eolf-seql

SEQUENCE LISTING

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<120> HUMANIZED ANTIBODIES AGAINST CD269 (BCMA)

<130> XII 2136/14WO

<160> 43

<170> PatentIn version 3.5

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


Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Ile Asp Phe Ser Arg Tyr
            20                  25                  30


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


Gly Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50                  55                  60


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


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


Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Met Asp Tyr Trp Gly Gln
            100                 105                 110
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Gly Thr Ser Val Thr Val Ser Ser
        115   120

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<223> Ab

<400> 2

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
            20   25   30

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

Gly Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50   55   60

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

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

Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Met Asp Tyr Trp Gly Gln
            100   105   110

Gly Thr Leu Val Thr Val Ser Ser
        115   120

<210> 3
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<213> Artificial Sequence

<220>
<223> Ab

<400> 3

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


Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
            20                  25                  30


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


Gly Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50                  55                  60


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


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


Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Met Asp Tyr Trp Gly Gln
            100                 105                 110


Gly Thr Leu Val Thr Val Ser Ser
        115                 120
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<210> 4
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<223> Ab

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<223> Xaa can be any naturally occurring amino acid

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<223> Xaa can be any naturally occurring amino acid

<220>
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<222> (107)..(107)
<223> Xaa can be any naturally occurring amino acid

<400> 4

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


Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
            20                  25                  30


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


Gly Glu Ile Asn Pro Xaa Xaa Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50                  55                  60


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


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

```
Ala Ser Leu Tyr Xaa Asp Tyr Gly Asp Ala Xaa Asp Tyr Trp Gly Gln
            100                 105                 110


Gly Thr Leu Val Thr Val Ser Ser
        115                 120


<210>  5
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<223>  Ab


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<223>  Xaa can be any naturally occurring amino acid

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<223>  Xaa can be any naturally occurring amino acid

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<223>  Xaa can be any naturally occurring amino acid
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<400> 5

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
20 25 30

Xaa Met Xaa Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Val Xaa Val
35 40 45

Gly Xaa Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
50 55 60

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

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

Ala Ser Xaa Xaa Xaa Asp Tyr Gly Asp Xaa Met Asp Tyr Trp Gly Gln
100 105 110

Gly Thr Leu Val Thr Val Ser Ser
115 120

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<213> Artificial Sequence

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<223> Ab

<400> 6

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
20 25 30

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

Gly Glu Ile Asn Pro Asn Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
50 55 60

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

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

Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Tyr Asp Tyr Trp Gly Gln
100 105 110

Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 7
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<220>
<223> Ab

<400> 7

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
20 25 30

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

```
Gly Glu Ile Asn Pro Asn Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50                  55                  60

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

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

Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Tyr Asp Tyr Trp Gly Gln
            100                 105                 110

Gly Thr Leu Val Thr Val Ser Ser
        115                 120
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<210> 8
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<213> Artificial Sequence

<220>
<223> Ab

<400> 8

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
            20                  25                  30

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

Gly Glu Ile Asn Pro Ser Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50                  55                  60
```

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


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


Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Tyr Asp Tyr Trp Gly Gln
            100                 105                 110


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

<210> 9
<211> 120
<212> PRT
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<220>
<223> Ab

<400> 9

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


Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
            20                  25                  30


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


Gly Glu Ile Asn Pro Ser Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50                  55                  60


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


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

```
Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Tyr Asp Tyr Trp Gly Gln
            100                 105                 110


Gly Thr Leu Val Thr Val Ser Ser
        115                 120


<210>  10
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<400>  10

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


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


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


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


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


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


Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg
            100                 105
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<210> 11
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 11

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

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

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

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

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

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

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

<210> 12
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<213> Artificial Sequence

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<223> Ab

<220>

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<223> Xaa can be any naturally occurring amino acid

<400> 12

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


Glu Arg Ala Thr Leu Ser Cys Lys Ala Ser Gln Ser Val Xaa Xaa Asn
            20                  25                  30


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


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


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


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


Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg
            100                 105
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<210> 13
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<220>
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<222> (31)..(32)
<223> Xaa can be any naturally occurring amino acid

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<222> (34)..(34)
<223> Xaa can be any naturally occurring amino acid

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<222> (36)..(36)
<223> Xaa can be any naturally occurring amino acid

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<222> (49)..(50)
<223> Xaa can be any naturally occurring amino acid

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<223> Xaa can be any naturally occurring amino acid

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<223> Xaa can be any naturally occurring amino acid

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<222> (66)..(67)
<223> Xaa can be any naturally occurring amino acid

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<222> (89)..(89)
<223> Xaa can be any naturally occurring amino acid

<220>
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<222> (91)..(91)
<223> Xaa can be any naturally occurring amino acid

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<222> (94)..(94)
<223> Xaa can be any naturally occurring amino acid

<220>
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<222> (96)..(96)

<223> Xaa can be any naturally occurring amino acid

<400> 13

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

Glu Arg Ala Thr Leu Ser Cys Lys Ala Ser Gln Ser Val Asp Xaa Xaa
            20   25   30

Val Xaa Trp Xaa Gln Gln Lys Pro Gly Gln Ala Pro Arg Ala Leu Ile
        35   40   45

Xaa Xaa Ala Xaa Xaa Arg Xaa Ser Gly Ile Pro Ala Arg Phe Ser Gly
    50   55   60

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

Glu Asp Phe Ala Val Tyr Tyr Cys Xaa Gln Xaa Asn Asn Xaa Pro Xaa
                85   90   95

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

<210> 14
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 14

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

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

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

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

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

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

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

<210> 15
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<220>
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<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<400> 15

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Arg Tyr Trp Xaa Ser
1               5
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<210> 16
<211> 18
<212> PRT
<213> Artificial Sequence

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<223> Ab

<220>
<221> misc_feature
<222> (5)..(6)
<223> Xaa can be any naturally occurring amino acid

<400> 16

Glu Ile Asn Pro Xaa Xaa Ser Thr Ile Asn Tyr Ala Pro Ser Leu Lys
1 5 10 15

Asp Lys

<210> 17
<211> 13
<212> PRT
<213> Artificial Sequence

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<223> Ab

<220>
<221> misc_feature
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (10)..(10)
<223> Xaa can be any naturally occurring amino acid

<400> 17

Ser Leu Tyr Xaa Asp Tyr Gly Asp Ala Xaa Asp Tyr Trp
1 5 10

<210> 18
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 18

Arg Tyr Trp Ile Ser
1   5

<210> 19
<211> 5
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<400> 19

Arg Tyr Trp Phe Ser
1   5

<210> 20
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<220>
<223> Ab

<400> 20

Glu Ile Asn Pro Asn Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu Lys
1   5   10   15

Asp Lys

<210> 21
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 21

Glu Ile Asn Pro Ser Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu Lys
1 5 10 15

Asp Lys

<210> 22
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 22

Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Tyr Asp Tyr Trp
1 5 10

<210> 23
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<220>
<221> misc_feature
<222> (7)..(8)
<223> Xaa can be any naturally occurring amino acid

<400> 23

Lys Ala Ser Gln Ser Val Xaa Xaa Asn Val Ala
1 5 10

<210> 24
<211> 7
<212> PRT

<213> Artificial Sequence

<220>
<223> Ab

<400> 24

Ser Ala Ser Leu Arg Phe Ser
1 5

<210> 25
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 25

Gln Gln Tyr Asn Asn Tyr Pro Leu Thr Phe Gly
1 5 10

<210> 26
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 26

Lys Ala Ser Gln Ser Val Asp Ser Asn Val Ala
1 5 10

<210> 27
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 27

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


Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
            20                  25                  30


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


Gly Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50                  55                  60


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


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


Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Met Asp Tyr Trp Gly Gln
            100                 105                 110


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


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


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


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


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

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

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

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

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

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

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

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

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

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

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

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

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

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


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


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


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


Gly Lys
    450


<210>  28
<211>  450
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Ab

<400>  28

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


Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
            20                  25                  30


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


Gly Glu Ile Asn Pro Ser Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50                  55                  60


Lys Asp Lys Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
```

```
65                  70                  75                  80

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

Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Tyr Asp Tyr Trp Gly Gln
            100                 105                 110

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

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

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

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

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

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

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

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

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

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

```
            260                 265                 270

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

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

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

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

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

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

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

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

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

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

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

Gly Lys
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450

<210> 29
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<220>
<223> Ab

<400> 29

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
20 25 30

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

Gly Glu Ile Asn Pro Ser Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
50 55 60

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

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

Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Tyr Asp Tyr Trp Gly Gln
100 105 110

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

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

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


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


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


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


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


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


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


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


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


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


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


Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
                325                 330                 335
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Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
            340                 345                 350


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


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


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


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


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


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


Gly Lys
    450


<210>  30
<211>  214
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Ab

<400>  30

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


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

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

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

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

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

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu 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
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210

<210> 31
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 31

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1 5 10 15

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

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

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

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

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

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu 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

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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
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<210> 32
<211> 1450
<212> DNA
<213> Artificial Sequence

<220>
<223> Ab coding

<400> 32

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ccacagtgaa gtgcagctgg tcgaatctgg aggaggcctg gttcagcctg gtggcagcct      120

taggctctct tgtgcagcct ctggctttac cttctcacgg tattggatga gctgggtgag      180

acaggctcca gggaaaggtc tggtgtgggt aggggagata aaccccgata gcagcacgat      240

caactatgct ccgtcactga aagacaagtt caccatttcc cgcgataatg ccaagaacac      300

tctctacttg cagatgaatt cccttcgagc cgaggataca gcggtgtact actgcgccag      360

tctgtactac gactatgggg acgcaatgga ctattgggga caaggcacac tggtgactgt      420

tagctccgcg tcgaccaagg gcccatcggt cttccccctg gcaccctcct ccaagagcac      480

ctctgggggc acagcggccc tgggctgcct ggtcaaggac tacttccccg aacctgtgac      540
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ggtctcgtgg aactcaggcg ccctgaccag cggcgtgcac accttcccgg ctgtcctaca 600

gtcctcagga ctctactccc tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac 660

ccagacctac atctgcaacg tgaatcacaa gcccagcaac accaaggtgg acaagagagt 720

tgagcccaaa tcttgtgaca aaactcacac atgcccaccg tgcccagcac ctgaactcct 780

gggggggaccg tcagtcttcc tcttcccccc aaaacccaag gacaccctca tgatctcccg 840

gacccctgag gtcacatgcg tggtggtgga cgtgagccac gaagaccctg aggtcaagtt 900

caactggtac gtggacggcg tggaggtgca taatgccaag acaaagccgc gggaggagca 960

gtacaacagc acgtaccgtg tggtcagcgt cctcaccgtc ctgcaccagg actggctgaa 1020

tggcaaggag tacaagtgca aggtctccaa caaagccctc ccagccccca tcgagaaaac 1080

catctccaaa gccaaagggc agccccgaga accacaggtg tacaccctgc ccccatcccg 1140

ggaggagatg accaagaacc aggtcagcct gacctgcctg gtcaaaggct tctatcccag 1200

cgacatcgcc gtggagtggg agagcaatgg gcagccggag aacaactaca agaccacgcc 1260

tcccgtgctg gactccgacg gctccttctt cctctatagc aagctcaccg tggacaagag 1320

caggtggcag caggggaacg tcttctcatg ctccgtgatg catgaggctc tgcacaacca 1380

ctacacgcag aagagcctct ccctgtcccc gggtaaatga gtgcgacggc cgggcggcgg 1440

cggcggatcc 1450

<210> 33
<211> 1450
<212> DNA
<213> Artificial Sequence

<220>
<223> Ab coding

<400> 33
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ccacagtgaa gtgcagctgg tcgaatctgg aggaggcctg gttcagcctg gtggcagcct 120

taggctctct tgtgcagcct ctggctttac cttctcacgg tattggttca gctgggtgag 180

acaggctcca gggaaaggtc tggtgtgggt aggggagata aaccccagca gcagcacgat 240

caactatgct ccgtcactga aagacaagtt caccatttcc cgcgataatg ccaagaacac 300

tctctacttg cagatgaatt cccttcgagc cgaggataca gcggtgtact actgcgccag 360

tctgtactac gactatgggg acgcatacga ctattgggga caaggcacac tggtgactgt 420

tagctccgcg tcgaccaagg gcccatcggt cttccccctg gcaccctcct ccaagagcac 480

ctctgggggc acagcggccc tgggctgcct ggtcaaggac tacttccccg aacctgtgac 540

ggtctcgtgg aactcaggcg ccctgaccag cggcgtgcac accttcccgg ctgtcctaca 600

gtcctcagga ctctactccc tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac 660

ccagacctac atctgcaacg tgaatcacaa gcccagcaac accaaggtgg acaagagagt 720

tgagcccaaa tcttgtgaca aaactcacac atgcccaccg tgcccagcac ctgaactcct 780

gggggggaccg tcagtcttcc tcttcccccc aaaacccaag gacaccctca tgatctcccg 840

gacccctgag gtcacatgcg tggtggtgga cgtgagccac gaagaccctg aggtcaagtt 900

caactggtac gtggacggcg tggaggtgca taatgccaag acaaagccgc gggaggagca 960

gtacaacagc acgtaccgtg tggtcagcgt cctcaccgtc ctgcaccagg actggctgaa 1020

tggcaaggag tacaagtgca aggtctccaa caaagccctc ccagccccca tcgagaaaac 1080

catctccaaa gccaaagggc agccccgaga accacaggtg tacaccctgc ccccatcccg 1140

ggaggagatg accaagaacc aggtcagcct gacctgcctg gtcaaaggct tctatcccag 1200

cgacatcgcc gtggagtggg agagcaatgg gcagccggag aacaactaca agaccacgcc 1260

tcccgtgctg gactccgacg gctccttctt cctctatagc aagctcaccg tggacaagag 1320

caggtggcag caggggaacg tcttctcatg ctccgtgatg catgaggctc tgcacaacca 1380

ctacacgcag aagagcctct ccctgtcccc gggtaaatga gtgcgacggc cgggcggcgg 1440

cggcggatcc 1450

<210> 34
<211> 1450
<212> DNA

<213> Artificial Sequence

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<223> Ab coding

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ccacagtgaa gtgcagctgg tcgaatctgg aggaggcctg gttcagcctg gtggcagcct 120

taggctctct tgtgcagcct ctggctttac cttctcacgg tattggatca gctgggtgag 180

acaggctcca gggaaaggtc tggtgtgggt aggggagata aaccccagca gcagcacgat 240

caactatgct ccgtcactga aagacaagtt caccatttcc cgcgataatg ccaagaacac 300

tctctacttg cagatgaatt cccttcgagc cgaggataca gcggtgtact actgcgccag 360

tctgtactac gactatgggg acgcatacga ctattgggga caaggcacac tggtgactgt 420

tagctccgcg tcgaccaagg gcccatcggt cttccccctg gcaccctcct ccaagagcac 480

ctctgggggc acagcggccc tgggctgcct ggtcaaggac tacttccccg aacctgtgac 540

ggtctcgtgg aactcaggcg ccctgaccag cggcgtgcac accttcccgg ctgtcctaca 600

gtcctcagga ctctactccc tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac 660

ccagacctac atctgcaacg tgaatcacaa gcccagcaac accaaggtgg acaagagagt 720

tgagcccaaa tcttgtgaca aaactcacac atgcccaccg tgcccagcac ctgaactcct 780

gggggggaccg tcagtcttcc tcttcccccc aaaacccaag gacaccctca tgatctcccg 840

gacccctgag gtcacatgcg tggtggtgga cgtgagccac gaagaccctg aggtcaagtt 900

caactggtac gtggacggcg tggaggtgca taatgccaag acaaagccgc gggaggagca 960

gtacaacagc acgtaccgtg tggtcagcgt cctcaccgtc ctgcaccagg actggctgaa 1020

tggcaaggag tacaagtgca aggtctccaa caaagccctc ccagccccca tcgagaaaac 1080

catctccaaa gccaaagggc agccccgaga accacaggtg tacaccctgc ccccatcccg 1140

ggaggagatg accaagaacc aggtcagcct gacctgcctg gtcaaaggct tctatcccag 1200

cgacatcgcc gtggagtggg agagcaatgg gcagccggag aacaactaca agaccacgcc 1260

tcccgtgctg gactccgacg gctccttctt cctctatagc aagctcaccg tggacaagag 1320

caggtggcag caggggaacg tcttctcatg ctccgtgatg catgaggctc tgcacaacca 1380

ctacacgcag aagagcctct ccctgtcccc gggtaaatga gtgcgacggc cgggcggcgg 1440

cggcggatcc 1450

<210> 35
<211> 718
<212> DNA
<213> Artificial Sequence

<220>
<223> Ab

<400> 35
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acactccgag atcgtgatga cccagtctcc tgctaccctg agcgtttctc ccggtgaaag 120

ggccacactc agctgcaaag cctctcaaag cgtggacagc aatgtcgcct ggtatcagca 180

gaaacctggc caagctccga gagcactgat ctattccgcg tcattgcgct tttccggcat 240

accagcacgg tttagtggct cagggagtgg gactgagttc actctgacga ttagctccct 300

tcagtcagag gatttcgccg tgtactactg tcagcagtac aacaactatc ccctcacatt 360

cggagctgga accaagctgg aactgaagcg tacggtggct gcaccatctg tcttcatctt 420

cccgccatct gatgagcagt tgaaatctgg aactgcctct gttgtgtgcc tgctgaataa 480

cttctatccc agagaggcca aagtacagtg gaaggtggat aacgccctcc aatcgggtaa 540

ctcccaggag agtgtcacag agcaggacag caaggacagc acctacagcc tcagcagcac 600

cctgacgctg agcaaagcag actacgagaa acacaaagtc tacgcctgcg aagtcaccca 660

tcagggcctg agctcgcccg tcacaaagag cttcaacagg ggagagtgtt agggatcc 718

<210> 36
<211> 718
<212> DNA
<213> Artificial Sequence

<220>
<223> AB

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ggccacactc agctgcaaag cctctcaaag cgtggagagc aatgtcgcct ggtatcagca 180

gaaacctggc caagctccga gagcactgat ctattccgcg tcattgcgct tttccggcat 240

accagcacgg tttagtggct cagggagtgg gactgagttc actctgacga ttagctccct 300

tcagtcagag gatttcgccg tgtactactg tcagcagtac aacaactatc ccctcacatt 360

cggagctgga accaagctgg aactgaagcg tacggtggct gcaccatctg tcttcatctt 420

cccgccatct gatgagcagt tgaaatctgg aactgcctct gttgtgtgcc tgctgaataa 480

cttctatccc agagaggcca aagtacagtg gaaggtggat aacgccctcc aatcgggtaa 540

ctcccaggag agtgtcacag agcaggacag caaggacagc acctacagcc tcagcagcac 600

cctgacgctg agcaaagcag actacgagaa acacaaagtc tacgcctgcg aagtcaccca 660

tcagggcctg agctcgcccg tcacaaagag cttcaacagg ggagagtgtt agggatcc 718

<210> 37
<211> 285
<212> PRT
<213> Artificial Sequence

<220>
<223> HIS TAG

<400> 37

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro
1 5 10 15

Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu
20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu

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        35                  40                  45

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

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn
65                  70                  75                  80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu
                85                  90                  95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser
            100                 105                 110

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

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn
    130                 135                 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp
145                 150                 155                 160

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

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr
            180                 185                 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala
        195                 200                 205

Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg
    210                 215                 220

Gly Ser Met Ala Gly Gln Cys Ser Gln Asn Glu Tyr Phe Asp Ser Leu
```

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225 230 235 240

Leu His Ala Cys Ile Pro Cys Gln Leu Arg Cys Ser Ser Asn Thr Pro
245 250 255

Pro Leu Thr Cys Gln Arg Tyr Cys Asn Ala Ser Val Thr Asn Ser Val
260 265 270

Lys Gly Thr Asn Ala Leu Glu His His His His His His
275 280 285

<210> 38
<211> 53
<212> PRT
<213> Artificial Sequence

<220>
<223> extra cell domain

<400> 38

Met Ala Gly Gln Cys Ser Gln Asn Glu Tyr Phe Asp Ser Leu Leu His
1 5 10 15

Ala Cys Ile Pro Cys Gln Leu Arg Cys Ser Ser Asn Thr Pro Pro Leu
20 25 30

Thr Cys Gln Arg Tyr Cys Asn Ala Ser Val Thr Asn Ser Val Lys Gly
35 40 45

Thr Asn Ala Leu Glu
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<210> 39
<211> 56
<212> PRT
<213> Homo sapiens

<400> 39

Met Leu Gln Met Ala Gly Gln Cys Ser Gln Asn Glu Tyr Phe Asp Ser
1 5 10 15

Leu Leu His Ala Cys Ile Pro Cys Gln Leu Arg Cys Ser Ser Asn Thr
20 25 30

Pro Pro Leu Thr Cys Gln Arg Tyr Cys Asn Ala Ser Val Thr Asn Ser
35 40 45

Val Lys Gly Thr Asn Ala Leu Glu
50 55

<210> 40
<211> 20
<212> PRT
<213> Homo sapiens

<400> 40

Tyr Phe Asp Ser Leu Leu His Ala Cys Ile Pro Cys Gln Leu Arg Cys
1 5 10 15

Ser Ser Asn Thr
20

<210> 41
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

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<223> Xaa can be any naturally occurring amino acid

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<222> (5)..(6)

<223> Xaa can be any naturally occurring amino acid

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<220>
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<223> Xaa can be any naturally occurring amino acid

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<220>

<221> misc_feature
<222> (93)..(93)
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<220>
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<223> Xaa can be any naturally occurring amino acid

<400> 41

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Xaa Val Gln Leu Xaa Xaa Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1               5                   10                  15


Ser Leu Xaa Leu Ser Cys Ala Ala Ser Gly Xaa Xaa Phe Xaa Xaa Tyr
            20                  25                  30


Trp Glx Ser Trp Val Arg Xaa Ala Pro Gly Lys Gly Leu Glu Trp Xaa
        35                  40                  45


Gly Glu Ile Asn Pro Glx Ser Ser Thr Ile Asn Tyr Ala Pro Ser Leu
    50                  55                  60


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


Leu Gln Met Xaa Xaa Xaa Arg Xaa Glu Asp Thr Ala Xaa Tyr Tyr Cys
                85                  90                  95


Ala Ser Leu Tyr Tyr Asp Tyr Gly Asp Ala Glx Asp Tyr Trp Gly Gln
            100                 105                 110


Gly Thr Xaa Val Thr Val Ser Ser
        115                 120
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<210> 42
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<220>
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<223> Xaa can be any naturally occurring amino acid

<220>
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<220>
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<220>
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<220>
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<223> Xaa can be any naturally occurring amino acid

<220>
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<222> (63)..(63)
<223> Xaa can be any naturally occurring amino acid

<220>
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<223> Xaa can be any naturally occurring amino acid

<220>
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<223> Xaa can be any naturally occurring amino acid

<400> 42

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

Asp Xaa Val Xaa Xaa Thr Cys Lys Ala Ser Gln Ser Val Glu Ser Asn
            20   25   30

Val Ala Trp Tyr Gln Gln Lys Pro Xaa Gln Xaa Pro Lys Xaa Leu Ile
        35   40   45

Xaa Ser Xaa Xaa Leu Arg Phe Ser Gly Val Pro Ala Arg Phe Xaa Gly
    50   55   60

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

Glu Asp Xaa Ala Xaa Tyr Xaa Cys Gln Gln Tyr Asn Asn Tyr Pro Leu
                85   90   95

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

eolf-seql

100 105

<210> 43
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Ab

<400> 43

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

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

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

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

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

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

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