SEQUENCE LISTING

<110> Bioceros B.V.

<120> ANTI-CD134 (OX40) ANTIBODIES AND USES THEREOF

<130> BIOBF/P51941PC

<150> GB 1116092.6
<151> 2011-09-16

<160> 61

<170> PatentIn version 3.5

<210> 1
<211> 277
<212> PRT
<213> Homo sapiens

<220>
<221> SIGNAL
<222> (1)...(28)

<220>
<221> TRANSMEM
<222> (215)...(235)

<400> 1

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Met Cys Val Gly Ala Arg Arg Leu Gly Arg Gly Pro Cys Ala Ala Leu
1               5                   10                  15


Leu Leu Leu Gly Leu Gly Leu Ser Thr Val Thr Gly Leu His Cys Val
            20                  25                  30


Gly Asp Thr Tyr Pro Ser Asn Asp Arg Cys Cys His Glu Cys Arg Pro
        35                  40                  45


Gly Asn Gly Met Val Ser Arg Cys Ser Arg Ser Gln Asn Thr Val Cys
    50                  55                  60


Arg Pro Cys Gly Pro Gly Phe Tyr Asn Asp Val Val Ser Ser Lys Pro
65                  70                  75                  80


Cys Lys Pro Cys Thr Trp Cys Asn Leu Arg Ser Gly Ser Glu Arg Lys
                85                  90                  95


Gln Leu Cys Thr Ala Thr Gln Asp Thr Val Cys Arg Cys Arg Ala Gly
            100                 105                 110
```

```
Thr Gln Pro Leu Asp Ser Tyr Lys Pro Gly Val Asp Cys Ala Pro Cys
        115                 120                 125

Pro Pro Gly His Phe Ser Pro Gly Asp Asn Gln Ala Cys Lys Pro Trp
    130                 135                 140

Thr Asn Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala Ser Asn
145                 150                 155                 160

Ser Ser Asp Ala Ile Cys Glu Asp Arg Asp Pro Pro Ala Thr Gln Pro
                165                 170                 175

Gln Glu Thr Gln Gly Pro Pro Ala Arg Pro Ile Thr Val Gln Pro Thr
            180                 185                 190

Glu Ala Trp Pro Arg Thr Ser Gln Gly Pro Ser Thr Arg Pro Val Glu
        195                 200                 205

Val Pro Gly Gly Arg Ala Val Ala Ala Ile Leu Gly Leu Gly Leu Val
    210                 215                 220

Leu Gly Leu Leu Gly Pro Leu Ala Ile Leu Leu Ala Leu Tyr Leu Leu
225                 230                 235                 240

Arg Arg Asp Gln Arg Leu Pro Pro Asp Ala His Lys Pro Pro Gly Gly
                245                 250                 255

Gly Ser Phe Arg Thr Pro Ile Gln Glu Glu Gln Ala Asp Ala His Ser
            260                 265                 270

Thr Leu Ala Lys Ile
        275
```

<210> 2
<211> 834
<212> PRT
<213> Artificial Sequence

<220>
<223> Sf9 insect cell-optimized cDNA sequence for human CD134

<400> 2

```
Ala Thr Gly Thr Gly Cys Gly Thr Gly Gly Gly Cys Gly Cys Thr Cys
1               5                   10                  15
```

```
Gly Thr Cys Gly Thr Cys Thr Gly Gly Gly Thr Cys Gly Thr Gly Gly
            20                  25                  30

Thr Cys Cys Cys Thr Gly Cys Gly Cys Thr Gly Cys Thr Cys Thr Gly
        35                  40                  45

Cys Thr Gly Cys Thr Gly Cys Thr Gly Gly Gly Thr Cys Thr Gly Gly
    50                  55                  60

Gly Cys Cys Thr Gly Thr Cys Cys Ala Cys Thr Gly Thr Cys Ala Cys
65                  70                  75                  80

Thr Gly Gly Ala Cys Thr Cys Cys Ala Cys Thr Gly Cys Gly Thr Gly
                85                  90                  95

Gly Gly Cys Gly Ala Cys Ala Cys Cys Thr Ala Cys Cys Cys Cys Thr
            100                 105                 110

Cys Cys Ala Ala Cys Gly Ala Cys Cys Gly Thr Thr Gly Cys Thr Gly
        115                 120                 125

Cys Cys Ala Cys Gly Ala Ala Thr Gly Cys Ala Gly Gly Cys Cys Thr
    130                 135                 140

Gly Gly Cys Ala Ala Cys Gly Gly Cys Ala Thr Gly Gly Thr Gly Thr
145                 150                 155                 160

Cys Cys Cys Gly Thr Thr Gly Cys Thr Cys Cys Cys Gly Thr Thr Cys
                165                 170                 175

Cys Cys Ala Gly Ala Ala Cys Ala Cys Cys Gly Thr Gly Thr Gly Cys
            180                 185                 190

Cys Gly Thr Cys Cys Cys Thr Gly Cys Gly Gly Thr Cys Cys Cys Gly
        195                 200                 205

Gly Thr Thr Thr Cys Thr Ala Cys Ala Ala Cys Gly Ala Cys Gly Thr
    210                 215                 220

Gly Gly Thr Gly Thr Cys Cys Thr Cys Cys Ala Ala Gly Cys Cys Cys
225                 230                 235                 240

Thr Gly Cys Ala Ala Gly Cys Cys Thr Thr Gly Cys Ala Cys Thr Thr
                245                 250                 255
```

```
Gly Gly Thr Gly Thr Ala Ala Cys Cys Thr Cys Cys Gly Cys Thr Cys
            260                 265                 270

Cys Gly Gly Thr Thr Cys Cys Gly Ala Gly Cys Gly Cys Ala Ala Gly
        275                 280                 285

Cys Ala Gly Cys Thr Gly Thr Gly Cys Ala Cys Cys Gly Cys Thr Ala
    290                 295                 300

Cys Cys Cys Ala Gly Gly Ala Cys Ala Cys Thr Gly Thr Cys Thr Gly
305                 310                 315                 320

Thr Ala Gly Gly Thr Gly Cys Ala Gly Gly Gly Cys Thr Gly Gly Cys
                325                 330                 335

Ala Cys Cys Cys Ala Gly Cys Cys Cys Cys Thr Gly Gly Ala Cys Thr
            340                 345                 350

Cys Cys Thr Ala Cys Ala Ala Gly Cys Cys Cys Gly Gly Thr Gly Thr
        355                 360                 365

Cys Gly Ala Cys Thr Gly Cys Gly Cys Thr Cys Cys Cys Thr Gly Cys
    370                 375                 380

Cys Cys Cys Cys Cys Thr Gly Gly Thr Cys Ala Cys Thr Thr Cys Thr
385                 390                 395                 400

Cys Thr Cys Cys Cys Gly Gly Cys Gly Ala Cys Ala Ala Cys Cys Ala
                405                 410                 415

Gly Gly Cys Thr Thr Gly Cys Ala Ala Ala Cys Cys Ala Thr Gly Gly
            420                 425                 430

Ala Cys Cys Ala Ala Cys Thr Gly Cys Ala Cys Cys Cys Thr Gly Gly
        435                 440                 445

Cys Thr Gly Gly Cys Ala Ala Gly Cys Ala Cys Ala Cys Cys Cys Thr
    450                 455                 460

Gly Cys Ala Gly Cys Cys Cys Gly Cys Thr Thr Cys Cys Ala Ala Cys
465                 470                 475                 480
```

```
Thr Cys Cys Thr Cys Cys Gly Ala Cys Gly Cys Thr Ala Thr Cys Thr
                485                 490                 495

Gly Cys Gly Ala Gly Gly Ala Cys Cys Gly Thr Gly Ala Cys Cys Cys
            500                 505                 510

Cys Cys Cys Thr Gly Cys Thr Ala Cys Thr Cys Ala Ala Cys Cys Thr
        515                 520                 525

Cys Ala Gly Gly Ala Gly Ala Cys Thr Cys Ala Gly Gly Gly Thr Cys
    530                 535                 540

Cys Cys Cys Cys Cys Gly Cys Thr Cys Gly Thr Cys Cys Cys Ala Thr
545                 550                 555                 560

Cys Ala Cys Cys Gly Thr Gly Cys Ala Gly Cys Cys Cys Ala Cys Cys
                565                 570                 575

Gly Ala Gly Gly Cys Thr Thr Gly Gly Cys Cys Cys Cys Gly Thr Ala
            580                 585                 590

Cys Cys Thr Cys Cys Cys Ala Ala Gly Gly Ala Cys Cys Thr Ala Gly
        595                 600                 605

Cys Ala Cys Thr Ala Gly Gly Cys Cys Thr Gly Thr Gly Gly Ala Gly
    610                 615                 620

Gly Thr Gly Cys Cys Cys Gly Gly Thr Gly Gly Thr Cys Gly Thr Gly
625                 630                 635                 640

Cys Thr Gly Thr Gly Gly Cys Thr Gly Cys Thr Ala Thr Cys Cys Thr
                645                 650                 655

Gly Gly Gly Cys Cys Thr Gly Gly Gly Thr Cys Thr Gly Gly Thr Gly
            660                 665                 670

Cys Thr Gly Gly Gly Cys Cys Thr Gly Cys Thr Gly Gly Gly Thr Cys
        675                 680                 685

Cys Cys Cys Thr Gly Gly Cys Thr Ala Thr Cys Cys Thr Gly Cys Thr
    690                 695                 700

Gly Gly Cys Thr Cys Thr Gly Thr Ala Cys Cys Thr Cys Cys Thr Gly
705                 710                 715                 720
```

Cys Gly Thr Cys Gly Thr Gly Ala Cys Cys Ala Gly Cys Gly Thr Cys
725 730 735

Thr Gly Cys Cys Cys Cys Cys Cys Gly Ala Cys Gly Cys Thr Cys Ala
740 745 750

Cys Ala Ala Gly Cys Cys Cys Cys Cys Thr Gly Gly Thr Gly Gly Thr
755 760 765

Gly Gly Thr Thr Cys Cys Thr Thr Cys Cys Gly Thr Ala Cys Cys Cys
770 775 780

Cys Cys Ala Thr Cys Cys Ala Gly Gly Ala Gly Gly Ala Gly Cys Ala
785 790 795 800

Gly Gly Cys Thr Gly Ala Cys Gly Cys Thr Cys Ala Cys Thr Cys Cys
805 810 815

Ala Cys Cys Cys Thr Gly Gly Cys Cys Ala Ala Gly Ala Thr Cys Thr
820 825 830

Ala Ala

<210> 3
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> N-terminus amino acid sequence of clone 20E5 heavy chain

<400> 3

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

<210> 4
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 20E5 heavy chain variable region

<400> 4

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

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

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

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

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

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

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

Thr Ser Val Thr Val Ser Ser
        115
```

<210> 5
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 20E5 light chain variable region

<400> 5

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

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

Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val Lys Leu Leu Ile
        35                  40                  45

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

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

Glu Asp Ile Ala Thr Tyr Phe Cys Gln Gln Gly Asn Thr Leu Pro Trp
85 90 95

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

<210> 6
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 20E5 heavy chain CDR1

<400> 6

Gly Tyr Thr Phe Thr Ser Tyr Val Met His
1 5 10

<210> 7
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 20E5 heavy chain CDR2

<400> 7

Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe Lys
1 5 10 15

Gly

<210> 8
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 20E5 heavy chain CDR3

<400> 8

Tyr Tyr Gly Ser Ser Leu Ser Met Asp Tyr
1 5 10

<210> 9
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 20E5 light chain CDR1

<400> 9

Arg Ala Ser Gln Asp Ile Ser Asn Tyr Leu Asn
1 5 10

<210> 10
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 20E5 light chain CDR2

<400> 10

Tyr Thr Ser Arg Leu His Ser
1 5

<210> 11
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 20E5 light chain CDR3

<400> 11

Gln Gln Gly Asn Thr Leu Pro Trp Thr
1 5

<210> 12
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 12H3 heavy chain variable region

<400> 12

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

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

```
Thr Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
        35                  40                  45

Gly Gly Ile Tyr Pro Asn Asn Gly Gly Ser Thr Tyr Asn Gln Asn Phe
    50                  55                  60

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

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

Ala Arg Met Gly Tyr His Gly Pro His Leu Asp Phe Asp Val Trp Gly
            100                 105                 110

Ala Gly Thr Thr Val Thr Val Ser Pro
        115                 120
```

<210> 13
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 12H3 light chain variable region

<400> 13

```
Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Leu Gly
1               5                   10                  15

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

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

Tyr Trp Ala Ser Thr Arg His Thr Gly Val Pro Asp Arg Phe Thr Gly
    50                  55                  60

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

Glu Asp Leu Thr Asp Tyr Phe Cys Gln Gln Tyr Ile Asn Tyr Pro Leu
                85                  90                  95
```

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

<210> 14
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 12H3 heavy chain CDR1

<400> 14

Gly Tyr Thr Phe Lys Asp Tyr Thr Met His
1 5 10

<210> 15
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 12H3 heavy chain CDR2

<400> 15

Gly Ile Tyr Pro Asn Asn Gly Gly Ser Thr Tyr Asn Gln Asn Phe Lys
1 5 10 15

Asp

<210> 16
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 12H3 heavy chain CDR3

<400> 16

Met Gly Tyr His Gly Pro His Leu Asp Phe Asp Val
1 5 10

<210> 17
<211> 11
<212> PRT
<213> Artificial Sequence

<220>

<223> Amino acid sequence of clone 12H3 light chain CDR1

<400> 17

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

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

<220>
<223> Amino acid sequence of clone 12H3 light chain CDR2

<400> 18

Trp Ala Ser Thr Arg His Thr
1 5

<210> 19
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of clone 12H3 light chain CDR3

<400> 19

Gln Gln Tyr Ile Asn Tyr Pro Leu Thr
1 5

<210> 20
<211> 1398
<212> PRT
<213> Artificial Sequence

<220>
<223> CHO-optimized cDNA sequence coding for chimeric clone 20E5 human IgG4 chain

<400> 20

Ala Thr Gly Gly Ala Gly Thr Gly Gly Ala Gly Cys Gly Gly Ala Gly
1 5 10 15

Thr Gly Thr Thr Thr Ala Thr Gly Thr Thr Cys Cys Thr Gly Cys Thr
20 25 30

Gly Ala Gly Cys Gly Thr Gly Ala Cys Cys Gly Cys Thr Gly Gly Cys
35 40 45

```
Gly Thr Gly Cys Ala Cys Thr Cys Ala Gly Ala Gly Gly Thr Gly Cys
    50                  55                  60

Ala Gly Cys Thr Gly Cys Ala Gly Cys Ala Gly Thr Cys Ala Gly Gly
65                  70                  75                  80

Cys Cys Cys Cys Gly Ala Gly Cys Thr Gly Gly Thr Cys Ala Ala Gly
                85                  90                  95

Cys Cys Thr Gly Gly Cys Gly Cys Thr Ala Gly Cys Gly Thr Gly Ala
            100                 105                 110

Ala Gly Ala Thr Gly Ala Gly Cys Thr Gly Thr Ala Ala Ala Gly Cys
        115                 120                 125

Thr Ala Gly Cys Gly Gly Cys Thr Ala Cys Ala Cys Cys Thr Thr Cys
    130                 135                 140

Ala Cys Thr Ala Gly Cys Thr Ala Cys Gly Thr Gly Ala Thr Gly Cys
145                 150                 155                 160

Ala Cys Thr Gly Gly Gly Thr Cys Ala Ala Gly Cys Ala Gly Ala Ala
                165                 170                 175

Gly Cys Cys Cys Gly Gly Cys Cys Ala Gly Gly Gly Cys Cys Thr Gly
            180                 185                 190

Gly Ala Gly Thr Gly Gly Ala Thr Cys Gly Gly Cys Thr Ala Thr Ala
        195                 200                 205

Thr Thr Ala Ala Cys Cys Cys Cys Thr Ala Thr Ala Ala Cys Gly Ala
    210                 215                 220

Cys Gly Gly Cys Ala Cys Thr Ala Ala Gly Thr Ala Thr Ala Ala Cys
225                 230                 235                 240

Gly Ala Gly Ala Ala Gly Thr Thr Thr Ala Ala Gly Gly Gly Cys Ala
                245                 250                 255

Ala Gly Gly Cys Thr Ala Cys Cys Cys Thr Gly Ala Cys Thr Ala Gly
            260                 265                 270

Cys Gly Ala Thr Ala Ala Gly Thr Cys Thr Ala Gly Cys Thr Cys Thr
```

```
        275                 280                 285

Ala Cys Cys Gly Cys Cys Thr Ala Thr Ala Thr Gly Gly Ala Ala Cys
    290                 295                 300

Thr Gly Thr Cys Thr Ala Gly Thr Cys Thr Gly Ala Cys Thr Ala Gly
305                 310                 315                 320

Thr Gly Ala Ala Gly Ala Thr Ala Gly Cys Gly Cys Cys Gly Thr Cys
                325                 330                 335

Thr Ala Cys Thr Ala Cys Thr Gly Cys Gly Cys Thr Ala Ala Cys Thr
            340                 345                 350

Ala Cys Thr Ala Cys Gly Gly Cys Thr Cys Thr Ala Gly Cys Cys Thr
        355                 360                 365

Gly Thr Cys Thr Ala Thr Gly Gly Ala Cys Thr Ala Cys Thr Gly Gly
    370                 375                 380

Gly Gly Cys Cys Ala Gly Gly Gly Cys Ala Cys Thr Ala Gly Cys Gly
385                 390                 395                 400

Thr Gly Ala Cys Cys Gly Thr Gly Thr Cys Thr Ala Gly Cys Gly Cys
                405                 410                 415

Thr Ala Gly Cys Ala Cys Thr Ala Ala Gly Gly Gly Cys Cys Cys Thr
            420                 425                 430

Ala Gly Cys Gly Thr Gly Thr Thr Cys Cys Cys Cys Cys Thr Gly Gly
        435                 440                 445

Cys Cys Cys Cys Cys Thr Gly Cys Thr Cys Thr Ala Gly Ala Thr Cys
    450                 455                 460

Thr Ala Cys Thr Ala Gly Cys Gly Ala Gly Thr Cys Thr Ala Cys Cys
465                 470                 475                 480

Gly Cys Cys Gly Cys Thr Cys Thr Gly Gly Gly Cys Thr Gly Cys Cys
                485                 490                 495

Thr Gly Gly Thr Cys Ala Ala Gly Gly Ala Cys Thr Ala Cys Thr Thr
            500                 505                 510
```

```
Cys Cys Cys Cys Gly Ala Gly Cys Cys Cys Gly Thr Gly Ala Cys Cys
        515                 520                 525

Gly Thr Cys Ala Gly Cys Thr Gly Gly Ala Ala Thr Ala Gly Cys Gly
    530                 535                 540

Gly Cys Gly Cys Thr Cys Thr Gly Ala Cys Thr Ala Gly Cys Gly Gly
545                 550                 555                 560

Cys Gly Thr Gly Cys Ala Cys Ala Cys Cys Thr Thr Cys Cys Cys Thr
                565                 570                 575

Gly Cys Cys Gly Thr Gly Cys Thr Gly Cys Ala Gly Thr Cys Thr Ala
            580                 585                 590

Gly Cys Gly Gly Cys Cys Thr Gly Thr Ala Thr Ala Gly Thr Cys Thr
        595                 600                 605

Gly Thr Cys Thr Ala Gly Cys Gly Thr Gly Gly Thr Cys Ala Cys Cys
    610                 615                 620

Gly Thr Gly Cys Cys Thr Ala Gly Thr Thr Cys Thr Ala Gly Cys Cys
625                 630                 635                 640

Thr Gly Gly Gly Cys Ala Cys Thr Ala Ala Gly Ala Cys Cys Thr Ala
                645                 650                 655

Cys Ala Cys Cys Thr Gly Thr Ala Ala Cys Gly Thr Gly Gly Ala Cys
            660                 665                 670

Cys Ala Cys Ala Ala Gly Cys Cys Cys Thr Cys Thr Ala Ala Cys Ala
        675                 680                 685

Cys Thr Ala Ala Gly Gly Thr Gly Gly Ala Cys Ala Ala Gly Cys Gly
    690                 695                 700

Gly Gly Thr Gly Gly Ala Ala Thr Cys Thr Ala Ala Gly Thr Ala Cys
705                 710                 715                 720

Gly Gly Cys Cys Cys Thr Cys Cys Cys Thr Gly Cys Cys Cys Cys Cys
                725                 730                 735

Cys Cys Thr Gly Cys Cys Cys Thr Gly Cys Cys Cys Cys Thr Gly Ala
```

```
            740                 745                 750

Ala Thr Thr Thr Cys Thr Gly Gly Gly Cys Gly Gly Ala Cys Cys Thr
        755                 760                 765

Ala Gly Thr Gly Thr Gly Thr Thr Cys Cys Thr Gly Thr Thr Cys Cys
    770                 775                 780

Cys Ala Cys Cys Thr Ala Ala Gly Cys Cys Thr Ala Ala Gly Gly Ala
785                 790                 795                 800

Cys Ala Cys Cys Cys Thr Gly Ala Thr Gly Ala Thr Cys Thr Cys Thr
                805                 810                 815

Ala Gly Ala Ala Cys Cys Cys Cys Cys Gly Ala Ala Gly Thr Gly Ala
            820                 825                 830

Cys Cys Thr Gly Cys Gly Thr Gly Gly Thr Gly Gly Thr Gly Gly Ala
        835                 840                 845

Cys Gly Thr Gly Thr Cys Ala Cys Ala Gly Gly Ala Ala Gly Ala Thr
    850                 855                 860

Cys Cys Cys Gly Ala Gly Gly Thr Cys Cys Ala Gly Thr Thr Thr Ala
865                 870                 875                 880

Ala Thr Thr Gly Gly Thr Ala Cys Gly Thr Gly Gly Ala Cys Gly Gly
                885                 890                 895

Cys Gly Thr Gly Gly Ala Ala Gly Thr Gly Cys Ala Cys Ala Ala Cys
            900                 905                 910

Gly Cys Thr Ala Ala Gly Ala Cys Thr Ala Ala Gly Cys Cys Thr Ala
        915                 920                 925

Gly Ala Gly Ala Gly Gly Ala Ala Cys Ala Gly Thr Thr Thr Ala Ala
    930                 935                 940

Cys Thr Cys Thr Ala Cys Cys Thr Ala Thr Ala Gly Gly Gly Thr Cys
945                 950                 955                 960

Gly Thr Cys Ala Gly Cys Gly Thr Gly Cys Thr Gly Ala Cys Cys Gly
                965                 970                 975
```

```
Thr Gly Cys Thr Gly Cys Ala Cys Cys Ala Gly Gly Ala Cys Thr Gly
            980                 985                 990

Gly Cys Thr Gly Ala Ala Cys Gly  Gly Cys Ala Ala Ala  Gly Ala Gly
        995                 1000                1005

Thr Ala  Thr Ala Ala Gly Thr  Gly Thr Ala Ala Ala  Gly Thr Gly
    1010                1015                1020

Thr Cys  Thr Ala Ala Cys Ala  Ala Gly Gly Gly Cys  Cys Thr Gly
    1025                1030                1035

Cys Cys  Thr Ala Gly Cys Thr  Cys Thr Ala Thr Cys  Gly Ala Ala
    1040                1045                1050

Ala Ala  Gly Ala Cys Thr Ala  Thr Cys Thr Cys Thr  Ala Ala Gly
    1055                1060                1065

Gly Cys  Thr Ala Ala Gly Gly  Gly Cys Cys Ala Gly  Cys Cys Thr
    1070                1075                1080

Ala Gly  Ala Gly Ala Ala Cys  Cys Thr Cys Ala Gly  Gly Thr Cys
    1085                1090                1095

Thr Ala  Cys Ala Cys Cys Cys  Thr Gly Cys Cys Cys  Cys Cys Thr
    1100                1105                1110

Ala Gly  Thr Cys Ala Gly Gly  Ala Ala Gly Ala Gly  Ala Thr Gly
    1115                1120                1125

Ala Cys  Thr Ala Ala Gly Ala  Ala Thr Cys Ala Gly  Gly Thr Gly
    1130                1135                1140

Thr Cys  Ala Cys Thr Gly Ala  Cys Cys Thr Gly Thr  Cys Thr Gly
    1145                1150                1155

Gly Thr  Cys Ala Ala Gly Gly  Gly Cys Thr Thr Cys  Thr Ala Cys
    1160                1165                1170

Cys Cys  Thr Ala Gly Cys Gly  Ala Thr Ala Thr Cys  Gly Cys Cys
    1175                1180                1185

Gly Thr  Cys Gly Ala Gly Thr  Gly Gly Gly Ala Gly  Thr Cys Thr
```

1190 1195 1200

Ala Ala Cys Gly Gly Cys Cys Ala Gly Cys Cys Cys Gly Ala Gly
1205 1210 1215

Ala Ala Cys Ala Ala Cys Thr Ala Thr Ala Ala Gly Ala Cys Thr
1220 1225 1230

Ala Cys Cys Cys Cys Cys Cys Cys Thr Gly Thr Gly Cys Thr Gly
1235 1240 1245

Gly Ala Thr Ala Gly Cys Gly Ala Cys Gly Gly Thr Ala Gly Cys
1250 1255 1260

Thr Thr Cys Thr Thr Cys Cys Thr Gly Thr Ala Cys Thr Cys Ala
1265 1270 1275

Cys Gly Gly Cys Thr Gly Ala Cys Cys Gly Thr Gly Gly Ala Thr
1280 1285 1290

Ala Ala Gly Thr Cys Thr Ala Gly Gly Thr Gly Gly Cys Ala Gly
1295 1300 1305

Gly Ala Ala Gly Gly Cys Ala Ala Cys Gly Thr Cys Thr Thr Thr
1310 1315 1320

Ala Gly Cys Thr Gly Thr Ala Gly Cys Gly Thr Gly Ala Thr Gly
1325 1330 1335

Cys Ala Cys Gly Ala Gly Gly Cys Cys Cys Thr Gly Cys Ala Cys
1340 1345 1350

Ala Ala Thr Cys Ala Cys Thr Ala Cys Ala Cys Thr Cys Ala Gly
1355 1360 1365

Ala Ala Gly Thr Cys Ala Cys Thr Gly Ala Gly Cys Cys Thr Gly
1370 1375 1380

Ala Gly Cys Cys Thr Gly Gly Gly Cys Ala Ala Gly Thr Gly Ala
1385 1390 1395

<210> 21
<211> 702
<212> PRT

<213> Artificial Sequence

<220>
<223> CHO-optimized cDNA sequence coding for chimeric clone 20E5 human kappa chain

<400> 21

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Ala Thr Gly Gly Ala Gly Thr Gly Gly Ala Gly Cys Gly Gly Ala Gly
1               5                   10                  15


Thr Gly Thr Thr Thr Ala Thr Gly Thr Thr Cys Cys Thr Gly Cys Thr
            20                  25                  30


Gly Ala Gly Cys Gly Thr Gly Ala Cys Cys Gly Cys Thr Gly Gly Cys
        35                  40                  45


Gly Thr Gly Cys Ala Cys Thr Cys Ala Gly Ala Thr Ala Thr Thr Cys
    50                  55                  60


Ala Gly Ala Thr Gly Ala Cys Thr Cys Ala Gly Ala Cys Thr Ala Cys
65                  70                  75                  80


Cys Thr Cys Thr Ala Gly Cys Cys Thr Gly Ala Gly Cys Gly Cys Thr
                85                  90                  95


Ala Gly Cys Cys Thr Gly Gly Gly Cys Gly Ala Thr Ala Gly Ala Gly
            100                 105                 110


Thr Gly Ala Cys Thr Ala Thr Thr Ala Gly Cys Thr Gly Thr Ala Gly
        115                 120                 125


Ala Gly Cys Thr Ala Gly Thr Cys Ala Gly Gly Ala Thr Ala Thr Cys
    130                 135                 140


Thr Cys Thr Ala Ala Cys Thr Ala Cys Cys Thr Gly Ala Ala Cys Thr
145                 150                 155                 160


Gly Gly Thr Ala Thr Cys Ala Gly Cys Ala Gly Ala Ala Ala Cys Cys
                165                 170                 175


Cys Gly Ala Cys Gly Gly Cys Ala Cys Cys Gly Thr Gly Ala Ala Gly
            180                 185                 190


Cys Thr Gly Cys Thr Gly Ala Thr Cys Thr Ala Cys Thr Ala Cys Ala
        195                 200                 205
```

```
Cys Cys Thr Cys Thr Ala Gly Ala Cys Thr Gly Cys Ala Cys Thr Cys
    210                 215                 220

Ala Gly Gly Cys Gly Thr Gly Cys Cys Cys Thr Cys Thr Ala Gly Gly
225                 230                 235                 240

Thr Thr Thr Ala Gly Cys Gly Gly Thr Ala Gly Cys Gly Gly Thr Ala
                245                 250                 255

Gly Thr Gly Gly Cys Ala Cys Cys Gly Ala Cys Thr Ala Thr Ala Gly
            260                 265                 270

Cys Cys Thr Gly Ala Cys Thr Ala Thr Cys Thr Cys Thr Ala Ala Cys
        275                 280                 285

Cys Thr Gly Gly Ala Ala Cys Ala Gly Gly Ala Ala Gly Ala Thr Ala
    290                 295                 300

Thr Cys Gly Cys Thr Ala Cys Cys Thr Ala Cys Thr Thr Cys Thr Gly
305                 310                 315                 320

Thr Cys Ala Gly Cys Ala Gly Gly Gly Cys Ala Ala Cys Ala Cys Cys
                325                 330                 335

Cys Thr Gly Cys Cys Cys Thr Gly Gly Ala Cys Cys Thr Thr Cys Gly
            340                 345                 350

Gly Cys Gly Gly Ala Gly Gly Cys Ala Cys Thr Ala Ala Gly Cys Thr
        355                 360                 365

Gly Gly Ala Ala Ala Thr Cys Ala Ala Gly Cys Gly Gly Ala Cys Cys
    370                 375                 380

Gly Thr Gly Gly Cys Cys Gly Cys Thr Cys Cys Cys Thr Cys Ala Gly
385                 390                 395                 400

Thr Gly Thr Thr Thr Ala Thr Cys Thr Thr Cys Cys Cys Ala Cys Cys
                405                 410                 415

Thr Ala Gly Cys Gly Ala Cys Gly Ala Gly Cys Ala Gly Cys Thr Gly
            420                 425                 430
```

```
Ala Ala Gly Thr Cys Cys Gly Gly Cys Ala Cys Cys Gly Cys Thr Ala
        435                 440                 445

Gly Cys Gly Thr Cys Gly Thr Gly Thr Gly Cys Cys Thr Gly Cys Thr
    450                 455                 460

Gly Ala Ala Cys Ala Ala Cys Thr Thr Cys Thr Ala Cys Cys Cys Thr
465                 470                 475                 480

Ala Gly Ala Gly Ala Ala Gly Cys Thr Ala Ala Gly Gly Thr Gly Cys
                485                 490                 495

Ala Gly Thr Gly Gly Ala Ala Ala Gly Thr Gly Gly Ala Thr Ala Ala
            500                 505                 510

Cys Gly Cys Cys Cys Thr Gly Cys Ala Gly Thr Cys Ala Gly Gly Cys
        515                 520                 525

Ala Ala Cys Thr Cys Thr Cys Ala Gly Gly Ala Ala Thr Cys Ala Gly
    530                 535                 540

Thr Cys Ala Cys Cys Gly Ala Gly Cys Ala Gly Gly Ala Cys Thr Cys
545                 550                 555                 560

Thr Ala Ala Gly Gly Ala Thr Ala Gly Cys Ala Cys Cys Thr Ala Thr
                565                 570                 575

Ala Gly Cys Cys Thr Gly Thr Cys Thr Ala Gly Cys Ala Cys Cys Cys
            580                 585                 590

Thr Gly Ala Cys Cys Cys Thr Gly Thr Cys Thr Ala Ala Gly Gly Cys
        595                 600                 605

Cys Gly Ala Cys Thr Ala Cys Gly Ala Gly Ala Ala Gly Cys Ala Cys
    610                 615                 620

Ala Ala Gly Gly Thr Cys Thr Ala Cys Gly Cys Cys Thr Gly Cys Gly
625                 630                 635                 640

Ala Ala Gly Thr Gly Ala Cys Thr Cys Ala Cys Cys Ala Gly Gly Gly
                645                 650                 655

Ala Cys Thr Gly Thr Cys Thr Ala Gly Cys Cys Cys Cys Gly Thr Gly
            660                 665                 670
```

```
Ala Cys Thr Ala Ala Gly Thr Cys Cys Thr Thr Thr Ala Ala Thr Ala
        675                 680                 685

Gly Ala Gly Gly Cys Gly Ala Gly Thr Gly Cys Thr Gly Ala
    690                 695                 700
```

<210> 22
<211> 1407
<212> PRT
<213> Artificial Sequence

<220>
<223> CHO-optimized cDNA sequence coding for chimeric clone 20E5 human IgG1 chain

<400> 22

```
Ala Thr Gly Gly Ala Gly Thr Gly Gly Thr Cys Ala Gly Gly Cys Gly
1               5                   10                  15

Thr Gly Thr Thr Cys Ala Thr Gly Thr Thr Cys Cys Thr Gly Cys Thr
            20                  25                  30

Gly Ala Gly Cys Gly Thr Gly Ala Cys Cys Gly Cys Thr Gly Gly Cys
        35                  40                  45

Gly Thr Gly Cys Ala Cys Thr Cys Ala Gly Ala Gly Gly Thr Gly Cys
    50                  55                  60

Ala Gly Cys Thr Gly Cys Ala Gly Cys Ala Gly Thr Cys Ala Gly Gly
65                  70                  75                  80

Cys Cys Cys Cys Gly Ala Gly Cys Thr Gly Gly Thr Cys Ala Ala Gly
                85                  90                  95

Cys Cys Thr Gly Gly Cys Gly Cys Thr Ala Gly Cys Gly Thr Gly Ala
            100                 105                 110

Ala Gly Ala Thr Gly Ala Gly Cys Thr Gly Thr Ala Ala Ala Gly Cys
        115                 120                 125

Thr Ala Gly Cys Gly Gly Cys Thr Ala Cys Ala Cys Cys Thr Thr Cys
    130                 135                 140

Ala Cys Thr Ala Gly Cys Thr Ala Cys Gly Thr Gly Ala Thr Gly Cys
```

```
145                 150                 155                 160

Ala Cys Thr Gly Gly Gly Thr Cys Ala Ala Gly Cys Ala Gly Ala Ala
                165                 170                 175

Gly Cys Cys Cys Gly Gly Thr Cys Ala Gly Gly Gly Cys Cys Thr Gly
            180                 185                 190

Gly Ala Gly Thr Gly Gly Ala Thr Cys Gly Gly Cys Thr Ala Thr Ala
        195                 200                 205

Thr Thr Ala Ala Cys Cys Cys Cys Thr Ala Thr Ala Ala Cys Gly Ala
    210                 215                 220

Cys Gly Gly Cys Ala Cys Thr Ala Ala Gly Thr Ala Thr Ala Ala Cys
225                 230                 235                 240

Gly Ala Gly Ala Ala Gly Thr Thr Thr Ala Ala Gly Gly Gly Thr Ala
                245                 250                 255

Ala Ala Gly Cys Thr Ala Cys Cys Cys Thr Gly Ala Cys Thr Ala Gly
            260                 265                 270

Cys Gly Ala Thr Ala Ala Gly Thr Cys Thr Ala Gly Cys Thr Cys Thr
        275                 280                 285

Ala Cys Cys Gly Cys Cys Thr Ala Thr Ala Thr Gly Gly Ala Ala Cys
    290                 295                 300

Thr Gly Thr Cys Thr Ala Gly Thr Cys Thr Gly Ala Cys Thr Ala Gly
305                 310                 315                 320

Thr Gly Ala Ala Gly Ala Thr Ala Gly Cys Gly Cys Cys Gly Thr Cys
                325                 330                 335

Thr Ala Cys Thr Ala Cys Thr Gly Cys Gly Cys Thr Ala Ala Cys Thr
            340                 345                 350

Ala Cys Thr Ala Cys Gly Gly Cys Thr Cys Thr Ala Gly Cys Cys Thr
        355                 360                 365

Gly Thr Cys Thr Ala Thr Gly Gly Ala Cys Thr Ala Cys Thr Gly Gly
    370                 375                 380
```

```
Gly Gly Thr Cys Ala Gly Gly Gly Cys Ala Cys Thr Ala Gly Cys Gly
385                 390                 395                 400

Thr Gly Ala Cys Cys Gly Thr Gly Thr Cys Thr Ala Gly Cys Gly Cys
                405                 410                 415

Thr Ala Gly Cys Ala Cys Thr Ala Ala Gly Gly Gly Cys Cys Cys Thr
            420                 425                 430

Ala Gly Cys Gly Thr Gly Thr Thr Cys Cys Cys Cys Cys Thr Gly Gly
        435                 440                 445

Cys Cys Cys Cys Thr Ala Gly Cys Thr Cys Thr Ala Ala Gly Thr Cys
    450                 455                 460

Thr Ala Cys Thr Ala Gly Cys Gly Gly Cys Gly Gly Cys Ala Cys Cys
465                 470                 475                 480

Gly Cys Cys Gly Cys Thr Cys Thr Gly Gly Gly Cys Thr Gly Cys Cys
                485                 490                 495

Thr Gly Gly Thr Cys Ala Ala Gly Gly Ala Cys Thr Ala Cys Thr Thr
            500                 505                 510

Cys Cys Cys Cys Gly Ala Gly Cys Cys Cys Gly Thr Gly Ala Cys Cys
        515                 520                 525

Gly Thr Cys Ala Gly Cys Thr Gly Gly Ala Ala Thr Ala Gly Cys Gly
    530                 535                 540

Gly Cys Gly Cys Thr Cys Thr Gly Ala Cys Thr Ala Gly Cys Gly Gly
545                 550                 555                 560

Ala Gly Thr Gly Cys Ala Cys Ala Cys Cys Thr Thr Cys Cys Cys Cys
                565                 570                 575

Gly Cys Cys Gly Thr Gly Cys Thr Gly Cys Ala Gly Thr Cys Thr Ala
            580                 585                 590

Gly Cys Gly Gly Cys Cys Thr Gly Thr Ala Thr Ala Gly Thr Cys Thr
        595                 600                 605

Gly Thr Cys Thr Ala Gly Cys Gly Thr Gly Gly Thr Cys Ala Cys Cys
```

```
    610                 615                 620

Gly Thr Gly Cys Cys Thr Ala Gly Thr Thr Cys Thr Ala Gly Cys Cys
625                 630                 635                 640

Thr Gly Gly Gly Cys Ala Cys Thr Cys Ala Gly Ala Cys Cys Thr Ala
                645                 650                 655

Thr Ala Thr Cys Thr Gly Thr Ala Ala Cys Gly Thr Gly Ala Ala Cys
            660                 665                 670

Cys Ala Cys Ala Ala Gly Cys Cys Cys Thr Cys Thr Ala Ala Cys Ala
        675                 680                 685

Cys Thr Ala Ala Gly Gly Thr Gly Gly Ala Cys Ala Ala Gly Ala Ala
    690                 695                 700

Gly Gly Thr Gly Gly Ala Ala Cys Cys Thr Ala Ala Gly Thr Cys Cys
705                 710                 715                 720

Thr Gly Cys Gly Ala Thr Ala Ala Gly Ala Cys Thr Cys Ala Cys Ala
                725                 730                 735

Cys Cys Thr Gly Thr Cys Cys Cys Cys Cys Cys Thr Gly Cys Cys Cys
            740                 745                 750

Thr Gly Cys Cys Cys Cys Thr Gly Ala Gly Cys Thr Gly Cys Thr Gly
        755                 760                 765

Gly Gly Ala Gly Gly Ala Cys Cys Thr Ala Gly Thr Gly Thr Gly Thr
    770                 775                 780

Thr Cys Cys Thr Gly Thr Thr Cys Cys Cys Ala Cys Cys Thr Ala Ala
785                 790                 795                 800

Gly Cys Cys Thr Ala Ala Gly Gly Ala Cys Ala Cys Cys Cys Thr Gly
                805                 810                 815

Ala Thr Gly Ala Thr Cys Thr Cys Thr Ala Gly Ala Ala Cys Cys Cys
            820                 825                 830

Cys Cys Gly Ala Ala Gly Thr Gly Ala Cys Cys Thr Gly Cys Gly Thr
        835                 840                 845
```

```
Gly Gly Thr Gly Gly Thr Gly Gly Ala Cys Gly Thr Cys Ala Gly Thr
    850                 855                 860

Cys Ala Cys Gly Ala Gly Gly Ala Cys Cys Cys Thr Gly Ala Ala Gly
865                 870                 875                 880

Thr Gly Ala Ala Gly Thr Thr Thr Ala Ala Thr Thr Gly Gly Thr Ala
                885                 890                 895

Cys Gly Thr Gly Gly Ala Cys Gly Gly Cys Gly Thr Gly Gly Ala Ala
            900                 905                 910

Gly Thr Gly Cys Ala Cys Ala Ala Cys Gly Cys Thr Ala Ala Gly Ala
        915                 920                 925

Cys Thr Ala Ala Gly Cys Cys Thr Ala Gly Ala Gly Ala Gly Gly Ala
    930                 935                 940

Ala Cys Ala Gly Thr Ala Thr Ala Ala Cys Thr Cys Thr Ala Cys Cys
945                 950                 955                 960

Thr Ala Thr Ala Gly Gly Gly Thr Cys Gly Thr Cys Ala Gly Cys Gly
                965                 970                 975

Thr Gly Cys Thr Gly Ala Cys Cys Gly Thr Gly Cys Thr Gly Cys Ala
            980                 985                 990

Cys Cys Ala Gly Gly Ala Cys Thr  Gly Gly Cys Thr Gly  Ala Ala Cys
        995                 1000                1005

Gly Gly  Thr Ala Ala Ala Gly  Ala Gly Thr Ala Thr  Ala Ala Gly
    1010                1015                1020

Thr Gly  Thr Ala Ala Ala Gly  Thr Gly Thr Cys Thr  Ala Ala Cys
    1025                1030                1035

Ala Ala  Gly Gly Cys Cys Cys  Thr Gly Cys Cys Ala  Gly Cys Cys
    1040                1045                1050

Cys Cys  Thr Ala Thr Cys Gly  Ala Ala Ala Ala Gly  Ala Cys Thr
    1055                1060                1065

Ala Thr  Cys Thr Cys Thr Ala  Ala Gly Gly Cys Thr  Ala Ala Gly
```

```
    1070                1075                1080

Gly Gly  Thr Cys Ala Gly Cys  Cys Thr Ala Gly Gly  Gly Ala Ala
    1085                1090                1095

Cys Cys  Thr Cys Ala Gly Gly  Thr Cys Thr Ala Cys  Ala Cys Cys
    1100                1105                1110

Cys Thr  Gly Cys Cys Cys Cys  Cys Thr Ala Gly Thr  Ala Gly Gly
    1115                1120                1125

Gly Ala  Cys Gly Ala Gly Cys  Thr Gly Ala Cys Thr  Ala Ala Gly
    1130                1135                1140

Ala Ala  Thr Cys Ala Gly Gly  Thr Cys Ala Gly Cys  Cys Thr Gly
    1145                1150                1155

Ala Cys  Thr Thr Gly Thr Cys  Thr Gly Gly Thr Cys  Ala Ala Gly
    1160                1165                1170

Gly Gly  Cys Thr Thr Cys Thr  Ala Cys Cys Cys Thr  Ala Gly Cys
    1175                1180                1185

Gly Ala  Thr Ala Thr Cys Gly  Cys Cys Gly Thr Cys  Gly Ala Gly
    1190                1195                1200

Thr Gly  Gly Gly Ala Gly Thr  Cys Thr Ala Ala Cys  Gly Gly Thr
    1205                1210                1215

Cys Ala  Gly Cys Cys Cys Gly  Ala Gly Ala Ala Cys  Ala Ala Cys
    1220                1225                1230

Thr Ala  Thr Ala Ala Gly Ala  Cys Thr Ala Cys Cys  Cys Cys Cys
    1235                1240                1245

Cys Cys  Thr Gly Thr Gly Cys  Thr Gly Gly Ala Thr  Ala Gly Cys
    1250                1255                1260

Gly Ala  Cys Gly Gly Thr Ala  Gly Cys Thr Thr Cys  Thr Thr Cys
    1265                1270                1275

Cys Thr  Gly Thr Ala Cys Thr  Cys Thr Ala Ala Ala  Cys Thr Gly
    1280                1285                1290
```

```
Ala Cys  Cys Gly Thr Gly Gly  Ala Thr Ala Ala Gly  Thr Cys Thr
    1295                 1300                 1305


Ala Gly  Gly Thr Gly Gly Cys  Ala Gly Cys Ala Gly  Gly Gly Thr
    1310                 1315                 1320


Ala Ala  Cys Gly Thr Gly Thr  Thr Cys Ala Gly Cys  Thr Gly Thr
    1325                 1330                 1335


Ala Gly  Cys Gly Thr Gly Ala  Thr Gly Cys Ala Cys  Gly Ala Gly
    1340                 1345                 1350


Gly Cys  Cys Cys Thr Gly Cys  Ala Cys Ala Ala Thr  Cys Ala Cys
    1355                 1360                 1365


Thr Ala  Cys Ala Cys Thr Cys  Ala Gly Ala Ala Gly  Thr Cys Ala
    1370                 1375                 1380


Cys Thr  Gly Ala Gly Cys Cys  Thr Gly Ala Gly Cys  Cys Cys Cys
    1385                 1390                 1395


Gly Gly  Thr Ala Ala Gly Thr  Gly Ala
    1400                 1405
```

<210> 23
<211> 1404
<212> PRT
<213> Artificial Sequence

<220>
<223> CHO-optimized cDNA sequence coding for chimeric clone 12H3 human IgG4 chain

<400> 23

```
Ala Thr Gly Gly Ala Gly Thr Gly Gly Thr Cys Thr Gly Gly Thr Gly
1               5                  10                  15


Thr Cys Thr Thr Thr Ala Thr Gly Thr Thr Cys Cys Thr Gly Cys Thr
            20                  25                  30


Gly Thr Cys Cys Gly Thr Gly Ala Cys Cys Gly Cys Gly Gly Gly Thr
        35                  40                  45


Gly Thr Cys Cys Ala Cys Ala Gly Cys Gly Ala Gly Gly Thr Gly Cys
    50                  55                  60
```

```
Ala Gly Cys Thr Gly Cys Ala Gly Cys Ala Gly Thr Cys Cys Gly Gly
65                  70                  75                  80

Cys Cys Cys Thr Gly Ala Gly Cys Thr Gly Gly Thr Gly Ala Ala Ala
                85                  90                  95

Cys Cys Thr Gly Gly Cys Gly Cys Cys Thr Cys Cys Gly Thr Gly Ala
            100                 105                 110

Ala Gly Ala Thr Cys Thr Cys Cys Thr Gly Cys Ala Ala Gly Ala Cys
        115                 120                 125

Cys Thr Cys Cys Gly Gly Cys Thr Ala Cys Ala Cys Cys Thr Thr Cys
    130                 135                 140

Ala Ala Gly Gly Ala Cys Thr Ala Cys Ala Cys Ala Ala Thr Gly Cys
145                 150                 155                 160

Ala Cys Thr Gly Gly Gly Thr Gly Ala Ala Ala Cys Ala Gly Thr Cys
                165                 170                 175

Cys Cys Ala Cys Gly Gly Cys Ala Ala Gly Thr Cys Cys Thr Thr Gly
            180                 185                 190

Gly Ala Gly Thr Gly Gly Ala Thr Cys Gly Gly Cys Gly Gly Ala Ala
        195                 200                 205

Thr Cys Thr Ala Cys Cys Cys Cys Ala Ala Cys Ala Ala Cys Gly Gly
    210                 215                 220

Cys Gly Gly Cys Thr Cys Cys Ala Cys Cys Thr Ala Cys Ala Ala Cys
225                 230                 235                 240

Cys Ala Gly Ala Ala Cys Thr Thr Cys Ala Ala Gly Gly Ala Cys Ala
                245                 250                 255

Ala Gly Gly Cys Cys Ala Cys Cys Cys Thr Gly Ala Cys Cys Gly Thr
            260                 265                 270

Gly Gly Ala Cys Ala Ala Gly Thr Cys Cys Thr Cys Cys Thr Cys Cys
        275                 280                 285
```

```
Ala Cys Cys Gly Cys Cys Thr Ala Thr Ala Thr Gly Gly Ala Ala Thr
    290                 295                 300

Thr Thr Cys Gly Gly Thr Cys Cys Cys Thr Gly Ala Cys Cys Thr Cys
305                 310                 315                 320

Cys Gly Ala Gly Gly Ala Cys Thr Cys Cys Gly Cys Cys Gly Thr Gly
                325                 330                 335

Thr Ala Cys Thr Ala Cys Thr Gly Cys Gly Cys Cys Cys Gly Gly Ala
            340                 345                 350

Thr Gly Gly Gly Cys Thr Ala Cys Cys Ala Cys Gly Gly Cys Cys Cys
        355                 360                 365

Cys Cys Ala Cys Cys Thr Gly Gly Ala Thr Thr Thr Cys Gly Ala Cys
    370                 375                 380

Gly Thr Gly Thr Gly Gly Gly Gly Cys Gly Cys Thr Gly Gly Cys Ala
385                 390                 395                 400

Cys Cys Ala Cys Cys Gly Thr Gly Ala Cys Cys Gly Thr Gly Thr Cys
                405                 410                 415

Thr Cys Cys Ala Gly Cys Thr Ala Gly Cys Ala Cys Cys Ala Ala Gly
            420                 425                 430

Gly Gly Cys Cys Cys Cys Thr Cys Cys Gly Thr Gly Thr Thr Cys Cys
        435                 440                 445

Cys Thr Cys Thr Gly Gly Cys Cys Cys Cys Thr Thr Gly Cys Thr Cys
    450                 455                 460

Cys Cys Gly Gly Thr Cys Cys Ala Cys Cys Thr Cys Cys Gly Ala Gly
465                 470                 475                 480

Thr Cys Thr Ala Cys Cys Gly Cys Cys Gly Cys Thr Cys Thr Gly Gly
                485                 490                 495

Gly Cys Thr Gly Cys Cys Thr Gly Gly Thr Gly Ala Ala Ala Gly Ala
            500                 505                 510

Cys Thr Ala Cys Thr Thr Cys Cys Cys Cys Gly Ala Gly Cys Cys Cys
        515                 520                 525
```

```
Gly Thr Gly Ala Cys Ala Gly Thr Gly Thr Cys Cys Thr Gly Gly Ala
    530                 535                 540

Ala Cys Thr Cys Thr Gly Gly Cys Gly Cys Cys Cys Thr Gly Ala Cys
545                 550                 555                 560

Cys Ala Gly Cys Gly Gly Cys Gly Thr Gly Cys Ala Cys Ala Cys Cys
                565                 570                 575

Thr Thr Cys Cys Cys Thr Gly Cys Cys Gly Thr Gly Cys Thr Gly Cys
            580                 585                 590

Ala Gly Thr Cys Cys Thr Cys Cys Gly Gly Cys Cys Thr Gly Thr Ala
        595                 600                 605

Cys Thr Cys Cys Cys Thr Gly Thr Cys Cys Thr Cys Cys Gly Thr Gly
    610                 615                 620

Gly Thr Gly Ala Cys Ala Gly Thr Gly Cys Cys Cys Thr Cys Cys Thr
625                 630                 635                 640

Cys Cys Ala Gly Cys Cys Thr Gly Gly Gly Cys Ala Cys Cys Ala Ala
                645                 650                 655

Gly Ala Cys Cys Thr Ala Cys Ala Cys Cys Thr Gly Thr Ala Ala Cys
            660                 665                 670

Gly Thr Gly Gly Ala Cys Cys Ala Cys Ala Ala Gly Cys Cys Cys Thr
        675                 680                 685

Cys Cys Ala Ala Cys Ala Cys Cys Ala Ala Gly Gly Thr Gly Gly Ala
    690                 695                 700

Cys Ala Ala Gly Cys Gly Gly Gly Thr Gly Gly Ala Ala Thr Cys Thr
705                 710                 715                 720

Ala Ala Gly Thr Ala Cys Gly Gly Cys Cys Cys Thr Cys Cys Cys Thr
                725                 730                 735

Gly Cys Cys Cys Ala Cys Cys Thr Thr Gly Cys Cys Cys Thr Gly Cys
            740                 745                 750
```

```
Cys Cys Cys Thr Gly Ala Ala Thr Thr Thr Cys Thr Gly Gly Gly Cys
        755                 760                 765

Gly Gly Ala Cys Cys Thr Thr Cys Cys Gly Thr Gly Thr Thr Cys Cys
    770                 775                 780

Thr Gly Thr Thr Cys Cys Cys Cys Cys Cys Ala Ala Ala Gly Cys Cys
785                 790                 795                 800

Cys Ala Ala Gly Gly Ala Cys Ala Cys Cys Cys Thr Gly Ala Thr Gly
                805                 810                 815

Ala Thr Cys Thr Cys Cys Cys Gly Gly Ala Cys Cys Cys Cys Cys Gly
            820                 825                 830

Ala Ala Gly Thr Gly Ala Cys Cys Thr Gly Cys Gly Thr Gly Gly Thr
        835                 840                 845

Gly Gly Thr Gly Gly Ala Cys Gly Thr Gly Thr Cys Cys Cys Ala Ala
    850                 855                 860

Gly Ala Ala Gly Ala Thr Cys Cys Cys Gly Ala Gly Gly Thr Cys Cys
865                 870                 875                 880

Ala Gly Thr Thr Cys Ala Ala Thr Thr Gly Gly Thr Ala Cys Gly Thr
                885                 890                 895

Gly Gly Ala Cys Gly Gly Cys Gly Thr Gly Gly Ala Ala Gly Thr Gly
            900                 905                 910

Cys Ala Cys Ala Ala Cys Gly Cys Cys Ala Ala Gly Ala Cys Cys Ala
        915                 920                 925

Ala Gly Cys Cys Cys Ala Gly Ala Gly Ala Gly Gly Ala Ala Cys Ala
    930                 935                 940

Gly Thr Thr Cys Ala Ala Cys Thr Cys Cys Ala Cys Cys Thr Ala Cys
945                 950                 955                 960

Cys Gly Gly Gly Thr Gly Gly Thr Gly Thr Cys Cys Gly Thr Gly Cys
                965                 970                 975

Thr Gly Ala Cys Cys Gly Thr Gly Cys Thr Gly Cys Ala Cys Cys Ala
            980                 985                 990
```

```
Gly Gly Ala Cys Thr Gly Gly Cys  Thr Gly Ala Ala Cys  Gly Gly Cys
        995                 1000                1005


Ala Ala  Ala Gly Ala Gly Thr  Ala Cys Ala Ala Gly  Thr Gly Cys
    1010                1015                1020


Ala Ala  Gly Gly Thr Cys Thr  Cys Cys Ala Ala Cys  Ala Ala Gly
    1025                1030                1035


Gly Gly  Cys Cys Thr Gly Cys  Cys Cys Ala Gly Cys  Thr Cys Thr
    1040                1045                1050


Ala Thr  Cys Gly Ala Ala Ala  Ala Gly Ala Cys Ala  Ala Thr Cys
    1055                1060                1065


Thr Cys  Cys Ala Ala Gly Gly  Cys Cys Ala Ala Gly  Gly Gly Cys
    1070                1075                1080


Cys Ala  Gly Cys Cys Cys Cys  Gly Cys Gly Ala Gly  Cys Cys Cys
    1085                1090                1095


Cys Ala  Gly Gly Thr Gly Thr  Ala Cys Ala Cys Cys  Cys Thr Gly
    1100                1105                1110


Cys Cys  Thr Cys Cys Cys Ala  Gly Cys Cys Ala Ala  Gly Ala Ala
    1115                1120                1125


Gly Ala  Gly Ala Thr Gly Ala  Cys Cys Ala Ala Gly  Ala Ala Cys
    1130                1135                1140


Cys Ala  Gly Gly Thr Gly Thr  Cys Cys Cys Thr Gly  Ala Cys Thr
    1145                1150                1155


Thr Gly  Thr Cys Thr Gly Gly  Thr Gly Ala Ala Ala  Gly Gly Cys
    1160                1165                1170


Thr Thr  Cys Thr Ala Cys Cys  Cys Cys Thr Cys Cys  Gly Ala Thr
    1175                1180                1185


Ala Thr  Cys Gly Cys Cys Gly  Thr Cys Gly Ala Gly  Thr Gly Gly
    1190                1195                1200
```

Gly Ala Gly Thr Cys Cys Ala Ala Cys Gly Gly Cys Cys Ala Gly
1205 1210 1215

Cys Cys Cys Gly Ala Gly Ala Ala Cys Ala Ala Cys Thr Ala Cys
1220 1225 1230

Ala Ala Gly Ala Cys Cys Ala Cys Cys Cys Cys Cys Cys Cys Thr
1235 1240 1245

Gly Thr Gly Cys Thr Gly Gly Ala Cys Thr Cys Cys Gly Ala Cys
1250 1255 1260

Gly Gly Cys Thr Cys Cys Thr Thr Cys Thr Thr Cys Cys Thr Gly
1265 1270 1275

Thr Ala Cys Thr Cys Thr Cys Gly Gly Cys Thr Gly Ala Cys Ala
1280 1285 1290

Gly Thr Gly Gly Ala Thr Ala Ala Gly Thr Cys Cys Cys Gly Gly
1295 1300 1305

Thr Gly Gly Cys Ala Ala Gly Ala Ala Gly Gly Cys Ala Ala Cys
1310 1315 1320

Gly Thr Cys Thr Thr Cys Thr Cys Cys Thr Gly Cys Thr Cys Cys
1325 1330 1335

Gly Thr Gly Ala Thr Gly Cys Ala Cys Gly Ala Gly Gly Cys Cys
1340 1345 1350

Cys Thr Gly Cys Ala Cys Ala Ala Cys Cys Ala Cys Thr Ala Cys
1355 1360 1365

Ala Cys Cys Cys Ala Gly Ala Ala Gly Thr Cys Cys Cys Thr Gly
1370 1375 1380

Thr Cys Cys Cys Thr Gly Ala Gly Cys Cys Thr Gly Gly Gly Cys
1385 1390 1395

Ala Ala Gly Thr Ala Gly
1400

<210> 24
<211> 702

<212> PRT
<213> Artificial Sequence

<220>
<223> CHO-optimized cDNA sequence coding for chimeric clone 12H3 human kappa chain

<400> 24

Ala Thr Gly Gly Ala Gly Thr Gly Gly Thr Cys Cys Gly Gly Thr Gly
1 5 10 15

Thr Cys Thr Thr Thr Ala Thr Gly Thr Thr Cys Cys Thr Gly Cys Thr
20 25 30

Gly Thr Cys Cys Gly Thr Gly Ala Cys Cys Gly Cys Thr Gly Gly Cys
35 40 45

Gly Thr Gly Cys Ala Cys Thr Cys Cys Gly Ala Thr Ala Thr Cys Gly
50 55 60

Thr Gly Ala Thr Gly Ala Cys Cys Cys Ala Gly Thr Cys Cys Cys Ala
65 70 75 80

Cys Ala Ala Gly Thr Thr Thr Ala Thr Gly Thr Cys Cys Ala Cys Cys
85 90 95

Thr Cys Cys Cys Thr Gly Gly Gly Cys Gly Ala Cys Ala Gly Ala Gly
100 105 110

Thr Cys Thr Cys Thr Ala Thr Thr Ala Cys Cys Thr Gly Cys Ala Ala
115 120 125

Gly Gly Cys Cys Thr Cys Cys Cys Ala Gly Gly Ala Cys Gly Thr Gly
130 135 140

Gly Gly Cys Gly Cys Thr Gly Cys Cys Gly Thr Gly Gly Cys Cys Thr
145 150 155 160

Gly Gly Thr Ala Thr Cys Ala Gly Cys Ala Gly Ala Ala Gly Cys Cys
165 170 175

Cys Gly Gly Cys Cys Ala Gly Thr Cys Cys Cys Cys Cys Ala Ala Gly
180 185 190

Cys Thr Gly Cys Thr Gly Ala Thr Cys Thr Ala Cys Thr Gly Gly Gly

```
        195                 200                 205

Cys Cys Thr Cys Cys Ala Cys Cys Ala Gly Ala Cys Ala Cys Ala Cys
    210                 215                 220

Cys Gly Gly Cys Gly Thr Gly Cys Cys Cys Gly Ala Cys Ala Gly Ala
225                 230                 235                 240

Thr Thr Cys Ala Cys Cys Gly Gly Cys Gly Gly Ala Gly Gly Cys Thr
                245                 250                 255

Cys Thr Gly Gly Cys Ala Cys Cys Gly Ala Cys Thr Thr Cys Ala Cys
            260                 265                 270

Cys Cys Thr Gly Ala Cys Ala Ala Thr Cys Thr Cys Cys Ala Ala Cys
        275                 280                 285

Gly Thr Gly Cys Ala Gly Thr Cys Cys Gly Ala Gly Gly Ala Cys Cys
    290                 295                 300

Thr Gly Ala Cys Cys Gly Ala Cys Thr Ala Cys Thr Thr Cys Thr Gly
305                 310                 315                 320

Cys Cys Ala Gly Cys Ala Gly Thr Ala Thr Ala Thr Cys Ala Ala Cys
                325                 330                 335

Thr Ala Cys Cys Cys Cys Cys Thr Gly Ala Cys Cys Thr Thr Cys Gly
            340                 345                 350

Gly Cys Gly Gly Ala Gly Gly Cys Ala Cys Cys Ala Ala Gly Cys Thr
        355                 360                 365

Gly Gly Ala Ala Ala Thr Cys Ala Ala Gly Cys Gly Gly Ala Cys Cys
    370                 375                 380

Gly Thr Gly Gly Cys Cys Gly Cys Thr Cys Cys Cys Thr Cys Cys Gly
385                 390                 395                 400

Thr Gly Thr Thr Thr Ala Thr Cys Thr Thr Cys Cys Cys Ala Cys Cys
                405                 410                 415

Cys Thr Cys Cys Gly Ala Cys Gly Ala Gly Cys Ala Gly Cys Thr Gly
            420                 425                 430
```

```
Ala Ala Gly Thr Cys Cys Gly Gly Cys Ala Cys Cys Gly Cys Cys Thr
        435                 440                 445

Cys Cys Gly Thr Gly Gly Thr Cys Thr Gly Cys Cys Thr Gly Cys Thr
    450                 455                 460

Gly Ala Ala Cys Ala Ala Cys Thr Thr Cys Thr Ala Cys Cys Cys Cys
465                 470                 475                 480

Cys Gly Cys Gly Ala Gly Gly Cys Cys Ala Ala Gly Gly Thr Gly Cys
                485                 490                 495

Ala Gly Thr Gly Gly Ala Ala Gly Gly Thr Gly Gly Ala Cys Ala Ala
            500                 505                 510

Cys Gly Cys Cys Cys Thr Gly Cys Ala Gly Thr Cys Cys Gly Gly Cys
        515                 520                 525

Ala Ala Cys Thr Cys Cys Cys Ala Ala Gly Ala Ala Thr Cys Cys Gly
    530                 535                 540

Thr Gly Ala Cys Cys Gly Ala Gly Cys Ala Gly Gly Ala Cys Thr Cys
545                 550                 555                 560

Cys Ala Ala Gly Gly Ala Cys Ala Gly Cys Ala Cys Cys Thr Ala Cys
                565                 570                 575

Thr Cys Cys Cys Thr Gly Thr Cys Cys Thr Cys Cys Ala Cys Cys Cys
            580                 585                 590

Thr Gly Ala Cys Cys Cys Thr Gly Thr Cys Cys Ala Ala Gly Gly Cys
        595                 600                 605

Cys Gly Ala Cys Thr Ala Cys Gly Ala Gly Ala Ala Gly Cys Ala Cys
    610                 615                 620

Ala Ala Gly Gly Thr Gly Thr Ala Cys Gly Cys Cys Thr Gly Cys Gly
625                 630                 635                 640

Ala Ala Gly Thr Gly Ala Cys Cys Cys Ala Cys Cys Ala Gly Gly Gly
                645                 650                 655

Cys Cys Thr Gly Thr Cys Cys Ala Gly Cys Cys Cys Cys Gly Thr Gly
```

660 665 670

Ala Cys Cys Ala Ala Gly Thr Cys Cys Thr Thr Cys Ala Ala Cys Cys
675 680 685

Gly Gly Gly Gly Cys Gly Ala Gly Thr Gly Cys Thr Ala Ala
690 695 700

<210> 25
<211> 465
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of chimeric clone 20E5 human IgG4 chain

<400> 25

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

Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
20 25 30

Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45

Thr Ser Tyr Val Met His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu
50 55 60

Glu Trp Ile Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
65 70 75 80

Glu Lys Phe Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser
85 90 95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val
100 105 110

Tyr Tyr Cys Ala Asn Tyr Tyr Gly Ser Ser Leu Ser Met Asp Tyr Trp
115 120 125

Gly Gln Gly Thr Ser Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
130 135 140

Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr

```
145                 150                 155                 160

Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr
                165                 170                 175

Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro
            180                 185                 190

Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr
        195                 200                 205

Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp
    210                 215                 220

His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr
225                 230                 235                 240

Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro
                245                 250                 255

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
            260                 265                 270

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp
        275                 280                 285

Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
    290                 295                 300

Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val
305                 310                 315                 320

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
                325                 330                 335

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
            340                 345                 350

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
        355                 360                 365

Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
    370                 375                 380
```

```
Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
385                 390                 395                 400


Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
                405                 410                 415


Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys
            420                 425                 430


Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu
        435                 440                 445


Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly
    450                 455                 460


Lys
465


<210>  26
<211>  233
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Amino acid sequence of chimeric clone 20E5 human kappa chain

<400>  26

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


Val His Ser Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu Ser Ala
            20                  25                  30


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


Ser Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val Lys
    50                  55                  60


Leu Leu Ile Tyr Tyr Thr Ser Arg Leu His Ser Gly Val Pro Ser Arg
65                  70                  75                  80


Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn
                85                  90                  95
```

```
Leu Glu Gln Glu Asp Ile Ala Thr Tyr Phe Cys Gln Gln Gly Asn Thr
            100                 105                 110

Leu Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Thr
        115                 120                 125

Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu
    130                 135                 140

Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro
145                 150                 155                 160

Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly
                165                 170                 175

Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr
            180                 185                 190

Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His
        195                 200                 205

Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val
    210                 215                 220

Thr Lys Ser Phe Asn Arg Gly Glu Cys
225                 230


<210>  27
<211>  468
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Amino acid sequence of chimeric clone 20E5 human IgG1 chain

<400>  27

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

Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
            20                  25                  30

Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe
        35                  40                  45
```

```
Thr Ser Tyr Val Met His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu
    50                  55                  60

Glu Trp Ile Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Lys Tyr Asn
65                  70                  75                  80

Glu Lys Phe Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser
                85                  90                  95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val
            100                 105                 110

Tyr Tyr Cys Ala Asn Tyr Tyr Gly Ser Ser Leu Ser Met Asp Tyr Trp
        115                 120                 125

Gly Gln Gly Thr Ser Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
    130                 135                 140

Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr
145                 150                 155                 160

Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr
                165                 170                 175

Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro
            180                 185                 190

Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr
        195                 200                 205

Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn
    210                 215                 220

His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser
225                 230                 235                 240

Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu
                245                 250                 255

Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu
            260                 265                 270

Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser
```

275 280 285

His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu
290 295 300

Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr
305 310 315 320

Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn
325 330 335

Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro
340 345 350

Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln
355 360 365

Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val
370 375 380

Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val
385 390 395 400

Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro
405 410 415

Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr
420 425 430

Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val
435 440 445

Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu
450 455 460

Ser Pro Gly Lys
465

<210> 28
<211> 467
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of chimeric clone 12H3 human IgG4 chain

<400> 28

```
Met Glu Trp Ser Gly Val Phe Met Phe Leu Leu Ser Val Thr Ala Gly
1               5                  10                  15

Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
            20                  25                  30

Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Thr Ser Gly Tyr Thr Phe
        35                  40                  45

Lys Asp Tyr Thr Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
    50                  55                  60

Glu Trp Ile Gly Gly Ile Tyr Pro Asn Asn Gly Gly Ser Thr Tyr Asn
65                  70                  75                  80

Gln Asn Phe Lys Asp Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser
                85                  90                  95

Thr Ala Tyr Met Glu Phe Arg Ser Leu Thr Ser Glu Asp Ser Ala Val
            100                 105                 110

Tyr Tyr Cys Ala Arg Met Gly Tyr His Gly Pro His Leu Asp Phe Asp
        115                 120                 125

Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser Pro Ala Ser Thr Lys
    130                 135                 140

Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu
145                 150                 155                 160

Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
                165                 170                 175

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
            180                 185                 190

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
        195                 200                 205

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn
    210                 215                 220
```

```
Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser
225                 230                 235                 240

Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly
                245                 250                 255

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
            260                 265                 270

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln
        275                 280                 285

Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val
    290                 295                 300

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr
305                 310                 315                 320

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
                325                 330                 335

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile
            340                 345                 350

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
        355                 360                 365

Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser
    370                 375                 380

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
385                 390                 395                 400

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
                405                 410                 415

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val
            420                 425                 430

Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met
        435                 440                 445

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
```

450 455 460

Leu Gly Lys
465

<210> 29
<211> 233
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of chimeric clone 12H3 human kappa chain

<400> 29

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

Val His Ser Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr
20 25 30

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

Gly Ala Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys
50 55 60

Leu Leu Ile Tyr Trp Ala Ser Thr Arg His Thr Gly Val Pro Asp Arg
65 70 75 80

Phe Thr Gly Gly Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asn
85 90 95

Val Gln Ser Glu Asp Leu Thr Asp Tyr Phe Cys Gln Gln Tyr Ile Asn
100 105 110

Tyr Pro Leu Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Thr
115 120 125

Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu
130 135 140

Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro
145 150 155 160

Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly

```
                165                 170                 175

Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr
            180                 185                 190

Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His
        195                 200                 205

Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val
    210                 215                 220

Thr Lys Ser Phe Asn Arg Gly Glu Cys
225                 230


<210>  30
<211>  240
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Amino acid sequence of human CD134_CRD2 (aa 1-28 >< 66-277)

<220>
<221>   SIGNAL
<222>   (1)...(28)

<220>
<221>   TRANSMEM
<222>   (178)...(198)

<400>  30

Met Cys Val Gly Ala Arg Arg Leu Gly Arg Gly Pro Cys Ala Ala Leu
1               5                   10                  15

Leu Leu Leu Gly Leu Gly Leu Ser Thr Val Thr Gly Pro Cys Gly Pro
            20                  25                  30

Gly Phe Tyr Asn Asp Val Val Ser Ser Lys Pro Cys Lys Pro Cys Thr
        35                  40                  45

Trp Cys Asn Leu Arg Ser Gly Ser Glu Arg Lys Gln Leu Cys Thr Ala
    50                  55                  60

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

Ser Tyr Lys Pro Gly Val Asp Cys Ala Pro Cys Pro Pro Gly His Phe
```

```
                85                  90                  95

Ser Pro Gly Asp Asn Gln Ala Cys Lys Pro Trp Thr Asn Cys Thr Leu
            100                 105                 110

Ala Gly Lys His Thr Leu Gln Pro Ala Ser Asn Ser Ser Asp Ala Ile
        115                 120                 125

Cys Glu Asp Arg Asp Pro Pro Ala Thr Gln Pro Gln Glu Thr Gln Gly
    130                 135                 140

Pro Pro Ala Arg Pro Ile Thr Val Gln Pro Thr Glu Ala Trp Pro Arg
145                 150                 155                 160

Thr Ser Gln Gly Pro Ser Thr Arg Pro Val Glu Val Pro Gly Gly Arg
                165                 170                 175

Ala Val Ala Ala Ile Leu Gly Leu Gly Leu Val Leu Gly Leu Leu Gly
            180                 185                 190

Pro Leu Ala Ile Leu Leu Ala Leu Tyr Leu Leu Arg Arg Asp Gln Arg
        195                 200                 205

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

Pro Ile Gln Glu Glu Gln Ala Asp Ala His Ser Thr Leu Ala Lys Ile
225                 230                 235                 240
```

<210> 31
<211> 198
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of human CD134_CRD3 (aa 1-28 >< 108-277)

<220>
<221> SIGNAL
<222> (1)...(28)

<220>
<221> TRANSMEM
<222> (136)...(156)

<400> 31

```
Met Cys Val Gly Ala Arg Arg Leu Gly Arg Gly Pro Cys Ala Ala Leu
```

1 5 10 15

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

Gly Thr Gln Pro Leu Asp Ser Tyr Lys Pro Gly Val Asp Cys Ala Pro
35 40 45

Cys Pro Pro Gly His Phe Ser Pro Gly Asp Asn Gln Ala Cys Lys Pro
50 55 60

Trp Thr Asn Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala Ser
65 70 75 80

Asn Ser Ser Asp Ala Ile Cys Glu Asp Arg Asp Pro Pro Ala Thr Gln
85 90 95

Pro Gln Glu Thr Gln Gly Pro Pro Ala Arg Pro Ile Thr Val Gln Pro
100 105 110

Thr Glu Ala Trp Pro Arg Thr Ser Gln Gly Pro Ser Thr Arg Pro Val
115 120 125

Glu Val Pro Gly Gly Arg Ala Val Ala Ala Ile Leu Gly Leu Gly Leu
130 135 140

Val Leu Gly Leu Leu Gly Pro Leu Ala Ile Leu Leu Ala Leu Tyr Leu
145 150 155 160

Leu Arg Arg Asp Gln Arg Leu Pro Pro Asp Ala His Lys Pro Pro Gly
165 170 175

Gly Gly Ser Phe Arg Thr Pro Ile Gln Glu Glu Gln Ala Asp Ala His
180 185 190

Ser Thr Leu Ala Lys Ile
195

<210> 32
<211> 179
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of human CD134_CRD4 (aa 1-28 >< 127-277)

<220>
<221> SIGNAL
<222> (1)...(28)

<220>
<221> TRANSMEM
<222> (117)...(137)

<400> 32

Met Cys Val Gly Ala Arg Arg Leu Gly Arg Gly Pro Cys Ala Ala Leu
1   5   10   15

Leu Leu Leu Gly Leu Gly Leu Ser Thr Val Thr Gly Pro Cys Pro Pro
            20   25   30

Gly His Phe Ser Pro Gly Asp Asn Gln Ala Cys Lys Pro Trp Thr Asn
        35   40   45

Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala Ser Asn Ser Ser
    50   55   60

Asp Ala Ile Cys Glu Asp Arg Asp Pro Pro Ala Thr Gln Pro Gln Glu
65   70   75   80

Thr Gln Gly Pro Pro Ala Arg Pro Ile Thr Val Gln Pro Thr Glu Ala
                85   90   95

Trp Pro Arg Thr Ser Gln Gly Pro Ser Thr Arg Pro Val Glu Val Pro
            100   105   110

Gly Gly Arg Ala Val Ala Ala Ile Leu Gly Leu Gly Leu Val Leu Gly
        115   120   125

Leu Leu Gly Pro Leu Ala Ile Leu Leu Ala Leu Tyr Leu Leu Arg Arg
    130   135   140

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

Phe Arg Thr Pro Ile Gln Glu Glu Gln Ala Asp Ala His Ser Thr Leu
                165   170   175

Ala Lys Ile

<210> 33
<211> 159
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of human CD134_CRD4 truncated (aa 1-28 >< 147-277)

<220>
<221> SIGNAL
<222> (1)...(28)

<220>
<221> TRANSMEM
<222> (97)...(117)

<400> 33

```
Met Cys Val Gly Ala Arg Arg Leu Gly Arg Gly Pro Cys Ala Ala Leu
1               5                   10                  15


Leu Leu Leu Gly Leu Gly Leu Ser Thr Val Thr Gly Cys Thr Leu Ala
            20                  25                  30


Gly Lys His Thr Leu Gln Pro Ala Ser Asn Ser Ser Asp Ala Ile Cys
        35                  40                  45


Glu Asp Arg Asp Pro Pro Ala Thr Gln Pro Gln Glu Thr Gln Gly Pro
    50                  55                  60


Pro Ala Arg Pro Ile Thr Val Gln Pro Thr Glu Ala Trp Pro Arg Thr
65                  70                  75                  80


Ser Gln Gly Pro Ser Thr Arg Pro Val Glu Val Pro Gly Gly Arg Ala
                85                  90                  95


Val Ala Ala Ile Leu Gly Leu Gly Leu Val Leu Gly Leu Leu Gly Pro
            100                 105                 110


Leu Ala Ile Leu Leu Ala Leu Tyr Leu Leu Arg Arg Asp Gln Arg Leu
        115                 120                 125


Pro Pro Asp Ala His Lys Pro Pro Gly Gly Gly Ser Phe Arg Thr Pro
    130                 135                 140


Ile Gln Glu Glu Gln Ala Asp Ala His Ser Thr Leu Ala Lys Ile
145                 150                 155
```

<210> 34
<211> 19
<212> PRT
<213> Homo sapiens

<400> 34

Arg Cys Arg Ala Gly Thr Gln Pro Leu Asp Ser Tyr Lys Pro Gly Val
1 5 10 15

Asp Cys Ala

<210> 35
<211> 107
<212> PRT
<213> Homo sapiens

<400> 35

Arg Cys Arg Ala Gly Thr Gln Pro Leu Asp Ser Tyr Lys Pro Gly Val
1 5 10 15

Asp Cys Ala Pro Cys Pro Pro Gly His Phe Ser Pro Gly Asp Asn Gln
20 25 30

Ala Cys Lys Pro Trp Thr Asn Cys Thr Leu Ala Gly Lys His Thr Leu
35 40 45

Gln Pro Ala Ser Asn Ser Ser Asp Ala Ile Cys Glu Asp Arg Asp Pro
50 55 60

Pro Ala Thr Gln Pro Gln Glu Thr Gln Gly Pro Pro Ala Arg Pro Ile
65 70 75 80

Thr Val Gln Pro Thr Glu Ala Trp Pro Arg Thr Ser Gln Gly Pro Ser
85 90 95

Thr Arg Pro Val Glu Val Pro Gly Gly Arg Ala
100 105

<210> 36
<211> 68
<212> PRT
<213> Homo sapiens

<400> 36

```
Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala Ser Asn Ser Ser
1               5                   10                  15


Asp Ala Ile Cys Glu Asp Arg Asp Pro Pro Ala Thr Gln Pro Gln Glu
            20                  25                  30


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


Trp Pro Arg Thr Ser Gln Gly Pro Ser Thr Arg Pro Val Glu Val Pro
    50                  55                  60


Gly Gly Arg Ala
65
```

<210> 37
<211> 29
<212> PRT
<213> Homo sapiens

<400> 37

```
Thr Tyr Ser Ser Pro Glu Asp Gly Ile His Glu Leu Phe Pro Ala Pro
1               5                   10                  15


Asp Gly Glu Glu Asp Thr Ala Glu Leu Gln Gly Gly Cys
            20                  25
```

<210> 38
<211> 39
<212> PRT
<213> Homo sapiens

<400> 38

```
Arg Cys Arg Ala Gly Thr Gln Pro Leu Asp Ser Tyr Lys Pro Gly Val
1               5                   10                  15


Asp Cys Ala Pro Cys Pro Pro Gly His Phe Ser Pro Gly Asp Asn Gln
            20                  25                  30


Ala Cys Lys Pro Trp Thr Asn
        35
```

<210> 39
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> mkappa antisense primer (primer no: 201)

<400> 39
gacagttggt gcagcatcag
20

<210> 40
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> mkappa antisense primer (primer no: 266)

<400> 40
cactggatgg tgggaagatg
20

<210> 41
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> mlgG1 antisense primer (primer no: 203)

<400> 41
ggccagtgga tagacagatg
20

<210> 42
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> mlgG1 antisense primer (primer no: 204)

<400> 42
tggacaggga tccagagttc
20

<210> 43
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> 20E5HC sense primer (primer no: 259)

<400> 43

gcgaagtaca aytncarcar wsngg
25

<210> 44
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> 20E5HC sense primer (primer no: 260)

<400> 44
gcgtacaatt acarcarwsn ggncc
25

<210> 45
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> 20E5LC sense primer (primer no: 265)

<400> 45
gcgatataca ratgacncar ac
22

<210> 46
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> mlgG1 antisense primer (primer no: 416)

<400> 46
cagtggatag acagatgggg g
21

<210> 47
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> mkappa antisense primer (primer no: 394)

<400> 47
actggatggt gggaagatgg
20

<210> 48
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> signal peptide sense primer (primer no: 405)

<400> 48
atgggatgga gctrtatcat sytctt
26

<210> 49
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> signal peptide sense primer (primer no: 410)

<400> 49
atggratgga gckgggtctt tmtctt
26

<210> 50
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> signal peptide sense primer (primer no: 389)

<400> 50
atgggcwtca aagatggagt caca
24

<210> 51
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CD134 leader sense primer (primer no: 362)

<400> 51
ctcggatccg ccaccatgtg cgtg
24

<210> 52
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> CRD2 sense primer (primer no: 364)

<400> 52
actgtcactg gaccctgcgg tccc
24

<210> 53
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CRD2 antisense primer (primer no: 365)

<400> 53
gggaccgcag ggtccagtga cagt
24

<210> 54
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CRD3 sense primer (primer no: 366)

<400> 54
actgtcactg gaaggtgcag ggct
24

<210> 55
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CD134 end primer (primer no: 363)

<400> 55
agaattctta ttagatcttg gcca
24

<210> 56
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CRD3 antisense primer (primer no: 367)

<400> 56
agccctgcac cttccagtga cagt
24

<210> 57
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CRD4 sense primer (primer no: 368)

<400> 57
actgtcactg gaccctgccc ccct
24

<210> 58
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CRD4 antisense primer (primer no: 369)

<400> 58
agggggggcag ggtccagtga cagt
24

<210> 59
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CRD4 truncated sense primer (primer no: 370)

<400> 59
actgtcactg gatgcaccct ggct
24

<210> 60
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CRD4 truncated antisense primer (primer no: 371)

<400> 60
agccagggtg catccagtga cagt
24

<210> 61
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> N-terminal amino acid sequence of clone 20E5 light chain

<400> 61

Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu
1   5   10