SEQUENCE LISTING

<110> Kao, Kuo-Jang
Wang, Yun-Hsin

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<160> 48

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 219
<212> PRT
<213> Homo sapiens

<400> 1
Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser
1 5 10 15
Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln
20 25 30
Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys
35 40 45
Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val
50 55 60
Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala
65 70 75 80
Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn
85 90 95
Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr
100 105 110
Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu
115 120 125
Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg
130 135 140
Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser
145 150 155 160
Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu
165 170 175
Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val
180 185 190
Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu
195 200 205
Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Glu
210 215

<210> 2
<211> 442
<212> PRT
<213> Homo sapiens

<400> 2
Met Gly Leu Ala Met Glu His Gly Gly Ser Tyr Ala Arg Ala Gly Gly
1 5 10 15
Ser Ser Arg Gly Cys Trp Tyr Tyr Leu Arg Tyr Phe Phe Leu Phe Val
20 25 30
Ser Leu Ile Gln Phe Leu Ile Ile Leu Gly Leu Val Leu Phe Met Val
35 40 45
Tyr Gly Asn Val His Val Ser Thr Glu Ser Asn Leu Gln Ala Thr Glu

```
    50                  55                  60
Arg Arg Ala Glu Gly Leu Tyr Ser Gln Leu Leu Gly Leu Thr Ala Ser
65                  70                  75                  80
Gln Ser Asn Leu Thr Lys Glu Leu Asn Phe Thr Thr Arg Ala Lys Asp
                85                  90                  95
Ala Ile Met Gln Met Trp Leu Asn Ala Arg Arg Asp Leu Asp Arg Ile
            100                 105                 110
Asn Ala Ser Phe Arg Gln Cys Gln Gly Asp Arg Val Ile Tyr Thr Asn
        115                 120                 125
Asn Gln Arg Tyr Met Ala Ala Ile Ile Leu Ser Glu Lys Gln Cys Arg
    130                 135                 140
Asp Gln Phe Lys Asp Met Asn Lys Ser Cys Asp Ala Leu Leu Phe Met
145                 150                 155                 160
Leu Asn Gln Lys Val Lys Thr Leu Glu Val Glu Ile Ala Lys Glu Lys
                165                 170                 175
Thr Ile Cys Thr Lys Asp Lys Glu Ser Val Leu Leu Asn Lys Arg Val
            180                 185                 190
Ala Glu Glu Gln Leu Val Glu Cys Val Lys Thr Arg Glu Leu Gln His
        195                 200                 205
Gln Glu Arg Gln Leu Ala Lys Glu Gln Leu Gln Lys Val Gln Ala Leu
    210                 215                 220
Cys Leu Pro Leu Asp Lys Asp Lys Phe Glu Met Asp Leu Arg Asn Leu
225                 230                 235                 240
Trp Arg Asp Ser Ile Ile Pro Arg Ser Leu Asp Asn Leu Gly Tyr Asn
                245                 250                 255
Leu Tyr His Pro Leu Gly Ser Glu Leu Ala Ser Ile Arg Arg Ala Cys
            260                 265                 270
Asp His Met Pro Ser Leu Met Ser Ser Lys Val Glu Glu Leu Ala Arg
        275                 280                 285
Ser Leu Arg Ala Asp Ile Glu Arg Val Ala Arg Glu Asn Ser Asp Leu
    290                 295                 300
Gln Arg Gln Lys Leu Glu Ala Gln Gln Gly Leu Arg Ala Ser Gln Glu
305                 310                 315                 320
Ala Lys Gln Lys Val Glu Lys Glu Ala Gln Ala Arg Glu Ala Lys Leu
                325                 330                 335
Gln Ala Glu Cys Ser Arg Gln Thr Gln Leu Ala Leu Glu Glu Lys Ala
            340                 345                 350
Val Leu Arg Lys Glu Arg Asp Asn Leu Ala Lys Glu Leu Glu Glu Lys
        355                 360                 365
Lys Arg Glu Ala Glu Gln Leu Arg Met Glu Leu Ala Ile Arg Asn Ser
    370                 375                 380
Ala Leu Asp Thr Cys Ile Lys Thr Lys Ser Gln Pro Met Met Pro Val
385                 390                 395                 400
Ser Arg Pro Met Gly Pro Val Pro Asn Pro Gln Pro Ile Asp Pro Ala
                405                 410                 415
Ser Leu Glu Glu Phe Lys Arg Lys Ile Leu Glu Ser Gln Arg Pro Pro
            420                 425                 430
Ala Gly Ile Pro Val Ala Pro Ser Ser Gly
        435                 440
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<210> 3
<211> 114
<212> PRT
<213> Mus musculus

<400> 3

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Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Phe Val Arg Ser Gly Ala
 1               5                  10                  15
Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Tyr
            20                  25                  30
Tyr Ile His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
        35                  40                  45
Gly Trp Ile Asp Pro Glu Asn Gly Asp Ile Glu Tyr Ala Pro Lys Phe
    50                  55                  60
Gln Gly Lys Ala Thr Met Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
65                  70                  75                  80
Leu Gln Phe Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
```

85 90 95
Leu Tyr Gln Glu Gly Ser Trp Gly Gln Gly Thr Thr Leu Thr Val Ser
100 105 110
Ser Ala

<210> 4
<211> 112
<212> PRT
<213> Mus musculus

<400> 4
Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Ile Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30
Asp Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
35 40 45
Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Trp Gln Gly
85 90 95
Thr His Phe Pro Phe Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 5
<211> 114
<212> PRT
<213> Mus musculus

<400> 5
Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Arg Pro Gly Ala
1 5 10 15
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Asn
20 25 30
Tyr Ile Asn Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Asn Ile Tyr Pro Ser Asp Gly Phe Thr Asn Tyr Asn Gln Lys Phe
50 55 60
Lys Asp Arg Ala Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr
65 70 75 80
Met Gln Leu Ser Ser Pro Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
85 90 95
Thr Arg Asn Phe Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser
100 105 110
Ser Ala

<210> 6
<211> 112
<212> PRT
<213> Mus musculus

<400> 6
Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Lys Leu Leu Ile Tyr Thr Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Pro Asp Phe Thr Leu Lys Ile

65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95
Thr His Val Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 7
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 7
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Phe Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Tyr
20 25 30
Tyr Ile His Trp Val Lys Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Trp Ile Asp Pro Glu Asn Gly Asp Ile Glu Tyr Ala Pro Lys Phe
50 55 60
Gln Gly Arg Ala Thr Met Thr Ala Asp Thr Ser Thr Asn Thr Ala Tyr
65 70 75 80
Leu Glu Phe Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Leu Tyr Gln Glu Gly Ser Trp Gly Gln Gly Thr Thr Val Thr Val Ser
100 105 110
Ser

<210> 8
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 8
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Tyr
20 25 30
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Trp Ile Asp Pro Glu Asn Gly Asp Ile Glu Tyr Ala Pro Lys Phe
50 55 60
Gln Gly Arg Ala Thr Met Thr Ala Asp Thr Ser Thr Asn Thr Ala Tyr
65 70 75 80
Leu Glu Phe Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Leu Tyr Gln Glu Gly Ser Trp Gly Gln Gly Thr Thr Val Thr Val Ser
100 105 110
Ser

<210> 9
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 9
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Val Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Tyr
            20   25   30
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Trp Ile Asp Pro Glu Asn Gly Asp Ile Glu Tyr Ala Pro Lys Phe
    50   55   60
Gln Gly Arg Ala Thr Ile Thr Ala Asp Thr Ser Thr Asn Thr Ala Tyr
65   70   75   80
Met Glu Phe Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85   90   95
Leu Tyr Gln Glu Gly Ser Trp Gly Gln Gly Thr Thr Val Thr Val Ser
            100   105   110
Ser

<210> 10
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 10
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Val Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Tyr
            20   25   30
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Trp Ile Asp Pro Glu Asn Gly Asp Ile Glu Tyr Ala Pro Lys Phe
    50   55   60
Gln Gly Arg Ala Thr Ile Thr Ala Asp Thr Ser Thr Asp Thr Ala Tyr
65   70   75   80
Met Glu Phe Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85   90   95
Leu Tyr Gln Glu Gly Ser Trp Gly Gln Gly Thr Thr Val Thr Val Ser
            100   105   110
Ser

<210> 11
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 11
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Val Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Tyr
            20   25   30
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Trp Ile Asp Pro Glu Asn Gly Asp Ile Glu Tyr Ala Pro Lys Phe
    50   55   60
Gln Gly Arg Val Thr Ile Thr Ala Asp Thr Ser Thr Asp Thr Ala Tyr
65   70   75   80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85   90   95

Leu Tyr Gln Glu Gly Ser Trp Gly Gln Gly Thr Thr Val Thr Val Ser
100 105 110
Ser

<210> 12
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-light chain variable region

<400> 12
Asp Val Val Met Thr Gln Ser Pro Leu Thr Leu Ser Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30
Asp Gly Lys Thr Tyr Leu Asn Trp Leu Gln Gln Arg Pro Gly Gln Ser
35 40 45
Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
85 90 95
Thr His Phe Pro Phe Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 13
<211> 112
<212> PRT
<213> Artifiicial

<220>
<223> humanized-light chain variable region

<400> 13
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30
Asp Gly Lys Thr Tyr Leu Asn Trp Leu Gln Gln Arg Pro Gly Gln Ser
35 40 45
Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
50 55 60
Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
85 90 95
Thr His Phe Pro Phe Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 14
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-light chain variable region

<400> 14
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser

```
            20                  25                  30
Asp Gly Lys Thr Tyr Leu Asn Trp Leu Gln Gln Arg Pro Gly Gln Ser
        35                  40                  45
Pro Arg Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
    50                  55                  60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65                  70                  75                  80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Trp Gln Gly
                85                  90                  95
Thr His Phe Pro Phe Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
            100                 105                 110


<210> 15
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 15
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Leu Lys Lys Pro Gly Ala
 1               5                  10                  15
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Asn
            20                  25                  30
Tyr Ile Asn Trp Val Lys Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45
Gly Asn Ile Tyr Pro Ser Asp Gly Phe Thr Asn Tyr Asn Gln Lys Phe
    50                  55                  60
Lys Asp Arg Ala Thr Leu Thr Val Asp Lys Ser Thr Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95
Thr Arg Asn Phe Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser
            100                 105                 110
Ser


<210> 16
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 16
Gln Val Gln Leu Val Gln Ser Gly Ser Glu Leu Lys Lys Pro Gly Ala
 1               5                  10                  15
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Asn
            20                  25                  30
Tyr Ile Asn Trp Val Lys Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45
Gly Asn Ile Tyr Pro Ser Asp Gly Phe Thr Asn Tyr Asn Gln Lys Phe
    50                  55                  60
Lys Asp Arg Ala Thr Leu Thr Val Asp Lys Ser Thr Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Thr Arg Asn Phe Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser
            100                 105                 110
Ser


<210> 17
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<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 17
Gln Val Gln Leu Val Gln Ser Gly Ser Glu Leu Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Asn
20 25 30
Tyr Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Asn Ile Tyr Pro Ser Asp Gly Phe Thr Asn Tyr Asn Gln Lys Phe
50 55 60
Lys Asp Arg Val Thr Leu Thr Val Asp Lys Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Thr Arg Asn Phe Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser
100 105 110
Ser

<210> 18
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 18
Gln Val Gln Leu Val Gln Ser Gly Ser Glu Leu Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Asn
20 25 30
Tyr Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Asn Ile Tyr Pro Ser Asp Gly Phe Thr Asn Tyr Asn Gln Lys Phe
50 55 60
Lys Asp Arg Val Thr Ile Thr Val Asp Lys Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Thr Arg Asn Phe Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser
100 105 110
Ser

<210> 19
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-heavy chain variable region

<400> 19
Gln Val Gln Leu Val Gln Ser Gly Ser Glu Leu Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Asn
20 25 30
Tyr Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Asn Ile Tyr Pro Ser Asp Gly Phe Thr Asn Tyr Asn Gln Lys Phe
50 55 60
Lys Asp Arg Val Thr Ile Thr Val Asp Lys Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Thr Arg Asn Phe Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser
100 105 110
Ser

<210> 20
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-light chain variable region

<400> 20
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Gln Leu Leu Ile Tyr Thr Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Pro Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95
Thr His Val Pro Phe Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 21
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> humanized-light chain variable region

<400> 21
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Gln Leu Leu Ile Tyr Thr 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 Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95
Thr His Val Pro Phe Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 22
<211> 112
<212> PRT
<213> Artificial Sequence

<220>

<223> humanized-light chain variable region

<400> 22

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Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu Gly
 1               5                  10                  15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
            20                  25                  30
Asn Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser
        35                  40                  45
Pro Gln Leu Leu Ile Tyr Thr Val Ser Asn Arg Phe Ser Gly Val Pro
    50                  55                  60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Pro Asp Phe Thr Leu Lys Ile
65                  70                  75                  80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Ser
                85                  90                  95
Thr His Val Pro Phe Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
            100                 105                 110
```

<210> 23
<211> 458
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody conjugate

<400> 23

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Met Gln Val Gln Leu Val Gln Ser Gly Ser Glu Leu Lys Lys Pro Gly
 1               5                  10                  15
Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser
            20                  25                  30
Asn Tyr Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp
        35                  40                  45
Met Gly Asn Ile Tyr Pro Ser Asp Gly Phe Thr Asn Tyr Asn Gln Lys
    50                  55                  60
Phe Lys Asp Arg Val Thr Ile Thr Val Asp Lys Ser Thr Ser Thr Ala
65                  70                  75                  80
Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr
                85                  90                  95
Cys Thr Arg Asn Phe Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val
            100                 105                 110
Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys
        115                 120                 125
Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys
    130                 135                 140
Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu
145                 150                 155                 160
Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu
                165                 170                 175
Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr
            180                 185                 190
Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val
        195                 200                 205
Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro
    210                 215                 220
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ser
225                 230                 235                 240
Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser Thr
                245                 250                 255
Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln Val
            260                 265                 270
Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys Cys
        275                 280                 285
Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val Lys
    290                 295                 300
Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala Gly
305                 310                 315                 320
```

```
Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn Ser
                325                 330                 335
Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr Ile
            340                 345                 350
Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu Asp
        355                 360                 365
Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg Asp
    370                 375                 380
Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser Ser
385                 390                 395                 400
Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu Ile
                405                 410                 415
Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val Ile
            420                 425                 430
Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu Cys
        435                 440                 445
Met Gly Gln Glu Lys Gly Glu Phe Arg Glu
    450                 455


<210> 24
<211> 438
<212> PRT
<213> Mus musculus

<400> 24
Met Gly Leu Ser Met Asp Arg Ser Pro Tyr Ala Arg Thr Gly Asp Gln
 1               5                  10                  15
Gln Arg Gly Cys Trp Tyr Tyr Leu Arg Tyr Phe Phe Leu Phe Val Ser
            20                  25                  30
Leu Ile Gln Phe Leu Ile Ile Leu Gly Leu Val Leu Phe Met Ile Tyr
        35                  40                  45
Gly Asn Val His Ala Thr Thr Glu Ser Ser Leu Arg Ala Thr Glu Ile
    50                  55                  60
Arg Ala Asp Ser Leu Tyr Ser Gln Val Val Gly Leu Ser Ala Ser Gln
65                  70                  75                  80
Ala Asn Leu Ser Lys Gln Leu Asn Ile Ser Leu Leu Val Lys Glu Thr
                85                  90                  95
Val Met Gln Gln Leu Leu Thr Thr Arg Arg Glu Met Glu Arg Ile Asn
            100                 105                 110
Ala Ser Phe Arg Gln Cys Gln Gly Asp Leu Ile Thr Tyr Ile Asn Tyr
        115                 120                 125
Asn Arg Phe Ile Ala Ala Ile Ile Leu Ser Glu Lys Gln Cys Gln Glu
    130                 135                 140
Gln Leu Lys Glu Val Asn Lys Thr Cys Glu Ala Leu Leu Phe Lys Leu
145                 150                 155                 160
Gly Glu Lys Val Lys Thr Leu Glu Met Glu Val Ala Lys Glu Lys Ala
                165                 170                 175
Val Cys Ser Lys Asp Lys Glu Ser Leu Leu Ala Gly Lys Arg Gln Ala
            180                 185                 190
Glu Glu Gln Leu Glu Ala Cys Gly Lys Ala Arg Glu Arg Gln Gln Gln
        195                 200                 205
Glu Gln Gln Val Thr Glu Glu Asn Leu Arg Lys Val Gln Ser Leu Cys
    210                 215                 220
Ile Pro Leu Asp Gln Glu Lys Phe Gln Ala Asp Val Leu Ser Ala Trp
225                 230                 235                 240
Arg Asp Ser Leu Ile Tyr Arg Thr Leu Glu Thr Leu Pro Tyr His Tyr
                245                 250                 255
Gln Leu Met Pro Glu Tyr Ala Ser Leu Arg Arg Thr Cys Glu Ser Leu
            260                 265                 270
Pro Gly Ile Met Thr Thr Lys Ile Glu Glu Leu Ala Arg Gly Leu Arg
        275                 280                 285
Ala Gly Ile Glu Arg Val Thr Arg Glu Asn Ala Glu Leu Arg Arg Gln
    290                 295                 300
Lys Leu Glu Leu Glu Arg Ala Ala Gln Ala Ala Gln Glu Ala Arg Ala
305                 310                 315                 320
Arg Ala Gly Thr Glu Ala Gln Ala Arg Glu Thr Gln Leu Arg Ala Glu
                325                 330                 335
```

Cys Ala Arg Gln Thr Gln Leu Ala Leu Glu Glu Lys Ala Ala Leu Arg
340 345 350
Ala Gln Arg Asp Asn Leu Glu Arg Glu Leu Glu Ala Arg Lys Arg Glu
355 360 365
Leu Glu Gln Leu Arg Thr Glu Val Asp Val Arg Ile Ser Ala Leu Asp
370 375 380
Thr Cys Val Lys Ala Lys Ser Leu Pro Ala Val Pro Pro Arg Val Ser
385 390 395 400
Gly Pro Pro Pro Asn Pro Pro Pro Ile Asp Pro Ala Ser Leu Glu Glu
405 410 415
Phe Lys Lys Arg Ile Leu Glu Ser Gln Arg Leu Pro Val Val Asn Pro
420 425 430
Ala Ala Gln Pro Ser Gly
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Gln Pro Met Met Pro Val Ser Arg Pro Met
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ggccgctaac actctcccct gttg 24

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SEQUENCELISTING

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