SEQUENCE LISTING

<110> Schering Corporation
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<120> Engineered Anti-IL-23p19 Antibodies

<130> BP06597

<150> 60/891,409
<151> 2007-02-23

<160> 50

<170> PatentIn version 3.4

<210> 1
<211> 117
<212> PRT
<213> Mus musculus

<400> 1

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

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

Tyr Ile Gln Trp Val Lys Gln Ser Arg Gly Lys Ser Leu Glu Trp Ile
35 40 45

Gly Tyr Ile Ser Cys Tyr Asn Gly Ala Thr Arg Tyr Asn Gln Lys Phe
50 55 60

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

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

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

Val Thr Val Ser Ser
115

<210> 2
<211> 116
<212> PRT
<213> Mus musculus

<400> 2

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

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

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

Gly Gln Ile Phe Pro Val Arg Gly Ser Ala Asp Tyr Asn Glu Ile Phe
    50                  55                  60

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

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

Ala Arg Gly Gly Gly Gly Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
            100                 105                 110

Thr Val Ser Ala
        115
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<210> 3
<211> 124
<212> PRT
<213> Mus musculus

<400> 3

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

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

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

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

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

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

Ala Arg Gly Gly Asn Tyr Tyr Gly Arg Asn Tyr Gly Asp Tyr Phe Asp
            100                 105                 110

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

<210> 4
<211> 116
<212> PRT
<213> Mus musculus

<400> 4

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

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

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

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

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

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

Ala Arg Gly Gly Gly Asn Leu Pro Tyr Trp Gly Gln Gly Thr Leu Val
            100                 105                 110

Thr Val Ser Ala
        115
```

<210> 5
<211> 116
<212> PRT
<213> Mus musculus

<400> 5

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

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

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

Gly Gln Ile Phe Pro Ala Ser Gly Ser Ala Asp Tyr Asn Glu Met Phe
    50                  55                  60

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

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys
```

85 90 95

Ala Arg Gly Gly Gly Gly Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ala
115

<210> 6
<211> 446
<212> PRT
<213> Artificial Sequence

<220>
<223> Human frameworks, rodent CDRs

<220>
<221> DOMAIN
<222> (1)..(116)
<223> Variable Domain

<400> 6

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

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

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

Gly Gln Ile Phe Pro Ala Ser Gly Ser Ala Asp Tyr Asn Glu Met Phe
50 55 60

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

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

Ala Arg Gly Gly Gly Gly Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

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

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

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

Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser

165 170 175

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys

435 440 445

<210> 7
<211> 446
<212> PRT
<213> Artificial Sequence

<220>
<223> Human frameworks, rodent CDRs

<220>
<221> DOMAIN
<222> (1)..(116)
<223> Variable Domain

<400> 7

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

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

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

Gly Gln Ile Phe Pro Ala Ser Gly Ser Ala Asp Tyr Asn Glu Lys Phe
50 55 60

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

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

Ala Arg Gly Gly Gly Gly Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

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

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

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

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

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

Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr

195 200 205

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

<210> 8
<211> 446
<212> PRT
<213> Artificial Sequence

<220>
<223> Human frameworks, rodent CDRs

<220>
<221> DOMAIN
<222> (1)..(116)
<223> Variable Domain

<400> 8

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

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

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

Gly Gln Ile Phe Pro Ala Ser Gly Ser Ala Asp Tyr Ala Gln Lys Leu
    50                  55                  60

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

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

Ala Arg Gly Gly Gly Gly Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
            100                 105                 110

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

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

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

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

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

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

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

Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe
```

225 230 235 240

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

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

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

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

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

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

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

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

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

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

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

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

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

<210> 9
<211> 113
<212> PRT
<213> Mus musculus

<400> 9

Asn 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 Asp 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 Leu Tyr Tyr Cys Trp Gln Gly
                85                  90                  95

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

Arg
```

<210> 10
<211> 108
<212> PRT
<213> Mus musculus

<400> 10

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

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

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

Tyr Asn Ala Lys Thr Leu Ala Glu Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

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

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

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

<210> 11
<211> 111
<212> PRT
<213> Mus musculus

<400> 11

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

Glu Thr Val Thr Leu Thr Cys Arg Ser Ser Thr Gly Ala Val Ile Thr
            20                  25                  30

Ser Asn Asp Ala Asn Trp Val Gln Glu Lys Pro Asp His Ser Phe Thr
        35                  40                  45

Gly Leu Ile Gly Gly Thr Asn Asn Arg Ala Pro Gly Val Pro Ala Arg
    50                  55                  60

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

Ala Gln Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu Trp Tyr Ser
                85                  90                  95

Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
            100                 105                 110
```

<210> 12
<211> 108
<212> PRT
<213> Mus musculus

<400> 12

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

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

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

Tyr Asn Ala Lys Thr Leu Ala Glu Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60

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

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

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

<210> 13
<211> 108
<212> PRT
<213> Mus musculus

<400> 13

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

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

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

Tyr Asn Ala Lys Thr Leu Ala Glu Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Gly Arg Tyr Phe Cys Gln His His Tyr Gly Ile Pro Phe
85 90 95

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

<210> 14
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> Human frameworks, rodent CDRs

<220>
<221> DOMAIN
<222> (1)..(108)
<223> Variable Domain

<400> 14

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 Thr Ser Glu Asn Ile Tyr Ser Tyr
20 25 30

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

Tyr Asn Ala Lys Thr Leu Ala Glu Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

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

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

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

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

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

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

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

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

Phe Asn Arg Gly Glu Cys
    210
```

<210> 15
<211> 10
<212> PRT
<213> Mus musculus

<400> 15

```
Gly Tyr Ser Phe Thr Ala Tyr Tyr Ile Gln
1               5                   10
```

<210> 16
<211> 10
<212> PRT
<213> Mus musculus

<400> 16

```
Gly Tyr Ile Phe Ser Ala Tyr Trp Met Thr
1               5                   10
```

<210> 17
<211> 10
<212> PRT
<213> Mus musculus

<400> 17

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

<210> 18

<211> 10
<212> PRT
<213> Mus musculus

<400> 18

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

<210> 19
<211> 10
<212> PRT
<213> Mus musculus

<400> 19

Gly Tyr Ile Phe Ile Thr Tyr Trp Met Thr
1 5 10

<210> 20
<211> 17
<212> PRT
<213> Mus musculus

<400> 20

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

Gly

<210> 21
<211> 17
<212> PRT
<213> Mus musculus

<400> 21

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

Gly

<210> 22
<211> 17
<212> PRT
<213> Mus musculus

<400> 22

Glu Ile Tyr Pro Arg Ser Val Asn Ser Tyr Tyr Asn Glu Arg Phe Lys
1 5 10 15

Gly

<210> 23
<211> 17

<212> PRT
<213> Mus musculus

<400> 23

Trp Ile Phe Pro Gly Asn His Asp Val Glu Tyr Asn Glu Lys Phe Lys
1 5 10 15

Gly

<210> 24
<211> 17
<212> PRT
<213> Mus musculus

<400> 24

Gln Ile Phe Pro Ala Ser Gly Ser Ala Asp Tyr Asn Glu Met Phe Glu
1 5 10 15

Gly

<210> 25
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Rodent CDR with one amino acid substitution

<400> 25

Gln Ile Phe Pro Ala Ser Gly Ser Ala Asp Tyr Asn Glu Lys Phe Glu
1 5 10 15

Gly

<210> 26
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Rodent CDR with four amino acid substitutions

<400> 26

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

Gly

<210> 27
<211> 8
<212> PRT
<213> Mus musculus

<400> 27

Gln Gly Phe Tyr Ala Met Asp Tyr
1 5

<210> 28
<211> 7
<212> PRT
<213> Mus musculus

<400> 28

Gly Gly Gly Gly Phe Ala Tyr
1 5

<210> 29
<211> 15
<212> PRT
<213> Mus musculus

<400> 29

Gly Gly Asn Tyr Tyr Gly Arg Asn Tyr Gly Asp Tyr Phe Asp Tyr
1 5 10 15

<210> 30
<211> 7
<212> PRT
<213> Mus musculus

<400> 30

Gly Gly Gly Asn Leu Pro Tyr
1 5

<210> 31
<211> 7
<212> PRT
<213> Mus musculus

<400> 31

Gly Gly Gly Gly Phe Ala Tyr
1 5

<210> 32
<211> 16
<212> PRT
<213> Mus musculus

<400> 32

Lys Ser Ser Gln Ser Leu Leu Asp Ser Asp Gly Lys Thr Tyr Leu Asn
1 5 10 15

<210> 33
<211> 11
<212> PRT
<213> Mus musculus

<400> 33

Arg Ala Ser Glu Asn Ile Tyr Ser Tyr Leu Ala
1 5 10

<210> 34
<211> 14
<212> PRT
<213> Mus musculus

<400> 34

Arg Ser Ser Thr Gly Ala Val Ile Thr Ser Asn Asp Ala Asn
1 5 10

<210> 35
<211> 11
<212> PRT
<213> Mus musculus

<400> 35

Arg Thr Ser Glu Asn Ile Tyr Ser Tyr Leu Ala
1 5 10

<210> 36
<211> 11
<212> PRT
<213> Mus musculus

<400> 36

Arg Thr Ser Glu Asn Ile Tyr Ser Tyr Leu Ala
1 5 10

<210> 37
<211> 7
<212> PRT
<213> Mus musculus

<400> 37

Leu Val Ser Lys Leu Asp Ser
1 5

<210> 38
<211> 7
<212> PRT
<213> Mus musculus

<400> 38

Asn Ala Lys Thr Leu Ala Glu
1 5

<210> 39
<211> 7
<212> PRT
<213> Mus musculus

<400> 39

Gly Thr Asn Asn Arg Ala Pro

1 5

<210> 40
<211> 7
<212> PRT
<213> Mus musculus

<400> 40

Asn Ala Lys Thr Leu Ala Glu
1 5

<210> 41
<211> 7
<212> PRT
<213> Mus musculus

<400> 41

Asn Ala Lys Thr Leu Ala Glu
1 5

<210> 42
<211> 9
<212> PRT
<213> Mus musculus

<400> 42

Trp Gln Gly Thr His Phe Pro Phe Thr
1 5

<210> 43
<211> 9
<212> PRT
<213> Mus musculus

<400> 43

Gln His His Tyr Gly Thr Pro Phe Thr
1 5

<210> 44
<211> 9
<212> PRT
<213> Mus musculus

<400> 44

Ala Leu Trp Tyr Ser Asn His Trp Val
1 5

<210> 45
<211> 9
<212> PRT
<213> Mus musculus

<400> 45

Gln His His Tyr Gly Ile Pro Phe Thr
1 5

<210> 46
<211> 9
<212> PRT
<213> Mus musculus

<400> 46

Gln His His Tyr Gly Ile Pro Phe Thr
1 5

<210> 47
<211> 170
<212> PRT
<213> Homo sapiens

<400> 47

Arg Ala Val Pro Gly Gly Ser Ser Pro Ala Trp Thr Gln Cys Gln Gln
1 5 10 15

Leu Ser Gln Lys Leu Cys Thr Leu Ala Trp Ser Ala His Pro Leu Val
20 25 30

Gly His Met Asp Leu Arg Glu Glu Gly Asp Glu Glu Thr Thr Asn Asp
35 40 45

Val Pro His Ile Gln Cys Gly Asp Gly Cys Asp Pro Gln Gly Leu Arg
50 55 60

Asp Asn Ser Gln Phe Cys Leu Gln Arg Ile His Gln Gly Leu Ile Phe
65 70 75 80

Tyr Glu Lys Leu Leu Gly Ser Asp Ile Phe Thr Gly Glu Pro Ser Leu
85 90 95

Leu Pro Asp Ser Pro Val Gly Gln Leu His Ala Ser Leu Leu Gly Leu
100 105 110

Ser Gln Leu Leu Gln Pro Glu Gly His His Trp Glu Thr Gln Gln Ile
115 120 125

Pro Ser Leu Ser Pro Ser Gln Pro Trp Gln Arg Leu Leu Leu Arg Phe
130 135 140

Lys Ile Leu Arg Ser Leu Gln Ala Phe Val Ala Val Ala Ala Arg Val
145 150 155 160

Phe Ala His Gly Ala Ala Thr Leu Ser Pro
165 170

<210> 48
<211> 175
<212> PRT
<213> Mus musculus

<400> 48

Val Pro Arg Ser Ser Ser Pro Asp Trp Ala Gln Cys Gln Gln Leu Ser
1 5 10 15

Arg Asn Leu Cys Met Leu Ala Trp Asn Ala His Ala Pro Ala Gly His
20 25 30

Met Asn Leu Leu Arg Glu Glu Glu Asp Glu Glu Thr Lys Asn Asn Val
35 40 45

Pro Arg Ile Gln Cys Glu Asp Gly Cys Asp Pro Gln Gly Leu Lys Asp
50 55 60

Asn Ser Gln Phe Cys Leu Gln Arg Ile Arg Gln Gly Leu Ala Phe Tyr
65 70 75 80

Lys His Leu Leu Asp Ser Asp Ile Phe Lys Gly Glu Pro Ala Leu Leu
85 90 95

Pro Asp Ser Pro Met Glu Gln Leu His Thr Ser Leu Leu Gly Leu Ser
100 105 110

Gln Leu Leu Gln Pro Glu Asp His Pro Arg Glu Thr Gln Gln Met Pro
115 120 125

Ser Leu Ser Ser Ser Gln Gln Trp Gln Arg Pro Leu Leu Arg Ser Lys
130 135 140

Ile Leu Arg Ser Leu Gln Ala Phe Leu Ala Ile Ala Ala Arg Val Phe
145 150 155 160

Ala His Gly Ala Ala Thr Leu Thr Glu Pro Leu Val Pro Thr Ala
165 170 175

<210> 49
<211> 1398
<212> DNA
<213> Artificial Sequence

<220>
<223> Human constant and framework regions, rodent CDRs

<400> 49
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<223> Human constant and framework regions, rodent CDRs

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