SEQUENCE LISTING

<110> CovX Technologies Ireland Limited
Pfizer Inc.

<120> Anti-Diabetic Compounds

<130> PC71861A

<150> US61/579,609
<151> 2011-12-22

<150> US61/644,831
<151> 2012-05-09

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<170> PatentIn version 3.5

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Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
20 25 30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
35 40 45

Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
50 55 60

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

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
100 105 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro
115 120 125

```
Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
    130                 135                 140

Ala Xaa Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145                 150                 155                 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser
                165                 170                 175

Pro Ser Tyr Ala Ser
            180
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<210> 2
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Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val Arg
1               5                   10                  15

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
            20                  25                  30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
        35                  40                  45

Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile
    50                  55                  60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
                85                  90                  95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
            100                 105                 110

Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Ala
        115                 120                 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
    130                 135                 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145                 150                 155                 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
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Ser Tyr Ala Ser
            180

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Xaa Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
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Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
            20   25   30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
        35   40   45

Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
    50   55   60

Ile Leu Gly Val Lys Thr Ser Arg Phe Leu Cys Gln Arg Pro Xaa Gly
65   70   75   80

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
                85   90   95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
            100   105   110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro Xaa Arg Asp Pro
        115   120   125

Xaa Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
130 135 140

Ala Xaa Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145 150 155 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser
165 170 175

Pro Ser Tyr Ala Ser
180

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Xaa Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
1 5 10 15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
20 25 30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
35 40 45

Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
50 55 60

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

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

```
Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
            100                 105                 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro Xaa Arg Asp Pro
        115                 120                 125

Xaa Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
    130                 135                 140

Ala Xaa Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145                 150                 155                 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser
                165                 170                 175

Pro Ser Tyr Ala Ser
            180


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<213>  Homo sapiens


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Xaa Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
1               5                   10                  15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
            20                  25                  30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
        35                  40                  45

Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
    50                  55                  60

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

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
                85                  90                  95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
```

100 105 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro Cys Arg Asp Pro
115 120 125

Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
130 135 140

Ala Xaa Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145 150 155 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser
165 170 175

Pro Ser Tyr Ala Ser
180

<210> 6
<211> 180
<212> PRT
<213> Homo sapiens

<400> 6

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro Cys Arg Asp Pro Ala
115 120 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
130 135 140

Pro Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145 150 155 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Ser
180

<210> 7
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<212> PRT
<213> Homo sapiens

<400> 7

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro Cys Arg Asp Pro Ala
115 120 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
130 135 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145 150 155 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Ser
180

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<213> Homo sapiens

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Xaa Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
1               5                   10                  15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
            20                  25                  30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
        35                  40                  45

Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
    50                  55                  60

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

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
                85                  90                  95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
            100                 105                 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro
        115                 120                 125

Cys Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
    130                 135                 140

Ala Xaa Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145                 150                 155                 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser
                165                 170                 175

Pro Ser Tyr Ala Ser
            180
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<210> 9
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<212> PRT
<213> Homo sapiens

<400> 9

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
            20                  25                  30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
        35                  40                  45

Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile
    50                  55                  60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
                85                  90                  95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
            100                 105                 110

Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Cys
        115                 120                 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
    130                 135                 140

Pro Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145                 150                 155                 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
                165                 170                 175

Ser Tyr Ala Ser
            180
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<210> 10
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<212> PRT
<213> Homo sapiens

<400> 10

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
            20                  25                  30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
        35                  40                  45
```

Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile
    50   55   60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
                85   90   95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
            100   105   110

Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Cys
        115   120   125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
    130   135   140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145   150   155   160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
                165   170   175

Ser Tyr Ala Ser
            180

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1   5   10   15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
            20   25   30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
        35   40   45

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

50 55 60

Ile Leu Gly Val Lys Thr Ser Arg Phe Leu Cys Gln Arg Pro Cys Gly
65 70 75 80

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
100 105 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro
115 120 125

Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
130 135 140

Ala Xaa Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145 150 155 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser
165 170 175

Pro Ser Tyr Ala Ser
180

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

<400> 12

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

```
Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Ala
        115                 120                 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
    130                 135                 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145                 150                 155                 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
                165                 170                 175

Ser Tyr Ala Ser
            180
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<210> 13
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<213> Homo sapiens

<400> 13

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
            20                  25                  30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
        35                  40                  45

Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile
    50                  55                  60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
                85                  90                  95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
            100                 105                 110

Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Ala
        115                 120                 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
    130                 135                 140

Pro Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145                 150                 155                 160
```

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Ser
180

<210> 14
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<213> Homo sapiens

<400> 14

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Cys His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Ala
115 120 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
130 135 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145 150 155 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Ser
180

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

<400> 15

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
            20                  25                  30

Glu Ile Arg Glu Asp Gly Cys Val Gly Gly Ala Ala Asp Gln Ser Pro
        35                  40                  45

Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile
    50                  55                  60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
                85                  90                  95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
            100                 105                 110

Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Ala
        115                 120                 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
    130                 135                 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145                 150                 155                 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
                165                 170                 175

Ser Tyr Ala Ser
            180
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<210> 16
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<212> PRT
<213> Homo sapiens

<400> 16

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Cys Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
1               5                  10                  15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
            20                  25                  30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
        35                  40                  45
```

```
Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
    50                  55                  60

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

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
                85                  90                  95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
            100                 105                 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro
        115                 120                 125

Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
    130                 135                 140

Ala Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145                 150                 155                 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser
                165                 170                 175

Pro Ser Tyr Ala Ser
            180
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<223> X = K or R

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<223> X = K or R

<220>
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<223> X = L or P

<400> 17

Xaa Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
1 5 10 15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
20 25 30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
35 40 45

Pro Glu Ser Leu Leu Gln Leu Xaa Ala Leu Xaa Pro Gly Val Ile Gln
50 55 60

Ile Leu Gly Val Xaa Thr Ser Arg Phe Leu Cys Gln Arg Pro Asp Gly
65 70 75 80

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
100 105 110

Gly Leu Pro Leu His Leu Pro Gly Asn Xaa Ser Pro His Arg Asp Pro
115 120 125

Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
130 135 140

Ala Xaa Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145 150 155 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser
165 170 175

Pro Ser Tyr Ala Ser
180

<210> 18
<211> 180
<212> PRT
<213> Homo sapiens

<400> 18

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu

20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Lys Ala Leu Arg Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

Leu Pro Leu His Leu Pro Gly Asn Arg Ser Pro His Arg Asp Pro Ala
115 120 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
130 135 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145 150 155 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Ser
180

<210> 19
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<400> 19

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Arg Ala Leu Lys Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

Leu Pro Leu His Leu Pro Gly Asn Arg Ser Pro His Arg Asp Pro Ala
115 120 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
130 135 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145 150 155 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Ser
180

<210> 20
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<212> PRT
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<400> 20

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Arg Ala Leu Arg Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

Leu Pro Leu His Leu Pro Gly Asn Arg Ser Pro His Arg Asp Pro Ala
115 120 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
130 135 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145 150 155 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Ser
180

<210> 21
<211> 180
<212> PRT
<213> Homo sapiens

<400> 21

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Arg Ala Leu Arg Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Ala
115 120 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
130 135 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145 150 155 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Ser
180

<210> 22
<211> 180
<212> PRT
<213> Homo sapiens

<400> 22

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Arg Ala Leu Arg Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

Leu Pro Leu His Leu Pro Gly Asn Arg Ser Pro His Arg Asp Pro Ala
115 120 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
130 135 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145 150 155 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Ser
180

<210> 23
<211> 181
<212> PRT
<213> Homo sapiens

<400> 23

Lys Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
1 5 10 15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
20 25 30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
35 40 45

Pro Glu Ser Leu Leu Gln Leu Arg Ala Leu Arg Pro Gly Val Ile Gln
50 55 60

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

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
100 105 110

Gly Leu Pro Leu His Leu Pro Gly Asn Arg Ser Pro His Arg Asp Pro
115 120 125

Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
130 135 140

Ala Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145 150 155 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser
165 170 175

Pro Ser Tyr Ala Ser
180

<210> 24
<211> 180
<212> PRT
<213> Homo sapiens

<400> 24

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

Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu
20 25 30

Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro
35 40 45

Glu Ser Leu Leu Gln Leu Arg Ala Leu Arg Pro Gly Val Ile Gln Ile
50 55 60

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

Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu
85 90 95

Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His Gly
100 105 110

Leu Pro Leu His Leu Pro Gly Asn Arg Ser Pro His Arg Asp Pro Ala
115 120 125

Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala
130 135 140

Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly
145 150 155 160

Ser Ser Asp Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro
165 170 175

Ser Tyr Ala Lys
180

<210> 25
<211> 219
<212> PRT
<213> Homo sapiens

<400> 25

Glu Leu 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 Ser Ser Gln Ser Leu Leu His Thr
20 25 30

Tyr Gly Ser Pro Tyr Leu Asn Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45

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

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

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

Thr His Leu Pro Tyr Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105 110

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
        115   120   125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
    130   135   140

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
145   150   155   160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
                165   170   175

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

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

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
    210   215

<210> 26
<211> 448
<212> PRT
<213> Homo sapiens

<400> 26

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 Asn Tyr
            20   25   30

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

Ser Glu Ile Arg Leu Arg Ser Asp Asn Tyr Ala Thr His Tyr Ala Glu
    50   55   60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr
65   70   75   80

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

Tyr Cys Lys Thr Tyr Phe Tyr Ser Phe Ser Tyr Trp Gly Gln Gly Thr
            100   105   110

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

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly

```
    130                 135                 140

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

<210> 27
<211> 112
<212> PRT
<213> Homo sapiens

<400> 27

Glu Leu 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 Ser Ser Gln Ser Leu Leu His Thr
20 25 30

Tyr Gly Ser Pro Tyr Leu Asn Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45

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

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

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

Thr His Leu Pro Tyr Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 28
<211> 118
<212> PRT
<213> Homo sapiens

<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 Asn Tyr
20 25 30

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

Ser Glu Ile Arg Leu Arg Ser Asp Asn Tyr Ala Thr His Tyr Ala Glu
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr
65 70 75 80

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

Tyr Cys Lys Thr Tyr Phe Tyr Ser Phe Ser Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 29
<211> 112
<212> PRT
<213> Mus musculus

<400> 29

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

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

Tyr Gly Ser Pro Tyr Leu Asn Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45

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

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

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Gly
85 90 95

Thr His Leu Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 30
<211> 118
<212> PRT
<213> Mus musculus

<400> 30

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

Thr Met Lys Leu Ser Cys Glu Ile Ser Gly Leu Thr Phe Arg Asn Tyr
20 25 30

Trp Met Ser Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val

35 40 45

Ala Glu Ile Arg Leu Arg Ser Asp Asn Tyr Ala Thr His Tyr Ala Glu
50 55 60

Ser Val Lys Gly Lys Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Arg
65 70 75 80

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

Tyr Cys Lys Tyr Tyr Phe Tyr Ser Phe Ser Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ala
115

<210> 31
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Polypeptide Linker

<400> 31

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

<210> 32
<211> 28
<212> PRT
<213> Homo sapiens

<400> 32

Met Asn Ser Asn Glu Thr Gly Phe Glu His Ser Gly Leu Trp Val Ser
1 5 10 15

Val Leu Ala Gly Leu Leu Leu Gly Ala Cys Gln Ala
20 25

<210> 33
<211> 209
<212> PRT
<213> Homo sapiens

<400> 33

Met Asn Ser Asn Glu Thr Gly Phe Glu His Ser Gly Leu Trp Val Ser
1 5 10 15

Val Leu Ala Gly Leu Leu Leu Gly Ala Cys Gln Ala His Pro Ile Pro
20 25 30

Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val Arg Gln Arg Tyr

35 40 45

Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His Leu Glu Ile Arg
50 55 60

Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser Pro Glu Ser Leu
65 70 75 80

Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln Ile Leu Gly Val
85 90 95

Lys Thr Ser Arg Phe Leu Cys Gln Arg Pro Asp Gly Ala Leu Tyr Gly
100 105 110

Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg Glu Leu Leu Leu
115 120 125

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

His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro Ala Pro Arg Gly
145 150 155 160

Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro Ala Leu Pro Glu
165 170 175

Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val Gly Ser Ser Asp
180 185 190

Pro Leu Ser Met Val Gly Pro Ser Gln Gly Arg Ser Pro Ser Tyr Ala
195 200 205

Ser

<210> 34
<211> 30
<212> PRT
<213> Homo sapiens

<400> 34

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25 30

<210> 35
<211> 39
<212> PRT
<213> Homo sapiens

<400> 35

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly Ala Pro Pro Pro Ser
        35

<210> 36
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<400> 36

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly Ala Pro Pro Pro Ser
        35

<210> 37
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (40)..(40)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or
       homoserine

<400> 37

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1   5   10   15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20   25   30

Ser Gly Ala Pro Pro Pro Ser Xaa
        35   40

<210> 38
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (40)..(40)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, homoserine, or is absent

<400> 38

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His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1               5                   10                  15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20                  25                  30

Ser Gly Ala Pro Pro Pro Ser Xaa
        35                  40
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<210> 39
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (38)..(38)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 39

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His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1               5                   10                  15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20                  25                  30

Ser Gly Ala Pro Pro Xaa Ser
        35
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<210> 40
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (36)..(36)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 40

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Xaa Pro Pro Ser
35

<210> 41
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (34)..(34)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 41

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Xaa Ala Pro Pro Pro Ser
35

<210> 42
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (32)..(32)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 42

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Xaa
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 43
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 43

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Xaa Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 44
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (27)..(27)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 44

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Xaa Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 45
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (26)..(26)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 45

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Xaa Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 46
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (24)..(24)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 46

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Xaa Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 47
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (23)..(23)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 47

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Xaa Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 48
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (21)..(21)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 48

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Xaa Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 49
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (20)..(20)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 49

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Xaa Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 50
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 50

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Xaa Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 51
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (17)..(17)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 51

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Xaa Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 52
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 52

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Xaa
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 53
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 53

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Xaa Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 54
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (13)..(13)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 54

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Xaa Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 55
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 55

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Xaa Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 56
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 56

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Xaa Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 57
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (31)..(31)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 57

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Xaa
20 25 30

<210> 58
<211> 33

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (21)..(21)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 58

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Xaa Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser

<210> 59
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> X = d-His

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<400> 59

Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Xaa Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser

35

<210> 60
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> X = K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> X = M, K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> X = V, K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<220>
<221> MISC_FEATURE
<222> (20)..(20)
<223> X = R, K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<220>
<221> MISC_FEATURE
<222> (21)..(21)
<223> X = L, K, KSH, KSMAL, Dap, Dab, R, Y, C, T, S homocysteine, or homoserine

<220>
<221> MISC_FEATURE
<222> (40)..(40)
<223> X = Absent or any amino acid

<400> 60

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Xaa Gln Xaa Glu Glu
1 5 10 15

Glu Ala Xaa Xaa Xaa Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser Xaa
35 40

<210> 61
<211> 39

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<400> 61

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 62
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> X = KSH

<400> 62

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Xaa Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 63
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<400> 63

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Lys Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 64
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> X = KSH

<400> 64

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Xaa Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 65
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<400> 65

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Lys Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20 25 30

Ser Gly Ala Pro Pro Pro Ser
        35

<210> 66
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> X = KSH

<400> 66

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Xaa Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20 25 30

Ser Gly Ala Pro Pro Pro Ser
        35

<210> 67
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<400> 67

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Lys Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 68
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (20)..(20)
<223> X = KSH

<400> 68

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Xaa Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 69
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<400> 69

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Lys Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 70
<211> 39

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (21)..(21)
<223> X = KSH

<400> 70

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His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1               5                   10                  15

Glu Ala Val Arg Xaa Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20                  25                  30

Ser Gly Ala Pro Pro Pro Ser
        35
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<210> 71
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<400> 71

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His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1               5                   10                  15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
            20                  25                  30

Ser Gly Ala Pro Pro Pro Ser Lys
        35                  40
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<210> 72
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (40)..(40)
<223> X = KSH

<400> 72

His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser Xaa
35 40

<210> 73
<211> 181
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> X = H or Absent

<220>
<221> MISC_FEATURE
<222> (146)..(146)
<223> X = L or P

<400> 73

Xaa Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
1 5 10 15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
20 25 30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
35 40 45

Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
50 55 60

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

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
100 105 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro
115 120 125

Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
130 135 140

Ala Xaa Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145 150 155 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Cys Ser Gln Gly Arg Ser
165 170 175

Pro Ser Tyr Ala Ser
180

<210> 74
<211> 181
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> X = H or absent

<400> 74

Xaa Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
1 5 10 15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
20 25 30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
35 40 45

Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
50 55 60

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

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
100 105 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro
115 120 125

Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro

130 135 140

Ala Leu Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145 150 155 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Cys Ser Gln Gly Arg Ser
165 170 175

Pro Ser Tyr Ala Ser
180

<210> 75
<211> 181
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> X = H or Absent

<400> 75

Xaa Pro Ile Pro Asp Ser Ser Pro Leu Leu Gln Phe Gly Gly Gln Val
1 5 10 15

Arg Gln Arg Tyr Leu Tyr Thr Asp Asp Ala Gln Gln Thr Glu Ala His
20 25 30

Leu Glu Ile Arg Glu Asp Gly Thr Val Gly Gly Ala Ala Asp Gln Ser
35 40 45

Pro Glu Ser Leu Leu Gln Leu Lys Ala Leu Lys Pro Gly Val Ile Gln
50 55 60

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

Ala Leu Tyr Gly Ser Leu His Phe Asp Pro Glu Ala Cys Ser Phe Arg
85 90 95

Glu Leu Leu Leu Glu Asp Gly Tyr Asn Val Tyr Gln Ser Glu Ala His
100 105 110

Gly Leu Pro Leu His Leu Pro Gly Asn Lys Ser Pro His Arg Asp Pro
115 120 125

Ala Pro Arg Gly Pro Ala Arg Phe Leu Pro Leu Pro Gly Leu Pro Pro
130 135 140

Ala Pro Pro Glu Pro Pro Gly Ile Leu Ala Pro Gln Pro Pro Asp Val
145 150 155 160

Gly Ser Ser Asp Pro Leu Ser Met Val Gly Cys Ser Gln Gly Arg Ser
165 170 175

Pro Ser Tyr Ala Ser
180

<210> 76
<211> 444
<212> PRT
<213> Homo sapiens

<400> 76

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 Asn Tyr
20 25 30

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

Ser Glu Ile Arg Leu Arg Ser Asp Asn Tyr Ala Thr His Tyr Ala Glu
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr
65 70 75 80

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

Tyr Cys Lys Thr Tyr Phe Tyr Ser Phe Ser Tyr Trp Gly Gln Gly Thr
100 105 110

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

Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly
130 135 140

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

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

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

Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
195 200 205

Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys Cys Val Glu Cys

210 215 220

Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe
225 230 235 240

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

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln Phe
260 265 270

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

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

Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
305 310 315 320

Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Thr
325 330 335

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

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
355 360 365

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
370 375 380

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
385 390 395 400

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
405 410 415

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

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440

<210> 77
<211> 41
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Analogs of Human Exendin-4

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> X = C(O)CH3

<220>
<221> MISC_FEATURE
<222> (3)..(3)
<223> X = Aib

<220>
<221> MISC_FEATURE
<222> (15)..(15)
<223> X = KSH

<220>
<221> MISC_FEATURE
<222> (41)..(41)
<223> X = NH2

<400> 77

Xaa His Xaa Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Xaa Glu
1 5 10 15

Glu Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro
20 25 30

Ser Ser Gly Ala Pro Pro Pro Ser Xaa
35 40

<210> 78
<211> 107
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (46)..(46)
<223> X = V or A

<220>
<221> MISC_FEATURE
<222> (84)..(84)
<223> X = V or L

<400> 78

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

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Xaa Leu Gln
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

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

Lys His Lys Xaa Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 79
<211> 107
<212> PRT
<213> Homo sapiens

<400> 79

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

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Val Leu Gln
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

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

Lys His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 80
<211> 107
<212> PRT
<213> Homo sapiens

<400> 80

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

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

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

Lys His Lys Leu Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 81
<211> 107
<212> PRT
<213> Homo sapiens

<400> 81

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

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

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

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 82
<211> 330
<212> PRT
<213> Homo sapiens

<400> 82

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

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

```
Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
    50                  55                  60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65                  70                  75                  80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
                85                  90                  95

Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
            100                 105                 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
        115                 120                 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
    130                 135                 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145                 150                 155                 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
                165                 170                 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
            180                 185                 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
        195                 200                 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
    210                 215                 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
225                 230                 235                 240

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
                245                 250                 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
            260                 265                 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
        275                 280                 285

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

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305                 310                 315                 320
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Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
325 330