SEQUENCE LISTING

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<120> AGENTS FOR INFLUENZA NEUTRALIZATION

<130> 0492612-0931

<150> US 61/645,453
<151> 2012-05-10

<160> 60

<170> PatentIn version 3.5

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<400> 1

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

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

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

Ala Val Ile Ser Tyr Asp Gly Ser Tyr Lys Tyr Tyr Ala Asp Ser Val
    50                  55                  60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Ser Glu Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser
            100                 105                 110

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

Ser Ala Ser Thr Lys
    130
```

<210> 2

<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 2

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

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

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

Ala Val Ile Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
    50                  55                  60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Gly Lys Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser
            100                 105                 110

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

Ser Ala Ser Thr Lys
    130
```

<210> 3
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<223> Exemplary VH Chain

<400> 3

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

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

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

Ala Val Val Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
```

50 55 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Gly Lys Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser
100 105 110

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

Ser Ala Ser Thr Lys
130

<210> 4
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 4

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

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

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

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

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Gly Lys Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser
100 105 110

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

Ser Ala Ser Thr Lys
130

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

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<223> Exemplary VH Chain

<400> 5

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

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

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

Ala Val Val Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
    50                  55                  60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Gly Lys Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser
            100                 105                 110

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

Ser Ala Ser Thr Lys
    130
```

<210> 6
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 6

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

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

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

```
Ala Val Val Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
    50                  55                  60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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

Gly Lys Asp Ser Gln Leu Arg Ser Leu Val Tyr Phe Glu Trp Leu Ser
            100                 105                 110

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

Ser Ala Ser Thr Lys
    130
```

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

<220>
<223> Exemplary VH Chain

<400> 7

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

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

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

Ala Val Val Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
    50                  55                  60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Ser Gln Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser
            100                 105                 110

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

Ser Ala Ser Thr Lys
```

130

<210> 8
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 8

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

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

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

Ala Val Val Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
50 55 60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Ser Lys Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser
100 105 110

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

Ser Ala Ser Thr Lys
130

<210> 9
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 9

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

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

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

35 40 45

Ala Val Val Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
50 55 60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Thr Gln Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser
100 105 110

Gln Gly Phe Tyr Asp Ile Trp Gly Gln Gly Ala Met Val Thr Val Ser
115 120 125

Ser Ala Ser Thr Lys
130

<210> 10
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 10

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

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

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

Ala Val Val Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
50 55 60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Ser Gln Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser
100 105 110

Gln Gly Tyr Phe Asp Pro Trp Gly Gln Gly Ala Met Val Thr Val Ser
115 120 125

Ser Ala Ser Thr Lys
130

<210> 11
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 11

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

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

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

Ala Val Val Ser Tyr Asp Gly Ser Tyr Lys Tyr Tyr Ala Asp Ser Val
50 55 60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Ser Gln Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser
100 105 110

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

Ser Ala Ser Thr Lys
130

<210> 12
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 12

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

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

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

Ala Val Ile Ser Tyr Asp Gly Ser Tyr Lys Tyr Tyr Ala Asp Ser Val
    50                  55                  60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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

Gly Lys Asp Ser Gln Leu Arg Ser Leu Ile Tyr Phe Glu Trp Leu Ser
            100                 105                 110

Asn Gly Tyr Phe Asp Ile Trp Gly Ala Gly Thr Thr Leu Thr Val Ser
        115                 120                 125

Ser Ala Ser Thr Lys
    130
```

<210> 13
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 13

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

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

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

Ala Val Ile Ser Tyr Asp Gly Ser Tyr Lys Tyr Tyr Ala Asp Ser Val
    50                  55                  60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Ser Gln Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser
            100                 105                 110

Asn Gly Phe Tyr Asp Ile Trp Gly Ala Gly Thr Thr Leu Thr Val Ser
```

115 120 125

Ser Ala Ser Thr Lys
130

<210> 14
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 14

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

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

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

Ala Val Ile Ser Tyr Asp Gly Ser Tyr Lys Tyr Tyr Ala Asp Ser Val
50 55 60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Ser Asn Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser
100 105 110

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

Ser Ala Ser Thr Lys
130

<210> 15
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 15

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

Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Thr Ser Tyr

20 25 30

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

Ala Val Ile Ser Tyr Asp Gly Ser Tyr Lys Tyr Tyr Ala Asp Ser Val
50 55 60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Ser Gln Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser
100 105 110

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

Ser Ala Ser Thr Lys
130

<210> 16
<211> 133
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain

<400> 16

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

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

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

Ala Val Ile Ser Tyr Asp Gly Ser Tyr Lys Tyr Tyr Ala Asp Ser Val
50 55 60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser 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 Lys Asp Thr Gln Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser
100 105 110

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

Ser Ala Ser Thr Lys
130

<210> 17
<211> 7
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<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 1

<400> 17

Gly Phe Thr Phe Thr Ser Tyr
1 5

<210> 18
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 1

<400> 18

Gly Phe Thr Phe Ser Ser Tyr
1 5

<210> 19
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 2

<400> 19

Ser Tyr Asp Gly Ser Tyr
1 5

<210> 20
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 2

<400> 20

Ser Tyr Asp Gly Ser Asn
1 5

<210> 21
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<212> PRT

<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 21

Asp Ser Glu Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser Gln Gly
1 5 10 15

Tyr Phe Asn Pro
20

<210> 22
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 22

Asp Gly Lys Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser Ser Gly
1 5 10 15

Leu Leu Asp Tyr
20

<210> 23
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 23

Asp Ser Gln Leu Arg Ser Leu Val Tyr Phe Glu Trp Leu Ser Ser Gly
1 5 10 15

Leu Leu Asp Tyr
20

<210> 24
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 24

Asp Ser Gln Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser Ser Gly
1 5 10 15

Leu Leu Asp Tyr
20

<210> 25
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 25

Asp Thr Gln Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser Gln Gly
1 5 10 15

Phe Tyr Asp Ile
20

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

<220>
<223> Exemplary VH Chain CDR 3

<400> 26

Asp Ser Gln Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser Gln Gly
1 5 10 15

Tyr Phe Asp Pro
20

<210> 27
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 27

Asp Ser Gln Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser Ser Gly
1 5 10 15

Leu Leu Asp Tyr
20

<210> 28
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 28

Asp Ser Gln Leu Arg Ser Leu Ile Tyr Phe Glu Trp Leu Ser Asn Gly
1 5 10 15

Tyr Phe Asp Ile
20

<210> 29
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 29

Asp Ser Gln Leu Arg Ser Leu Leu Tyr Phe Glu Trp Leu Ser Asn Gly
1 5 10 15

Phe Tyr Asp Ile
20

<210> 30
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 30

Asp Ser Asn Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser Ser Gly
1 5 10 15

Leu Leu Asp Tyr
20

<210> 31
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 31

Asp Ser Gln Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser Gln Gly
1 5 10 15

Tyr Phe Asp Pro
20

<210> 32
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VH Chain CDR 3

<400> 32

```
Asp Thr Gln Leu Arg Thr Ile Val Tyr Phe Glu Trp Leu Ser Gln Gly
1               5                  10                  15

Phe Tyr Asp Ile
            20
```

<210> 33
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VL Chain

<400> 33

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

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

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

Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val Pro Asp
    50                  55                  60

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

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

Arg Thr Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Asp Ile Lys Gly
            100                 105                 110

Ser
```

<210> 34
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VL Chain

<400> 34

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

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

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

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

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

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

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


<210>  35
<211>  113
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Exemplary VL Chain

<400>  35

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

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

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

Lys Leu Leu Ile Tyr Trp Gly Ser Tyr Leu Tyr Ser Gly Val Pro Ser
    50                  55                  60

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

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

Thr Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly
            100                 105                 110

Ser


<210>  36
<211>  113
<212>  PRT
<213>  Artificial Sequence
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<220>
<223> Exemplary VL Chain

<400> 36

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Pro Phe Ser
20 25 30

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

Lys Leu Leu Ile Tyr Trp Gly Ser Tyr Leu Glu Ser Gly Val Pro Ser
50 55 60

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

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

Thr Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly
100 105 110

Ser

<210> 37
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VL Chain

<400> 37

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

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

Tyr Lys Asn Tyr Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro
35 40 45

Lys Leu Leu Ile Tyr Trp Gly Ser Tyr Leu Glu Gly Val Pro Ser Arg
50 55 60

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

Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln His Tyr Thr

85 90 95

Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly Ser
100 105 110

<210> 38
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VL Chain

<400> 38

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

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

Tyr Lys Asn Tyr Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro
35 40 45

Lys Leu Leu Ile Tyr Trp Gly Ser Tyr Leu Glu Ser Gly Val Pro Ser
50 55 60

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

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

Thr Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly
100 105 110

Ser

<210> 39
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VL Chain

<400> 39

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

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

Tyr Lys Asn Tyr Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro

35 40 45

Lys Leu Leu Ile Tyr Trp Gly Ser Tyr Leu Glu Ser Gly Val Pro Ser
50 55 60

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

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

Thr Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly
100 105 110

Ser

<210> 40
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VL Chain

<400> 40

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Pro Phe Ser
20 25 30

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

Lys Val Leu Ile Tyr Trp Gly Ser Tyr Leu Glu Ser Gly Val Pro Ser
50 55 60

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

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

Thr Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly
100 105 110

Ser

<210> 41
<211> 113
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<220>
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<400> 41

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

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

Tyr Lys Asn Tyr Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro
        35                  40                  45

Lys Val Leu Ile Tyr Trp Gly Ser Tyr Leu Glu Ser Gly Val Pro Ser
    50                  55                  60

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

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

Thr Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly
            100                 105                 110

Ser
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<210> 42
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<400> 42

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

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

Tyr Lys Asn Tyr Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro
        35                  40                  45

Lys Val Leu Ile Tyr Trp Gly Ser Tyr Leu Glu Ser Gly Val Pro Ser
    50                  55                  60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
65                  70                  75                  80
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Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln His Tyr
85 90 95

Thr Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly
100 105 110

Ser

<210> 43
<211> 113
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<400> 43

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

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

Tyr Lys Asn Tyr Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro
35 40 45

Lys Val Leu Ile Tyr Trp Gly Ser Tyr Leu Glu Ser Gly Val Pro Ser
50 55 60

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

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

Thr Thr Pro Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Gly
100 105 110

Ser

<210> 44
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Exemplary VL Chain CDR 1

<400> 44

Lys Ser Ser Gln Ser Val Thr Tyr Asn Tyr Lys Asn Tyr Leu Ala
1 5 10 15

<210> 45
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
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<400> 45

Arg Ala Ser Gln Asp Val Asn Thr Ala Val Ala
1 5 10

<210> 46
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
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<400> 46

Arg Ala Ser Gln Asp Ile Pro Arg Ser Ile Ser Gly Tyr Val Ala
1 5 10 15

<210> 47
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
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<400> 47

Arg Ala Ser Gln Asp Ile Pro Phe Ser Tyr Lys Gly Tyr Val Ala
1 5 10 15

<210> 48
<211> 15
<212> PRT
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<400> 48

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

<210> 49
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<400> 49

Arg Ala Ser Gln Ser Ile Thr Phe Asn Tyr Lys Asn Tyr Val Ala

1 5 10 15

<210> 50
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<400> 50

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

<210> 51
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<400> 51

Arg Ala Ser Gln Asp Ile Pro Phe Ser Tyr Lys Gly Tyr Val Ala
1 5 10 15

<210> 52
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<212> PRT
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<400> 52

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

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

<220>
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<400> 53

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

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

<220>
<223> Exemplary VL Chain CDR 1

<400> 54

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

<210> 55
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<212> PRT
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<400> 55

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 56
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<400> 56

Ser Ala Ser Phe Leu Tyr Ser
1 5

<210> 57
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
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<400> 57

Trp Gly Ser Tyr Leu Tyr Ser
1 5

<210> 58
<211> 6
<212> PRT
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<220>
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<400> 58

Trp Gly Ser Tyr Leu Glu
1 5

<210> 59
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<212> PRT
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<400> 59

Gln Gln Tyr Tyr Arg Thr Pro Pro Thr
1 5

<210> 60
<211> 9
<212> PRT
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<400> 60

Gln Gln His Tyr Thr Thr Pro Pro Thr
1 5