
                325                 330                 335

Ala Gly Cys Thr Gly Cys Gly Thr Thr Cys Cys Cys Gly Ala Thr Gly
            340                 345                 350

Gly Thr Cys Cys Thr Cys Cys Thr Thr Thr Gly Gly Cys Thr Cys Ala
```

355 360 365

Cys Gly Cys Thr Gly Cys Thr Cys Cys Thr Gly Ala Thr Cys Gly Cys
370 375 380

Cys Cys Thr Gly Cys Cys Cys Thr Gly Thr Cys Thr Cys Cys Thr Gly
385 390 395 400

Cys Ala Ala Ala Cys Gly Ala Ala Gly Gly Ala Ala Gly Ala Thr Cys
405 410 415

Cys Ala Ala Ala Cys Cys Cys Ala Cys Cys Ala Ala Thr Cys Ala Cys
420 425 430

Gly Ala Ala Cys Cys Thr Ala Ala Gly Gly Ala Thr Gly Ala Ala Ala
435 440 445

Gly Cys Ala Ala Ala Gly Gly Cys Thr Cys Ala Gly Cys Ala Gly Thr
450 455 460

Thr Gly Ala Cys Cys Thr Gly Gly Gly Ala Cys Cys Thr Thr Ala Ala
465 470 475 480

Cys Ala Gly Ala Ala Ala Thr Gly Thr Gly Ala Cys Cys Gly Ala Thr
485 490 495

Ala Thr Cys Gly Ala Gly Thr Gly Thr Gly Thr Thr Ala Ala Ala Gly
500 505 510

Ala Cys Gly Cys Cys Gly Ala Cys Thr Ala Thr Thr Cys Thr Ala Thr
515 520 525

Gly Cys Cys Gly Gly Cys Ala Gly Thr Gly Ala Ala Cys Ala Ala Thr
530 535 540

Ala Gly Cys Thr Ala Thr Thr Gly Cys Cys Ala Gly Thr Thr Thr Gly

```
545                 550                 555                 560

Gly Ala Gly Cys Ala Ala Thr Thr Thr Cys Cys Thr Thr Ala Thr Gly
                565                 570                 575

Thr Gly Ala Ala Gly Thr Gly Ala Cys Cys Ala Ala Cys Thr Ala Cys
            580                 585                 590

Ala Cys Cys Gly Thr Cys Cys Gly Ala Gly Thr Gly Gly Cys Cys Ala
        595                 600                 605

Ala Cys Cys Cys Ala Cys Cys Ala Thr Thr Cys Thr Cys Cys Ala Cys
    610                 615                 620

Gly Thr Gly Gly Ala Thr Cys Cys Thr Cys Thr Thr Cys Cys Cys Thr
625                 630                 635                 640

Gly Ala Gly Ala Ala Cys Ala Gly Thr Gly Gly Gly Ala Ala Gly Cys
                645                 650                 655

Cys Thr Thr Gly Gly Gly Cys Ala Gly Gly Thr Gly Cys Gly Gly Ala
            660                 665                 670

Gly Ala Ala Thr Cys Thr Gly Ala Cys Cys Thr Gly Cys Thr Gly Gly
        675                 680                 685

Ala Thr Thr Cys Ala Thr Gly Ala Cys Gly Thr Gly Gly Ala Thr Thr
    690                 695                 700

Thr Cys Thr Thr Gly Ala Gly Cys Thr Gly Cys Ala Gly Cys Thr Gly
705                 710                 715                 720

Gly Gly Cys Gly Gly Thr Ala Gly Gly Cys Cys Cys Gly Gly Gly Gly
                725                 730                 735

Gly Cys Cys Cys Cys Cys Gly Cys Gly Gly Ala Cys Gly Thr Cys Cys
```

740 745 750

Ala Gly Thr Ala Cys Gly Ala Cys Cys Thr Gly Thr Ala Cys Thr Thr
755 760 765

Gly Ala Ala Cys Gly Thr Thr Gly Cys Cys Ala Ala Cys Ala Gly Gly
770 775 780

Cys Gly Thr Cys Ala Ala Cys Ala Gly Thr Ala Cys Gly Ala Gly Thr
785 790 795 800

Gly Thr Cys Thr Thr Cys Ala Cys Thr Ala Cys Ala Ala Ala Ala Cys
805 810 815

Gly Gly Ala Thr Gly Cys Thr Cys Ala Gly Gly Gly Ala Ala Cys Ala
820 825 830

Cys Gly Thr Ala Thr Cys Gly Gly Gly Thr Gly Thr Cys Gly Thr Thr
835 840 845

Thr Cys Gly Ala Thr Gly Ala Cys Ala Thr Cys Thr Cys Thr Cys Gly
850 855 860

Ala Cys Thr Cys Thr Cys Cys Ala Gly Cys Gly Gly Thr Thr Cys Thr
865 870 875 880

Cys Ala Ala Ala Gly Thr Thr Cys Cys Cys Ala Cys Ala Thr Cys Cys
885 890 895

Thr Gly Gly Thr Gly Cys Gly Gly Gly Gly Cys Ala Gly Gly Ala Gly
900 905 910

Cys Gly Cys Ala Gly Cys Cys Thr Thr Cys Gly Gly Thr Ala Thr Cys
915 920 925

Cys Cys Cys Thr Gly Cys Ala Cys Ala Gly Ala Thr Ala Ala Gly Thr

```
    930                 935                 940

Thr Thr Gly Thr Cys Gly Thr Cys Thr Thr Thr Thr Cys Ala Cys Ala
945                 950                 955                 960

Gly Ala Thr Thr Gly Ala Gly Ala Thr Ala Thr Thr Ala Ala Cys Thr
                965                 970                 975

Cys Cys Ala Cys Cys Cys Ala Ala Cys Ala Thr Gly Ala Cys Thr Gly
            980                 985                 990

Cys Ala Ala Ala Gly Thr Gly Thr  Ala Ala Thr Ala Ala  Gly Ala Cys
        995                 1000                1005

Ala Cys  Ala Thr Thr Cys Cys  Thr Thr Thr Ala Thr  Gly Cys Ala
    1010                1015                1020

Cys Thr  Gly Gly Ala Ala Ala  Ala Thr Gly Ala Gly  Ala Ala Gly
    1025                1030                1035

Thr Cys  Ala Thr Thr Thr Cys  Ala Ala Thr Cys Gly  Cys Ala Ala
    1040                1045                1050

Ala Thr  Thr Thr Cys Gly Cys  Thr Ala Thr Gly Ala  Gly Cys Thr
    1055                1060                1065

Thr Cys  Ala Gly Ala Thr Ala  Cys Ala Ala Ala Ala  Gly Ala Gly
    1070                1075                1080

Ala Ala  Thr Gly Cys Ala Gly  Cys Cys Thr Gly Thr  Ala Ala Thr
    1085                1090                1095

Cys Ala  Cys Ala Gly Ala Ala  Cys Ala Gly Gly Thr  Cys Ala Gly
    1100                1105                1110

Ala Gly  Ala Cys Ala Gly Ala  Ala Cys Cys Thr Cys  Cys Thr Thr
```

```
    1115                1120                1125

Cys Cys  Ala Gly Cys Thr Ala  Cys Thr Cys Ala Ala  Thr Cys Cys
    1130                1135                1140

Thr Gly  Gly Ala Ala Cys Gly  Thr Ala Cys Ala Cys  Ala Gly Thr
    1145                1150                1155

Ala Cys  Ala Ala Ala Thr Ala  Ala Gly Ala Gly Cys  Cys Cys Gly
    1160                1165                1170

Gly Gly  Ala Ala Ala Gly Ala  Gly Thr Gly Thr Ala  Thr Gly Ala
    1175                1180                1185

Ala Thr  Thr Cys Thr Thr Gly  Ala Gly Cys Gly Cys  Cys Thr Gly
    1190                1195                1200

Gly Ala  Gly Cys Ala Cys Cys  Cys Cys Cys Cys Ala  Gly Cys Gly
    1205                1210                1215

Cys Thr  Thr Cys Gly Ala Gly  Thr Gly Cys Gly Ala  Cys Cys Ala
    1220                1225                1230

Gly Gly  Ala Gly Gly Ala Gly  Gly Gly Cys Gly Cys  Ala Ala Ala
    1235                1240                1245

Cys Ala  Cys Ala Cys Gly Thr  Gly Cys Cys Thr Gly  Gly Cys Gly
    1250                1255                1260

Gly Ala  Cys Gly Thr Cys Gly  Cys Thr Gly Cys Thr  Gly Ala Thr
    1265                1270                1275

Cys Gly  Cys Gly Cys Thr Gly  Gly Gly Gly Ala Cys  Gly Cys Thr
    1280                1285                1290

Gly Cys  Thr Gly Gly Cys Cys  Cys Thr Gly Gly Thr  Cys Thr Gly
```

```
    1295                1300                1305

Thr Gly  Thr Cys Thr Thr Cys  Gly Thr Gly Ala Thr  Cys Thr Gly
    1310                1315                1320

Cys Ala  Gly Ala Ala Gly Gly  Thr Ala Thr Cys Thr  Gly Gly Thr
    1325                1330                1335

Gly Ala  Thr Gly Cys Ala Gly  Ala Gly Ala Cys Thr  Cys Thr Thr
    1340                1345                1350

Thr Cys  Cys Cys Cys Gly Cys  Ala Thr Cys Cys Cys  Thr Cys Ala
    1355                1360                1365

Cys Ala  Thr Gly Ala Ala Ala  Gly Ala Cys Cys Cys  Cys Ala Thr
    1370                1375                1380

Cys Gly  Gly Thr Gly Ala Cys  Ala Gly Cys Thr Thr  Cys Cys Ala
    1385                1390                1395

Ala Ala  Ala Cys Gly Ala Cys  Ala Ala Gly Cys Thr  Gly Gly Thr
    1400                1405                1410

Gly Gly  Thr Cys Thr Gly Gly  Gly Ala Gly Gly Cys  Gly Gly Gly
    1415                1420                1425

Cys Ala  Ala Ala Gly Cys Cys  Gly Gly Cys Cys Thr  Gly Gly Ala
    1430                1435                1440

Gly Gly  Ala Gly Thr Gly Thr  Cys Thr Gly Gly Thr  Gly Ala Cys
    1445                1450                1455

Thr Gly  Ala Ala Gly Thr Ala  Cys Ala Gly Gly Thr  Cys Gly Thr
    1460                1465                1470

Gly Cys  Ala Gly Ala Ala Ala  Ala Cys Thr Thr Gly  Ala Gly Ala
```

```
    1475                1480                1485

Cys Thr  Gly Gly Gly Gly Thr  Thr Cys Ala Gly Gly  Gly Cys Thr
    1490                1495                1500

Thr Gly  Thr Gly Gly Gly Gly  Gly Thr Cys Thr Gly  Cys Cys Thr
    1505                1510                1515

Cys Ala  Ala Thr Cys Thr Cys  Cys Cys Thr Gly Gly  Cys Cys Gly
    1520                1525                1530

Gly Gly  Cys Cys Ala Gly Gly  Cys Gly Cys Cys Thr  Gly Cys Ala
    1535                1540                1545

Cys Ala  Gly Ala Cys Thr Gly  Gly Cys Thr Gly Cys  Thr Gly Gly
    1550                1555                1560

Ala Cys  Cys Thr Gly Cys Gly  Cys Ala Cys Gly Cys  Ala Gly Cys
    1565                1570                1575

Cys Cys  Ala Gly Gly Ala Ala  Thr Gly Gly Ala Cys  Ala Thr Thr
    1580                1585                1590

Cys Cys  Thr Ala Ala Cys Gly  Gly Gly Thr Gly Gly  Thr Gly Gly
    1595                1600                1605

Gly Cys  Ala Thr Gly Gly Gly  Ala Gly Ala Thr Gly  Cys Cys Thr
    1610                1615                1620

Gly Thr  Gly Thr Ala Ala Thr  Thr Thr Cys Gly Thr  Cys Cys Gly
    1625                1630                1635

Ala Ala  Gly Cys Thr Gly Cys  Cys Ala Gly Gly Ala  Ala Gly Ala
    1640                1645                1650

Ala Gly  Ala Ala Cys Ala Gly  Ala Ala Cys Thr Thr  Thr Gly Thr
```

1655 1660 1665

Gly Thr Gly Thr Thr Thr Ala Thr Thr Thr Cys Ala Thr Gly Ala
1670 1675 1680

Thr Ala Ala Ala Gly Thr Gly Ala Thr Thr Thr Thr Thr Thr Thr
1685 1690 1695

Thr Thr Thr Thr Thr Thr Ala Ala Cys Cys Cys Ala Ala Ala Ala
1700 1705 1710

<210> 53
<211> 450
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<220>
<221> Xaa
<222> (2)..(2)
<223> Phe or Val

<400> 53

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

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

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

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

Lys Gly Arg Ala Thr Leu Thr Ser Asp Arg Ser Thr Ser Thr Ala Tyr

```
65                  70                  75                  80

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

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

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

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

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

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

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

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

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

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

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

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
```

```
            260                 265                 270

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

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

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

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

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

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

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

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

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

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

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

Pro Gly
```

450

<210> 54
<211> 450
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<220>
<221> Xaa
<222> (2)..(2)
<223> Phe or Val

<400> 54

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

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

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

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

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

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

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

Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser

115 120 125

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

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

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

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

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

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

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

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

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

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

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

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly

305 310 315 320

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

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

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

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

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

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

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

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

Pro Gly
450

<210> 55
<211> 4
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 55

Ala Leu Ala Leu
1

<210> 56
<211> 398
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 56

Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys Gly Arg Ala
1 5 10 15

Thr Leu Thr Ser Asp Arg Ser Thr Ser Thr Ala Tyr Met Glu Leu Ser
20 25 30

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

Gly Asn Asp Tyr Tyr Asp Thr Met Asp Tyr Trp Gly Gln Gly Thr Leu
50 55 60

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

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
85 90 95

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
100 105 110

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
115 120 125

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser

```
    130                 135                 140

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
145                 150                 155                 160

Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
                165                 170                 175

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
            180                 185                 190

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
        195                 200                 205

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

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
225                 230                 235                 240

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
                245                 250                 255

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
            260                 265                 270

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
        275                 280                 285

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

Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
305                 310                 315                 320

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
```

325 330 335

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

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
355 360 365

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
370 375 380

His Asn His Tyr Thr Gln Lys Ser Leu Cys Leu Ser Pro Gly
385 390 395

<210> 57
<211> 4
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<220>
<221> Xaa
<222> (1)..(1)
<223> beta-Ala

<400> 57

Xaa Leu Ala Leu
1

<210> 58
<211> 214
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 58

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

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

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

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

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

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

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

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

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

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

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

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

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


Phe Asn Arg Gly Glu Cys
    210


<210>  59
<211>  450
<212>  PRT
<213>  Artificial

<220>
<223>  Synthetic Peptide

<400>  59

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


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


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


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


Gln Gly Lys Ala Thr Leu Thr Ser Asp Arg Ser Ser Ser Thr Ala Asn
65                  70                  75                  80


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


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


Gln Gly Thr Ser Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser
```

```
        115                 120                 125

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

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

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

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

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

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

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

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

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

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

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

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
```

305 310 315 320

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

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

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

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

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

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

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

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

Pro Gly
450

<210> 60
<211> 450
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 60

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

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

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

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

Gln Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Asn
65                  70                  75                  80

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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


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


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


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


Pro Gly
    450


<210>  61
<211>  214
<212>  PRT
<213>  Artificial

<220>
<223>  Synthetic Peptide

<400>  61

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


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


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


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


Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Ser Ser Leu Glu Pro
```

65 70 75 80

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

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

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

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

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

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

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

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

Phe Asn Arg Gly Glu Cys
210

<210> 62
<211> 449
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 62

```
Ala Ala Gly Cys Thr Thr Gly Cys Cys Ala Cys Cys Ala Thr Gly Gly
1               5                   10                  15

Gly Ala Thr Gly Gly Thr Cys Cys Thr Gly Cys Ala Thr Thr Ala Thr
            20                  25                  30

Cys Cys Thr Gly Thr Thr Cys Cys Thr Thr Gly Thr Ala Gly Cys Ala
        35                  40                  45

Ala Cys Thr Gly Cys Ala Ala Cys Ala Gly Gly Ala Gly Thr Cys Cys
    50                  55                  60

Ala Cys Ala Gly Cys Cys Ala Gly Gly Thr Cys Cys Ala Ala Cys Thr
65                  70                  75                  80

Gly Gly Thr Gly Cys Ala Gly Thr Cys Cys Gly Gly Gly Gly Cys Cys
                85                  90                  95

Gly Ala Gly Gly Thr Gly Ala Ala Gly Ala Ala Ala Cys Cys Ala Gly
            100                 105                 110

Gly Cys Gly Cys Ala Thr Cys Cys Gly Thr Gly Ala Ala Gly Gly Thr
        115                 120                 125

Cys Ala Gly Cys Thr Gly Thr Ala Ala Ala Gly Cys Cys Ala Gly Cys
    130                 135                 140

Gly Gly Cys Thr Ala Thr Gly Gly Thr Thr Thr Thr Ala Cys Cys Ala
145                 150                 155                 160

Gly Cys Thr Cys Ala Ala Thr Cys Ala Thr Gly Cys Ala Cys Thr Gly
                165                 170                 175

Gly Gly Thr Cys Ala Gly Gly Cys Ala Ala Gly Cys Cys Cys Cys Ala
            180                 185                 190
```

```
Gly Gly Ala Cys Ala Gly Gly Gly Thr Cys Thr Cys Gly Ala Ala Thr
        195                 200                 205

Gly Gly Ala Thr Gly Gly Gly Ala Thr Ala Cys Ala Thr Thr Ala Ala
    210                 215                 220

Gly Cys Cys Thr Thr Ala Cys Ala Ala Thr Gly Ala Thr Gly Gly Thr
225                 230                 235                 240

Ala Cys Ala Ala Ala Ala Thr Ala Thr Ala Ala Thr Gly Ala Ala Ala
                245                 250                 255

Ala Ala Thr Thr Thr Ala Ala Gly Gly Gly Thr Cys Gly Thr Gly Thr
            260                 265                 270

Thr Ala Cys Cys Ala Thr Gly Ala Cys Ala Ala Gly Gly Gly Ala Thr
        275                 280                 285

Ala Cys Ala Thr Cys Ala Ala Cys Thr Ala Gly Cys Ala Cys Thr Gly
    290                 295                 300

Thr Cys Thr Ala Thr Ala Thr Gly Gly Ala Ala Cys Thr Gly Ala Gly
305                 310                 315                 320

Cys Thr Cys Thr Cys Thr Cys Ala Gly Gly Thr Cys Cys Gly Ala Gly
                325                 330                 335

Gly Ala Thr Ala Cys Thr Gly Cys Ala Gly Thr Ala Thr Ala Thr Thr
            340                 345                 350

Ala Cys Thr Gly Cys Gly Cys Cys Cys Gly Gly Gly Ala Gly Gly Gly
        355                 360                 365

Ala Gly Gly Cys Ala Ala Cys Gly Ala Cys Thr Ala Thr Thr Ala Cys
    370                 375                 380
```

```
Gly Ala Cys Ala Cys Cys Ala Thr Gly Gly Ala Cys Thr Ala Thr Thr
385                 390                 395                 400


Gly Gly Gly Gly Gly Cys Ala Gly Gly Gly Cys Ala Cys Ala Cys Thr
                405                 410                 415


Gly Gly Thr Thr Ala Cys Thr Gly Thr Ala Thr Cys Cys Ala Gly Cys
            420                 425                 430


Gly Cys Cys Thr Cys Thr Ala Cys Thr Ala Ala Gly Gly Gly Cys Cys
        435                 440                 445


Cys
```

<210> 63
<211> 396
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 63

```
Gly Ala Ala Thr Thr Cys Gly Cys Cys Ala Cys Cys Ala Thr Gly Gly
1               5                   10                  15


Gly Thr Thr Gly Gly Thr Cys Thr Thr Gly Thr Ala Thr Ala Ala Thr
            20                  25                  30


Cys Cys Thr Gly Thr Thr Cys Cys Thr Gly Gly Thr Cys Gly Cys Thr
        35                  40                  45


Ala Cys Cys Gly Cys Ala Ala Cys Ala Gly Gly Gly Gly Thr Thr Cys
    50                  55                  60


Ala Cys Thr Cys Ala Gly Ala Cys Ala Thr Cys Cys Ala Gly Ala Thr
```

65 70 75 80

Gly Ala Cys Cys Cys Ala Gly Ala Gly Thr Cys Cys Cys Thr Cys Thr
85 90 95

Thr Cys Thr Cys Thr Gly Ala Gly Cys Gly Cys Thr Thr Cys Thr Gly
100 105 110

Thr Thr Gly Gly Gly Gly Ala Cys Cys Gly Gly Gly Thr Gly Ala Cys
115 120 125

Cys Ala Thr Cys Ala Cys Cys Thr Gly Thr Cys Gly Gly Gly Cys Ala
130 135 140

Thr Cys Cys Cys Ala Gly Gly Ala Cys Ala Thr Cys Ala Ala Thr Thr
145 150 155 160

Cys Thr Thr Ala Cys Cys Thr Gly Gly Cys Thr Thr Gly Gly Thr Thr
165 170 175

Cys Cys Ala Gly Cys Ala Gly Ala Ala Gly Cys Cys Cys Gly Gly Ala
180 185 190

Ala Ala Ala Gly Cys Cys Cys Cys Thr Ala Ala Ala Thr Cys Thr Cys
195 200 205

Thr Cys Ala Thr Thr Thr Ala Cys Cys Gly Gly Gly Thr Ala Ala Ala
210 215 220

Cys Cys Gly Thr Thr Thr Gly Gly Thr Cys Thr Cys Cys Gly Gly Ala
225 230 235 240

Gly Thr Gly Cys Cys Thr Thr Cys Ala Ala Gly Gly Thr Thr Thr Ala
245 250 255

Gly Thr Gly Gly Ala Thr Cys Thr Gly Gly Ala Thr Cys Ala Gly Gly

260 265 270

Thr Ala Cys Ala Gly Ala Cys Thr Thr Cys Ala Cys Thr Cys Thr Cys
275 280 285

Ala Cys Cys Ala Thr Ala Ala Gly Cys Ala Gly Cys Cys Thr Gly Cys
290 295 300

Ala Ala Cys Cys Ala Gly Ala Gly Gly Ala Thr Thr Thr Cys Gly Cys
305 310 315 320

Ala Ala Cys Thr Thr Ala Cys Thr Ala Cys Thr Gly Cys Thr Thr Gly
325 330 335

Cys Ala Gly Thr Ala Thr Gly Ala Cys Gly Cys Cys Thr Thr Cys Cys
340 345 350

Cys Thr Thr Ala Cys Ala Cys Thr Thr Thr Cys Gly Gly Gly Cys Ala
355 360 365

Gly Gly Gly Gly Ala Cys Cys Ala Ala Ala Gly Thr Gly Gly Ala Ala
370 375 380

Ala Thr Ala Ala Ala Gly Cys Gly Thr Ala Cys Gly
385 390 395

<210> 64
<211> 449
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 64

Ala Ala Gly Cys Thr Thr Gly Cys Cys Ala Cys Cys Ala Thr Gly Gly
1 5 10 15

```
Gly Cys Thr Gly Gly Thr Cys Cys Thr Gly Thr Ala Thr Cys Ala Thr
            20                  25                  30

Cys Cys Thr Gly Thr Thr Cys Cys Thr Cys Gly Thr Thr Gly Cys Ala
        35                  40                  45

Ala Cys Ala Gly Cys Ala Ala Cys Thr Gly Gly Cys Gly Thr Gly Cys
    50                  55                  60

Ala Cys Ala Gly Cys Cys Ala Gly Thr Thr Cys Cys Ala Gly Cys Thr
65                  70                  75                  80

Thr Gly Thr Gly Cys Ala Gly Ala Gly Thr Gly Gly Cys Gly Cys Cys
                85                  90                  95

Gly Ala Ala Gly Thr Cys Ala Ala Gly Ala Ala Ala Cys Cys Ala Gly
            100                 105                 110

Gly Cys Gly Cys Thr Ala Gly Thr Gly Thr Cys Ala Ala Gly Gly Thr
        115                 120                 125

Gly Thr Cys Cys Thr Gly Thr Ala Ala Gly Gly Cys Ala Thr Cys Ala
    130                 135                 140

Gly Gly Cys Thr Ala Cys Ala Thr Cys Thr Thr Thr Ala Cys Cys Ala
145                 150                 155                 160

Gly Cys Thr Cys Cys Ala Thr Cys Ala Thr Gly Cys Ala Thr Thr Gly
                165                 170                 175

Gly Gly Thr Cys Ala Gly Ala Cys Ala Gly Gly Cys Thr Cys Cys Thr
            180                 185                 190

Gly Gly Ala Cys Ala Gly Gly Gly Cys Cys Thr Gly Gly Ala Gly Thr
        195                 200                 205
```

```
Gly Gly Ala Thr Thr Gly Gly Gly Thr Ala Thr Ala Thr Cys Ala Ala
    210                 215                 220

Gly Cys Cys Ala Thr Ala Cys Ala Ala Thr Gly Ala Thr Gly Gly Gly
225                 230                 235                 240

Ala Cys Ala Ala Ala Ala Thr Ala Cys Ala Ala Thr Gly Ala Ala Ala
                245                 250                 255

Ala Gly Thr Thr Thr Ala Ala Ala Gly Gly Gly Cys Gly Ala Gly Cys
            260                 265                 270

Cys Ala Cys Thr Cys Thr Gly Ala Cys Ala Thr Cys Thr Gly Ala Thr
        275                 280                 285

Cys Gly Gly Ala Gly Thr Ala Cys Ala Ala Gly Cys Ala Cys Thr Gly
    290                 295                 300

Cys Cys Thr Ala Cys Ala Thr Gly Gly Ala Ala Thr Thr Gly Ala Gly
305                 310                 315                 320

Cys Thr Cys Ala Cys Thr Gly Cys Gly Gly Thr Cys Cys Gly Ala Ala
                325                 330                 335

Gly Ala Cys Ala Cys Thr Gly Cys Thr Gly Thr Gly Thr Ala Thr Thr
            340                 345                 350

Ala Thr Thr Gly Cys Gly Cys Thr Cys Gly Gly Gly Ala Gly Gly Gly
        355                 360                 365

Ala Gly Gly Gly Ala Ala Cys Gly Ala Cys Thr Ala Cys Thr Ala Cys
    370                 375                 380

Gly Ala Thr Ala Cys Cys Ala Thr Gly Gly Ala Cys Thr Ala Cys Thr
385                 390                 395                 400
```

Gly Gly Gly Gly Cys Cys Ala Gly Gly Gly Cys Ala Cys Cys Cys Thr
405 410 415

Gly Gly Thr Thr Ala Cys Cys Gly Thr Cys Ala Gly Cys Ala Gly Cys
420 425 430

Gly Cys Thr Thr Cys Cys Ala Cys Thr Ala Ala Gly Gly Gly Cys Cys
435 440 445

Cys

<210> 65
<211> 396
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 65

Gly Ala Ala Thr Thr Cys Gly Cys Cys Ala Cys Cys Ala Thr Gly Gly
1 5 10 15

Gly Thr Thr Gly Gly Thr Cys Cys Thr Gly Thr Ala Thr Cys Ala Thr
20 25 30

Cys Cys Thr Cys Thr Thr Thr Cys Thr Gly Gly Thr Gly Gly Cys Ala
35 40 45

Ala Cys Thr Gly Cys Ala Ala Cys Cys Gly Gly Cys Gly Thr Cys Cys
50 55 60

Ala Thr Ala Gly Cys Gly Ala Cys Ala Thr Thr Cys Ala Gly Ala Thr
65 70 75 80

Gly Ala Cys Ala Cys Ala Gly Thr Cys Thr Cys Cys Thr Thr Cys Thr

85 90 95

Thr Cys Cys Cys Thr Gly Ala Gly Cys Gly Cys Cys Ala Gly Cys Gly
100 105 110

Thr Cys Gly Gly Gly Gly Ala Cys Cys Gly Cys Gly Thr Gly Ala Cys
115 120 125

Thr Ala Thr Cys Ala Cys Ala Thr Gly Thr Cys Gly Gly Gly Cys Cys
130 135 140

Thr Cys Cys Cys Ala Gly Gly Ala Cys Ala Thr Thr Ala Ala Cys Thr
145 150 155 160

Cys Thr Thr Ala Cys Cys Thr Cys Thr Cys Cys Thr Gly Gly Thr Thr
165 170 175

Cys Cys Ala Gly Cys Ala Gly Ala Ala Gly Cys Cys Thr Gly Gly Gly
180 185 190

Ala Ala Ala Gly Cys Cys Cys Cys Ala Ala Ala Gly Ala Cys Ala Cys
195 200 205

Thr Gly Ala Thr Ala Thr Ala Cys Ala Gly Gly Gly Thr Ala Ala Ala
210 215 220

Thr Cys Gly Thr Thr Thr Gly Gly Thr Thr Gly Ala Cys Gly Gly Thr
225 230 235 240

Gly Thr Ala Cys Cys Ala Thr Cys Ala Cys Gly Ala Thr Thr Thr Thr
245 250 255

Cys Cys Gly Gly Thr Ala Gly Thr Gly Gly Gly Thr Cys Thr Gly Gly
260 265 270

Ala Ala Ala Cys Gly Ala Thr Thr Ala Cys Ala Cys Thr Cys Thr Cys

275 280 285

Ala Cys Ala Ala Thr Thr Ala Gly Cys Ala Gly Cys Cys Thr Gly Cys
290 295 300

Ala Ala Cys Cys Ala Gly Ala Gly Gly Ala Cys Thr Thr Thr Gly Cys
305 310 315 320

Ala Ala Cys Ala Thr Ala Cys Thr Ala Thr Thr Gly Cys Cys Thr Gly
325 330 335

Cys Ala Gly Thr Ala Cys Gly Ala Thr Gly Cys Thr Thr Thr Thr Cys
340 345 350

Cys Thr Thr Ala Thr Ala Cys Cys Thr Thr Cys Gly Gly Thr Cys Ala
355 360 365

Gly Gly Gly Thr Ala Cys Cys Ala Ala Gly Gly Thr Gly Gly Ala Ala
370 375 380

Ala Thr Thr Ala Ala Ala Cys Gly Thr Ala Cys Gly
385 390 395

<210> 66
<211> 449
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 66

Ala Ala Gly Cys Thr Thr Gly Cys Cys Ala Cys Cys Ala Thr Gly Gly
1 5 10 15

Gly Cys Thr Gly Gly Thr Cys Cys Thr Gly Thr Ala Thr Cys Ala Thr
20 25 30

```
Cys Cys Thr Gly Thr Thr Cys Cys Thr Cys Gly Thr Thr Gly Cys Ala
        35                  40                  45

Ala Cys Ala Gly Cys Ala Ala Cys Thr Gly Gly Cys Gly Thr Gly Cys
    50                  55                  60

Ala Cys Ala Gly Cys Cys Ala Gly Gly Thr Cys Cys Ala Ala Cys Thr
65                  70                  75                  80

Thr Gly Thr Gly Cys Ala Gly Ala Gly Thr Gly Gly Cys Gly Cys Cys
                85                  90                  95

Gly Ala Ala Gly Thr Cys Ala Ala Gly Ala Ala Ala Cys Cys Ala Gly
            100                 105                 110

Gly Cys Gly Cys Thr Ala Gly Thr Gly Thr Cys Ala Ala Gly Gly Thr
        115                 120                 125

Gly Thr Cys Cys Thr Gly Thr Ala Ala Gly Gly Cys Ala Thr Cys Ala
    130                 135                 140

Gly Gly Cys Thr Ala Cys Ala Thr Cys Thr Thr Thr Ala Cys Cys Ala
145                 150                 155                 160

Gly Cys Thr Cys Cys Ala Thr Cys Ala Thr Gly Cys Ala Thr Thr Gly
                165                 170                 175

Gly Gly Thr Cys Ala Gly Ala Cys Ala Gly Gly Cys Thr Cys Cys Thr
            180                 185                 190

Gly Gly Ala Cys Ala Gly Gly Gly Cys Cys Thr Gly Gly Ala Gly Thr
        195                 200                 205

Gly Gly Ala Thr Thr Gly Gly Gly Thr Ala Thr Ala Thr Cys Ala Ala
    210                 215                 220
```

```
Gly Cys Cys Ala Thr Ala Cys Ala Ala Thr Gly Ala Thr Gly Gly Gly
225                 230                 235                 240


Ala Cys Ala Ala Ala Ala Thr Ala Cys Ala Ala Thr Gly Ala Ala Ala
                245                 250                 255


Ala Gly Thr Thr Thr Ala Ala Ala Gly Gly Gly Cys Gly Ala Gly Cys
            260                 265                 270


Cys Ala Cys Thr Cys Thr Gly Ala Cys Ala Thr Cys Thr Gly Ala Thr
        275                 280                 285


Cys Gly Gly Ala Gly Thr Ala Cys Ala Ala Gly Cys Ala Cys Thr Gly
    290                 295                 300


Cys Cys Thr Ala Cys Ala Thr Gly Gly Ala Ala Thr Thr Gly Ala Gly
305                 310                 315                 320


Cys Thr Cys Ala Cys Thr Gly Cys Gly Gly Thr Cys Cys Gly Ala Ala
                325                 330                 335


Gly Ala Cys Ala Cys Thr Gly Cys Thr Gly Thr Gly Thr Ala Thr Thr
            340                 345                 350


Ala Thr Thr Gly Cys Gly Cys Thr Cys Gly Gly Gly Ala Gly Gly Gly
        355                 360                 365


Ala Gly Gly Gly Ala Ala Cys Gly Ala Cys Thr Ala Cys Thr Ala Cys
    370                 375                 380


Gly Ala Thr Ala Cys Cys Ala Thr Gly Gly Ala Cys Thr Ala Cys Thr
385                 390                 395                 400


Gly Gly Gly Gly Cys Cys Ala Gly Gly Gly Cys Ala Cys Cys Cys Thr
                405                 410                 415
```

```
Gly Gly Thr Thr Ala Cys Cys Gly Thr Cys Ala Gly Cys Ala Gly Cys
            420                 425                 430


Gly Cys Thr Thr Cys Cys Ala Cys Thr Ala Ala Gly Gly Gly Cys Cys
        435                 440                 445


Cys
```

<210> 67
<211> 396
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 67

```
Gly Ala Ala Thr Thr Cys Gly Cys Cys Ala Cys Cys Ala Thr Gly Gly
1               5                   10                  15


Gly Cys Thr Gly Gly Thr Cys Ala Thr Gly Thr Ala Thr Thr Ala Thr
            20                  25                  30


Cys Cys Thr Gly Thr Thr Thr Cys Thr Gly Gly Thr Thr Gly Cys Ala
        35                  40                  45


Ala Cys Cys Gly Cys Ala Ala Cys Ala Gly Gly Ala Gly Thr Ala Cys
    50                  55                  60


Ala Cys Thr Cys Thr Gly Ala Thr Ala Thr Cys Cys Ala Gly Ala Thr
65                  70                  75                  80


Gly Ala Cys Thr Cys Ala Gly Thr Cys Thr Cys Cys Cys Thr Cys Thr
                85                  90                  95


Thr Cys Thr Ala Thr Gly Thr Cys Thr Gly Cys Thr Thr Cys Thr Gly
```

100 105 110

Thr Gly Gly Gly Ala Gly Ala Gly Ala Gly Ala Gly Thr Cys Ala Cys
115 120 125

Cys Ala Thr Cys Ala Cys Cys Thr Gly Thr Cys Gly Cys Gly Cys Thr
130 135 140

Thr Cys Cys Cys Ala Ala Gly Ala Thr Ala Thr Thr Ala Ala Thr Ala
145 150 155 160

Gly Cys Thr Ala Thr Cys Thr Gly Thr Cys Thr Thr Gly Gly Thr Thr
165 170 175

Cys Cys Ala Ala Cys Ala Gly Ala Ala Ala Cys Cys Thr Gly Gly Cys
180 185 190

Ala Ala Ala Thr Cys Ala Cys Cys Cys Ala Ala Gly Ala Cys Thr Cys
195 200 205

Thr Gly Ala Thr Thr Thr Ala Thr Cys Gly Gly Gly Thr Thr Ala Ala
210 215 220

Cys Cys Gly Cys Cys Thr Gly Gly Thr Gly Gly Ala Cys Gly Gly Thr
225 230 235 240

Gly Thr Gly Cys Cys Thr Thr Cys Ala Cys Gly Cys Thr Thr Cys Thr
245 250 255

Cys Cys Gly Gly Cys Ala Gly Cys Gly Gly Thr Ala Gly Thr Gly Gly
260 265 270

Ala Cys Ala Ala Gly Ala Cys Thr Ala Thr Ala Gly Cys Cys Thr Gly
275 280 285

Ala Cys Ala Ala Thr Thr Thr Cys Thr Thr Cys Thr Cys Thr Thr Gly

290 295 300

Ala Ala Cys Cys Cys Gly Ala Gly Gly Ala Cys Ala Thr Gly Gly Gly
305 310 315 320

Ala Ala Thr Cys Thr Ala Cys Thr Ala Thr Thr Gly Cys Thr Thr Gly
325 330 335

Cys Ala Gly Thr Ala Thr Gly Ala Cys Gly Cys Thr Thr Thr Thr Cys
340 345 350

Cys Thr Thr Ala Thr Ala Cys Ala Thr Thr Cys Gly Gly Cys Cys Ala
355 360 365

Gly Gly Gly Cys Ala Cys Ala Ala Ala Gly Cys Thr Gly Gly Ala Ala
370 375 380

Ala Thr Cys Ala Ala Ala Cys Gly Thr Ala Cys Gly
385 390 395

<210> 68
<211> 449
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 68

Ala Ala Gly Cys Thr Thr Gly Cys Cys Ala Cys Cys Ala Thr Gly Gly
1 5 10 15

Gly Gly Thr Gly Gly Ala Gly Cys Thr Gly Cys Ala Thr Thr Ala Thr
20 25 30

Thr Cys Thr Gly Thr Thr Cys Thr Thr Gly Gly Thr Cys Gly Cys Cys
35 40 45

```
Ala Cys Cys Gly Cys Ala Ala Cys Thr Gly Gly Cys Gly Thr Cys Cys
    50                  55                  60

Ala Cys Thr Cys Thr Cys Ala Gly Gly Thr Cys Cys Ala Gly Cys Thr
65                  70                  75                  80

Cys Gly Thr Cys Cys Ala Gly Thr Cys Thr Gly Gly Gly Gly Cys Ala
                85                  90                  95

Gly Ala Ala Gly Thr Gly Gly Thr Cys Ala Ala Gly Cys Cys Cys Gly
            100                 105                 110

Gly Thr Gly Cys Ala Thr Cys Thr Gly Thr Gly Ala Ala Ala Ala Thr
        115                 120                 125

Gly Thr Cys Cys Thr Gly Cys Ala Ala Ala Gly Cys Thr Ala Gly Cys
    130                 135                 140

Gly Gly Gly Thr Ala Thr Ala Cys Ala Thr Thr Cys Ala Cys Ala Thr
145                 150                 155                 160

Cys Thr Ala Gly Thr Ala Thr Cys Ala Thr Gly Cys Ala Thr Thr Gly
                165                 170                 175

Gly Ala Thr Gly Ala Ala Ala Cys Ala Gly Ala Ala Gly Cys Cys Thr
            180                 185                 190

Gly Gly Cys Cys Ala Gly Gly Gly Thr Cys Thr Gly Gly Ala Gly Thr
        195                 200                 205

Gly Gly Ala Thr Ala Gly Gly Ala Thr Ala Thr Ala Thr Cys Ala Gly
    210                 215                 220

Gly Cys Cys Thr Thr Ala Cys Ala Ala Cys Gly Ala Thr Gly Gly Cys
225                 230                 235                 240
```

```
Ala Cys Thr Cys Gly Ala Thr Ala Cys Ala Ala Cys Cys Ala Ala Ala
                245                 250                 255

Ala Gly Thr Thr Cys Cys Ala Gly Gly Gly Thr Ala Ala Ala Gly Cys
            260                 265                 270

Thr Ala Cys Ala Cys Thr Gly Ala Cys Cys Thr Cys Ala Gly Ala Cys
        275                 280                 285

Cys Gly Cys Thr Cys Ala Ala Gly Cys Ala Gly Thr Ala Cys Ala Gly
    290                 295                 300

Cys Ala Ala Ala Cys Ala Thr Gly Gly Ala Ala Cys Thr Gly Ala Ala
305                 310                 315                 320

Cys Ala Gly Thr Cys Thr Thr Ala Cys Cys Thr Cys Thr Gly Ala Gly
                325                 330                 335

Gly Ala Cys Ala Gly Thr Gly Cys Cys Gly Thr Thr Thr Ala Cys Thr
            340                 345                 350

Ala Thr Thr Gly Cys Gly Cys Cys Ala Gly Gly Gly Ala Gly Gly Gly
        355                 360                 365

Thr Gly Gly Cys Ala Ala Thr Gly Ala Cys Thr Ala Cys Thr Ala Thr
    370                 375                 380

Gly Ala Thr Ala Cys Thr Ala Thr Gly Gly Ala Cys Thr Ala Cys Thr
385                 390                 395                 400

Gly Gly Gly Gly Ala Cys Ala Gly Gly Gly Thr Ala Cys Cys Thr Cys
                405                 410                 415

Thr Gly Thr Ala Ala Cys Ala Gly Thr Thr Thr Cys Ala Ala Gly Cys
            420                 425                 430
```

Gly Cys Cys Ala Gly Cys Ala Cys Thr Ala Ala Gly Gly Gly Cys Cys
        435   440   445

Cys

<210> 69
<211> 449
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 69

Ala Ala Gly Cys Thr Thr Gly Cys Cys Ala Cys Cys Ala Thr Gly Gly
1   5   10   15

Gly Cys Thr Gly Gly Thr Cys Thr Thr Gly Thr Ala Thr Thr Ala Thr
            20   25   30

Thr Cys Thr Gly Thr Thr Thr Cys Thr Gly Gly Thr Gly Gly Cys Cys
        35   40   45

Ala Cys Cys Gly Cys Ala Ala Cys Ala Gly Gly Cys Gly Thr Thr Cys
    50   55   60

Ala Cys Ala Gly Thr Cys Ala Ala Thr Thr Cys Cys Ala Gly Cys Thr
65   70   75   80

Gly Gly Thr Cys Cys Ala Gly Thr Cys Cys Gly Gly Cys Gly Cys Cys
                85   90   95

Gly Ala Gly Gly Thr Thr Gly Thr Cys Ala Ala Ala Cys Cys Thr Gly
            100   105   110

Gly Thr Gly Cys Cys Ala Gly Cys Gly Thr Ala Ala Ala Gly Ala Thr

115 120 125

Gly Thr Cys Thr Thr Gly Cys Ala Ala Ala Gly Cys Thr Ala Gly Cys
130 135 140

Gly Gly Cys Thr Ala Thr Ala Cys Thr Thr Thr Cys Ala Cys Thr Thr
145 150 155 160

Cys Thr Thr Cys Ala Ala Thr Thr Ala Thr Gly Cys Ala Cys Thr Gly
165 170 175

Gly Ala Thr Gly Ala Ala Gly Cys Ala Ala Ala Ala Gly Cys Cys Thr
180 185 190

Gly Gly Ala Cys Ala Gly Gly Gly Cys Cys Thr Gly Gly Ala Ala Thr
195 200 205

Gly Gly Ala Thr Cys Gly Gly Cys Thr Ala Cys Ala Thr Thr Ala Ala
210 215 220

Ala Cys Cys Thr Thr Ala Thr Ala Ala Cys Gly Ala Cys Gly Gly Cys
225 230 235 240

Ala Cys Ala Ala Ala Gly Thr Ala Cys Ala Ala Thr Cys Ala Gly Ala
245 250 255

Ala Gly Thr Thr Cys Cys Ala Ala Gly Gly Ala Ala Ala Gly Gly Cys
260 265 270

Ala Ala Cys Cys Cys Thr Gly Ala Cys Cys Thr Cys Ala Gly Ala Cys
275 280 285

Ala Ala Gly Thr Cys Thr Thr Cys Ala Thr Cys Cys Ala Cys Thr Gly
290 295 300

Cys Cys Ala Ala Cys Ala Thr Gly Gly Ala Ala Cys Thr Thr Ala Ala

305 310 315 320

Thr Ala Gly Thr Cys Thr Thr Ala Cys Cys Thr Cys Thr Gly Ala Gly
325 330 335

Gly Ala Thr Thr Cys Cys Gly Cys Thr Gly Thr Cys Thr Ala Thr Thr
340 345 350

Ala Thr Thr Gly Cys Gly Cys Thr Cys Gly Gly Gly Ala Gly Gly Gly
355 360 365

Gly Gly Gly Gly Ala Ala Cys Gly Ala Cys Thr Ala Thr Thr Ala Cys
370 375 380

Gly Ala Cys Ala Cys Cys Ala Thr Gly Gly Ala Cys Thr Ala Cys Thr
385 390 395 400

Gly Gly Gly Gly Ala Cys Ala Gly Gly Gly Cys Ala Cys Cys Ala Gly
405 410 415

Thr Gly Thr Thr Ala Cys Cys Gly Thr Gly Thr Cys Cys Ala Gly Cys
420 425 430

Gly Cys Thr Ala Gly Cys Ala Cys Cys Ala Ala Gly Gly Gly Cys Cys
435 440 445

Cys

<210> 70
<211> 16
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 70

Gln Ser Glu Ala Tyr Tyr Gly Tyr Asp Lys Arg Thr Trp Phe Ala Tyr
1 5 10 15

<210> 71
<211> 7
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 71

Arg Val Asn Arg Leu Val Ser
1 5

<210> 72
<211> 11
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 72

Arg Ala Ser Gln Asp Ile Asn Ser Tyr Leu Ala
1 5 10

<210> 73
<211> 4
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 73

Gly Phe Leu Gly
1

<210> 74

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

<220>
<223> Synthetic Peptide

<400> 74

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

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

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

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

<210> 75
<211> 47
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 75

Phe Ser Gly Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Ser Ser
1 5 10 15

Leu Glu Pro Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Ala
20 25 30

Phe Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg
35 40 45

<210> 76

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

<220>
<223> Synthetic Peptide

<400> 76

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

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

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

Gly Tyr Ile Arg Pro Tyr Asn Asp Gly Thr Arg Tyr Asn
50 55 60

<210> 77
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synethetic Peptide

<400> 77

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

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

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

Gly Tyr Ile Lys Pro Tyr Asn Asp Gly Thr Lys Tyr Asn

50 55 60

<210> 78
<211> 60
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 78

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

Thr Ala Asn Met Glu Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val
20 25 30

Tyr Tyr Cys Ala Arg Glu Gly Gly Asn Asp Tyr Tyr Asp Thr Met Asp
35 40 45

Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser
50 55 60

<210> 79
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 79

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

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

Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Thr Leu Ile

35 40 45

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

<210> 80
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 80

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

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

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

Tyr Arg Val Asn Arg Leu Val Ser Gly Val Pro Ser Arg
50 55 60

<210> 81
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 81

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Asn Ser Tyr

20 25 30

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

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

<210> 82
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 82

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

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

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

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg
50 55 60

<210> 83
<211> 47
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 83

Phe Ser Gly Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Ser Ser

1 5 10 15

Leu Glu Tyr Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Ala
20 25 30

Phe Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
35 40 45

<210> 84
<211> 47
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 84

Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser
1 5 10 15

Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Tyr Asp Ala
20 25 30

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

<210> 85
<211> 47
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 85

Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser
1 5 10 15

Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Tyr Asp Ala

20 25 30

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

<210> 86
<211> 34
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 86

Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser
1 5 10 15

Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser
20 25 30

Tyr Pro

<210> 87
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 87

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

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

Ile Met His Trp Met Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

Gly Tyr Ile Lys Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
50 55 60

<210> 88
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 88

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

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

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

Gly Tyr Ile Lys Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
50 55 60

<210> 89
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 89

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Ile Phe Thr Ser Ser

20 25 30

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

Gly Tyr Ile Lys Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
50 55 60

<210> 90
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 90

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

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

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

Gly Tyr Ile Lys Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
50 55 60

<210> 91
<211> 61
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 91

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

1 5 10 15

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

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

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala
50 55 60

<210> 92
<211> 60
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 92

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

Thr Ala Asn Met Glu Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val
20 25 30

Tyr Tyr Cys Ala Arg Glu Gly Gly Asn Asp Tyr Tyr Asp Thr Met Asp
35 40 45

Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser
50 55 60

<210> 93
<211> 60
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 93

Glu Lys Phe Lys Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser
1 5 10 15

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
20 25 30

Tyr Tyr Cys Ala Arg Glu Gly Gly Asn Asp Tyr Tyr Asp Thr Met Asp
35 40 45

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
50 55 60

<210> 94
<211> 60
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 94

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

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
20 25 30

Tyr Tyr Cys Ala Arg Glu Gly Gly Asn Asp Tyr Tyr Asp Thr Met Asp
35 40 45

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
50 55 60

<210> 95
<211> 60
<212> PRT

<213> Artificial

<220>
<223> Synethetic Peptide

<400> 95

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

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
20 25 30

Tyr Tyr Cys Ala Arg Glu Gly Gly Asn Asp Tyr Tyr Asp Thr Met Asp
35 40 45

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
50 55 60

<210> 96
<211> 37
<212> PRT
<213> Artificial

<220>
<223> Synthetic Peptide

<400> 96

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

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
20 25 30

Tyr Tyr Cys Ala Arg
35

<210> 97
<211> 60
<212> PRT

<213> Artificial

<220>
<223> Synthetic Peptide

<400> 97

```
Gln Lys Phe Gln Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser
1               5                   10                  15


Thr Ala Asn Met Glu Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val
            20                  25                  30


Tyr Tyr Cys Ala Arg Glu Gly Gly Asn Asp Tyr Tyr Asp Thr Met Asp
        35                  40                  45


Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser
    50                  55                  60
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