SEQUENCE LISTING

<110> NVIP Pty Ltd
Gearing, David

<120> Modified antibodies and method for the production of same

<130> P120110.WO.01

<150> US 61/531439
<151> 2011-09-06

<160> 71

<170> PatentIn version 3.5

<210> 1
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> light chain variable domain of a canine version of alpha D11 anti-NGF MAb - canine VK

<400> 1

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

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

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

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

Ser Gly Ser Gly Thr Glu Phe Ser Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80

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

Thr Phe Gly Ala Gly Thr Lys Val Glu Leu Lys
100 105

<210> 2
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> heavy chain variable domain of a canine version of alpha D11 anti-NGF MAb - canine VH

<400> 2

Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Asn Pro Gly Gly
1 5 10 15

```
Thr Leu Thr Leu Ser Cys Val Val Ser Gly Phe Ser Leu Thr Asn Asn
            20                  25                  30

Asn Val Asn Trp Val Arg Gln Ala Leu Gly Arg Gly Leu Glu Trp Val
        35                  40                  45

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

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

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

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

Gly Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120


<210>  3
<211>  107
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  light chain variable domain of a feline version of alpha D11
       anti-NGF MAb - feline VK

<400>  3

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

Glu Pro Ala Ser Ile Ser Cys Arg Ala Ser Glu Asp Ile Tyr Asn Ala
            20                  25                  30

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

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

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

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

Thr Phe Gly Pro Gly Thr Lys Leu Glu Ile Lys
            100                 105
```

<210> 4
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> heavy chain variable domain of a feline version of alpha D11 anti-NGF MAb - feline VH

<400> 4

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

Ser Leu Arg Leu Thr Cys Ala Ala Ser Gly Phe Ser Leu Thr Asn Asn
20 25 30

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

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

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

Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Thr Tyr Tyr Cys Ala
85 90 95

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

Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 5
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> light chain variable domain of an equine version of alpha D11 anti-NGF MAb - equine VK

<400> 5

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

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

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

Tyr Asn Thr Asp Thr Leu His Thr Gly Val Pro Ser Arg Phe Ser Gly

50 55 60

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

Glu Asp Val Ala Ser Tyr Phe Cys Gln His Tyr Phe His Tyr Pro Arg
85 90 95

Thr Phe Gly Gln Gly Thr Lys Leu Glu Leu Lys
100 105

<210> 6
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> heavy chain variable domain of an equine version of alpha D11 anti-NGF MAb - equine VH

<400> 6

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Asn
20 25 30

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

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

Ser Arg Ala Thr Ile Thr Arg Asp Thr Ser Lys Ser Gln Val Phe Leu
65 70 75 80

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

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

Gly Gln Gly Ile Leu Val Thr Val Ser Ser
115 120

<210> 7
<211> 217
<212> PRT
<213> Artificial Sequence

<220>
<223> complete light chain of a caninised version of alpha D11 anti-NGF MAb - canine VK and canine kappa light chain constant

<400> 7

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

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

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

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

Ser Gly Ser Gly Thr Glu Phe Ser Leu Thr Ile Ser Ser Leu Glu Pro
65                  70                  75                  80

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

Thr Phe Gly Ala Gly Thr Lys Val Glu Leu Lys Arg Asn Asp Ala Gln
            100                 105                 110

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

Ser Ala Ser Val Val Cys Leu Leu Asn Ser Phe Tyr Pro Lys Asp Ile
    130                 135                 140

Asn Val Lys Trp Lys Val Asp Gly Val Ile Gln Asp Thr Gly Ile Gln
145                 150                 155                 160

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

Thr Leu Thr Met Ser Ser Thr Glu Tyr Leu Ser His Glu Leu Tyr Ser
            180                 185                 190

Cys Glu Ile Thr His Lys Ser Leu Pro Ser Thr Leu Ile Lys Ser Phe
        195                 200                 205

Gln Arg Ser Glu Cys Gln Arg Val Asp
    210                 215
```

<210> 8
<211> 457
<212> PRT
<213> Artificial Sequence

<220>
<223> complete heavy chain of a canine version of alpha D11 anti-NGF MAb - canine VH and canine heavy chain B constant

<400> 8

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

Thr Leu Thr Leu Ser Cys Val Val Ser Gly Phe Ser Leu Thr Asn Asn
            20                  25                  30

Asn Val Asn Trp Val Arg Gln Ala Leu Gly Arg Gly Leu Glu Trp Val
        35                  40                  45

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

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

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

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

Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro
        115                 120                 125

Ser Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr
    130                 135                 140

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

Val Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro
                165                 170                 175

Ser Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Met Val Thr
            180                 185                 190

Val Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Ala
        195                 200                 205

His Pro Ala Ser Lys Thr Lys Val Asp Lys Pro Val Pro Lys Arg Glu
    210                 215                 220

Asn Gly Arg Val Pro Arg Pro Pro Asp Cys Pro Lys Cys Pro Ala Pro
225                 230                 235                 240

Glu Met Leu Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Pro Lys
                245                 250                 255

Asp Thr Leu Leu Ile Ala Arg Thr Pro Glu Val Thr Cys Val Val Val
            260                 265                 270
```

```
Asp Leu Asp Pro Glu Asp Pro Glu Val Gln Ile Ser Trp Phe Val Asp
        275                 280                 285

Gly Lys Gln Met Gln Thr Ala Lys Thr Gln Pro Arg Glu Glu Gln Phe
    290                 295                 300

Asn Gly Thr Tyr Arg Val Val Ser Val Leu Pro Ile Gly His Gln Asp
305                 310                 315                 320

Trp Leu Lys Gly Lys Gln Phe Thr Cys Lys Val Asn Asn Lys Ala Leu
                325                 330                 335

Pro Ser Pro Ile Glu Arg Thr Ile Ser Lys Ala Arg Gly Gln Ala His
            340                 345                 350

Gln Pro Ser Val Tyr Val Leu Pro Pro Ser Arg Glu Glu Leu Ser Lys
        355                 360                 365

Asn Thr Val Ser Leu Thr Cys Leu Ile Lys Asp Phe Tyr Pro Pro Asp
    370                 375                 380

Ile Asp Val Glu Trp Gln Ser Asn Gly Gln Gln Glu Pro Glu Ser Lys
385                 390                 395                 400

Tyr Arg Thr Thr Pro Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu
                405                 410                 415

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

Phe Ile Cys Ala Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
        435                 440                 445

Glu Ser Leu Ser His Ser Pro Gly Lys
    450                 455


<210>  9
<211>  217
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  complete light chain of a feline version of alpha D11 anti-NGF
       MAb - feline VK and feline kappa light chain constant

<400>  9

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

Glu Pro Ala Ser Ile Ser Cys Arg Ala Ser Glu Asp Ile Tyr Asn Ala
            20                  25                  30

Leu Ala Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Arg Leu Ile
```

35 40 45

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

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

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

Thr Phe Gly Pro Gly Thr Lys Leu Glu Ile Lys Arg Ser Asp Ala Gln
100 105 110

Pro Ser Val Phe Leu Phe Gln Pro Ser Leu Asp Glu Leu His Thr Gly
115 120 125

Ser Ala Ser Ile Val Cys Ile Leu Asn Asp Phe Tyr Pro Lys Glu Val
130 135 140

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

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

Ser Thr Leu Thr Met Ser Arg Thr Glu Tyr Gln Ser His Glu Lys Phe
180 185 190

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

Phe Asn Arg Ser Glu Cys Gln Arg Glu
210 215

<210> 10
<211> 457
<212> PRT
<213> Artificial Sequence

<220>
<223> complete heavy chain of a feline version of alpha D11 anti-NGF MAb - feline VH and feline heavy chain constant

<400> 10

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

Ser Leu Arg Leu Thr Cys Ala Ala Ser Gly Phe Ser Leu Thr Asn Asn
20 25 30

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

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

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

Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Thr Tyr Tyr Cys Ala
                85                  90                  95

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

Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro
        115                 120                 125

Ser Val Phe Pro Leu Ala Pro Ser Cys Gly Thr Thr Ser Gly Ala Thr
    130                 135                 140

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

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

Ala Val Leu Gln Ala Ser Gly Leu Tyr Ser Leu Ser Ser Met Val Thr
            180                 185                 190

Val Pro Ser Ser Arg Trp Leu Ser Asp Thr Phe Thr Cys Asn Val Ala
        195                 200                 205

His Pro Pro Ser Asn Thr Lys Val Asp Lys Thr Val Arg Lys Thr Asp
    210                 215                 220

His Pro Pro Gly Pro Lys Pro Cys Asp Cys Pro Lys Cys Pro Pro Pro
225                 230                 235                 240

Glu Met Leu Gly Gly Pro Ser Ile Phe Ile Phe Pro Pro Lys Pro Lys
                245                 250                 255

Asp Thr Leu Ser Ile Ser Arg Thr Pro Glu Val Thr Cys Leu Val Val
            260                 265                 270

Asp Leu Gly Pro Asp Asp Ser Asp Val Gln Ile Thr Trp Phe Val Asp
        275                 280                 285

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

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Pro Ile Leu His Gln Asp
305                 310                 315                 320
```

```
Trp Leu Lys Gly Lys Glu Phe Lys Cys Lys Val Asn Ser Lys Ser Leu
                325                 330                 335

Pro Ser Pro Ile Glu Arg Thr Ile Ser Lys Ala Lys Gly Gln Pro His
            340                 345                 350

Glu Pro Gln Val Tyr Val Leu Pro Pro Ala Gln Glu Glu Leu Ser Arg
        355                 360                 365

Asn Lys Val Ser Val Thr Cys Leu Ile Lys Ser Phe His Pro Pro Asp
    370                 375                 380

Ile Ala Val Glu Trp Glu Ile Thr Gly Gln Pro Glu Pro Glu Asn Asn
385                 390                 395                 400

Tyr Arg Thr Thr Pro Pro Gln Leu Asp Ser Asp Gly Thr Tyr Phe Val
                405                 410                 415

Tyr Ser Lys Leu Ser Val Asp Arg Ser His Trp Gln Arg Gly Asn Thr
            420                 425                 430

Tyr Thr Cys Ser Val Ser His Glu Ala Leu His Ser His His Thr Gln
        435                 440                 445

Lys Ser Leu Thr Gln Ser Pro Gly Lys
    450                 455
```

<210> 11
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> complete light chain of an equine version of alpha D11 anti-NGF MAb - equine VK and equine kappa light chain constant

<400> 11

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

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

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

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

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

```
Glu Asp Val Ala Ser Tyr Phe Cys Gln His Tyr Phe His Tyr Pro Arg
                85                  90                  95

Thr Phe Gly Gln Gly Thr Lys Leu Glu Leu Lys Arg Asp Asp Ala Lys
            100                 105                 110

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

Ser Ala Ser Val Val Cys Leu Val Tyr Gly Phe Tyr Pro Ser Gly Ala
    130                 135                 140

Thr Ile Asn Trp Lys Val Asp Gly Leu Ala Lys Thr Ser Ser Phe His
145                 150                 155                 160

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

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

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

Phe Lys Arg Gln Asp Cys
    210
```

<210> 12
<211> 464
<212> PRT
<213> Artificial Sequence

<220>
<223> complete heavy chain of an equine version of alpha D11 anti-NGF MAb - equine VH and equine heavy chain 2 constant

<400> 12

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Asn
            20                  25                  30

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

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

Ser Arg Ala Thr Ile Thr Arg Asp Thr Ser Lys Ser Gln Val Phe Leu
65                  70                  75                  80
```

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

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

Gly Gln Gly Ile Leu Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro
        115                 120                 125

Lys Tyr Phe Gln Leu Thr Pro Ser Cys Gly Ile Thr Ser Asp Ala Thr
    130                 135                 140

Val Ala Leu Gly Cys Leu Val Ser Asp Tyr Tyr Pro Glu Pro Val Thr
145                 150                 155                 160

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

Ser Val Leu Gln Ser Ser Gly Leu Tyr Ala Leu Ser Ser Met Val Thr
            180                 185                 190

Val Pro Ala Ser Thr Trp Thr Ser Glu Thr Tyr Ile Cys Asn Val Ala
        195                 200                 205

His Pro Ala Ser Ser Thr Lys Val Asp Lys Arg Ile Pro Pro Cys Val
    210                 215                 220

Leu Ser Ala Glu Gly Val Ile Pro Ile Pro Ser Val Pro Lys Pro Gln
225                 230                 235                 240

Cys Pro Pro Tyr Thr His Ser Lys Phe Leu Gly Gly Pro Ser Val Phe
                245                 250                 255

Ile Phe Pro Pro Asn Pro Lys Asp Ala Leu Met Ile Ser Arg Thr Pro
            260                 265                 270

Val Val Thr Cys Val Val Val Asn Leu Ser Asp Gln Tyr Pro Asp Val
        275                 280                 285

Gln Phe Ser Trp Tyr Val Asp Asn Thr Glu Val His Ser Ala Ile Thr
    290                 295                 300

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

Leu Pro Ile Gln His Gln Asp Trp Leu Ser Gly Lys Glu Phe Lys Cys
                325                 330                 335

Ser Val Thr Asn Val Gly Val Pro Gln Pro Ile Ser Arg Ala Ile Ser
            340                 345                 350
```

Arg Gly Lys Gly Pro Ser Arg Val Pro Gln Val Tyr Val Leu Pro Pro
355 360 365

His Pro Asp Glu Leu Ala Lys Ser Lys Val Ser Val Thr Cys Leu Val
370 375 380

Lys Asp Phe Tyr Pro Pro Asp Ile Ser Val Glu Trp Gln Ser Asn Arg
385 390 395 400

Trp Pro Glu Leu Glu Gly Lys Tyr Ser Thr Thr Pro Ala Gln Leu Asp
405 410 415

Gly Asp Gly Ser Tyr Phe Leu Tyr Ser Lys Leu Ser Leu Glu Thr Ser
420 425 430

Arg Trp Gln Gln Val Glu Ser Phe Thr Cys Ala Val Met His Glu Ala
435 440 445

Leu His Asn His Phe Thr Lys Thr Asp Ile Ser Glu Ser Leu Gly Lys
450 455 460

<210> 13
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> new Hu alpha D11 VL

<400> 13

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

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

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

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

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

Glu Asp Val Ala Ser Tyr Phe Cys Gln His Tyr Phe His Tyr Pro Arg
85 90 95

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

<210> 14
<211> 122

<212> PRT
<213> Artificial Sequence

<220>
<223> new Hu alpha D11 VH

<400> 14

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Asn
20 25 30

Asn Val Asn Trp Val Arg Gln Ala Ser Gly Arg Gly Leu Glu Trp Met
35 40 45

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

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

Lys Met His Ser Leu Gln Ser Glu Asp Thr Ala Thr Tyr Tyr Cys Ala
85 90 95

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

Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 15
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> light chain variable domain of a canine version of human D2E7 anti-TNF MAb - canine VK

<400> 15

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

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

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

Tyr Ala Ala Ser Thr Leu Gln Ser 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 Glu Pro

65 70 75 80

Glu Asp Val Ala Val Tyr Tyr Cys Gln Arg Tyr Asn Arg Ala Pro Tyr
85 90 95

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

<210> 16
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> heavy chain variable domain of a canine version of human D2E7 anti-TNF MAb - canine VH

<400> 16

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20 25 30

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

Ser Ala Ile Thr Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val
50 55 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80

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

Ala Lys Val Ser Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 17
<211> 217
<212> PRT
<213> Artificial Sequence

<220>
<223> complete light chain of a canine version of human D2E7 anti-TNF MAb - canine VK and canine kappa light chain constant

<400> 17

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

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

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

Tyr Ala Ala Ser Thr Leu Gln Ser 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 Glu Pro
65                  70                  75                  80

Glu Asp Val Ala Val Tyr Tyr Cys Gln Arg Tyr Asn Arg Ala Pro Tyr
                85                  90                  95

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

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

Ser Ala Ser Val Val Cys Leu Leu Asn Ser Phe Tyr Pro Lys Asp Ile
    130                 135                 140

Asn Val Lys Trp Lys Val Asp Gly Val Ile Gln Asp Thr Gly Ile Gln
145                 150                 155                 160

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

Thr Leu Thr Met Ser Ser Thr Glu Tyr Leu Ser His Glu Leu Tyr Ser
            180                 185                 190

Cys Glu Ile Thr His Lys Ser Leu Pro Ser Thr Leu Ile Lys Ser Phe
        195                 200                 205

Gln Arg Ser Glu Cys Gln Arg Val Asp
    210                 215


<210>  18
<211>  452
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  complete heavy chain of a canine version of human D2E7 anti-TNF
       MAb - canine VH and canine heavy chain A constant

<400>  18

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

```
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
            20                  25                  30

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

Ser Ala Ile Thr Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val
    50                  55                  60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65                  70                  75                  80

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

Ala Lys Val Ser Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro Ser
        115                 120                 125

Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr Val
    130                 135                 140

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

Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro Ser
                165                 170                 175

Val Leu Gln Ser Ser Gly Leu His Ser Leu Ser Ser Met Val Thr Val
            180                 185                 190

Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Val His
        195                 200                 205

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

Cys Thr Asp Thr Pro Pro Cys Pro Val Pro Glu Pro Leu Gly Gly Pro
225                 230                 235                 240

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

Arg Thr Pro Glu Val Thr Cys Val Val Leu Asp Leu Gly Arg Glu Asp
            260                 265                 270

Pro Glu Val Gln Ile Ser Trp Phe Val Asp Gly Lys Glu Val His Thr
        275                 280                 285
```

```
Ala Lys Thr Gln Ser Arg Glu Gln Gln Phe Asn Gly Thr Tyr Arg Val
    290                 295                 300

Val Ser Val Leu Pro Ile Glu His Gln Asp Trp Leu Thr Gly Lys Glu
305                 310                 315                 320

Phe Lys Cys Arg Val Asn His Ile Asp Leu Pro Ser Pro Ile Glu Arg
                325                 330                 335

Thr Ile Ser Lys Ala Arg Gly Arg Ala His Lys Pro Ser Val Tyr Val
            340                 345                 350

Leu Pro Pro Ser Pro Lys Glu Leu Ser Ser Ser Asp Thr Val Ser Ile
        355                 360                 365

Thr Cys Leu Ile Lys Asp Phe Tyr Pro Pro Asp Ile Asp Val Glu Trp
    370                 375                 380

Gln Ser Asn Gly Gln Gln Glu Pro Glu Arg Lys His Arg Met Thr Pro
385                 390                 395                 400

Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr Ser Lys Leu Ser
                405                 410                 415

Val Asp Lys Ser Arg Trp Gln Gln Gly Asp Pro Phe Thr Cys Ala Val
            420                 425                 430

Met His Glu Thr Leu Gln Asn His Tyr Thr Asp Leu Ser Leu Ser His
        435                 440                 445

Ser Pro Gly Lys
    450
```

<210> 19
<211> 456
<212> PRT
<213> Artificial Sequence

<220>
<223> complete heavy chain of a canine version of human D2E7 anti-TNF MAb - canine VH and canine heavy chain B constant

<400> 19

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
            20                  25                  30

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

Ser Ala Ile Thr Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val
```

50 55 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80

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

Ala Lys Val Ser Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro Ser
115 120 125

Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr Val
130 135 140

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

Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro Ser
165 170 175

Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Met Val Thr Val
180 185 190

Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Ala His
195 200 205

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

Gly Arg Val Pro Arg Pro Pro Asp Cys Pro Lys Cys Pro Ala Pro Glu
225 230 235 240

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

Thr Leu Leu Ile Ala Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
260 265 270

Leu Asp Pro Glu Asp Pro Glu Val Gln Ile Ser Trp Phe Val Asp Gly
275 280 285

Lys Gln Met Gln Thr Ala Lys Thr Gln Pro Arg Glu Glu Gln Phe Asn
290 295 300

Gly Thr Tyr Arg Val Val Ser Val Leu Pro Ile Gly His Gln Asp Trp
305 310 315 320

Leu Lys Gly Lys Gln Phe Thr Cys Lys Val Asn Asn Lys Ala Leu Pro

325 330 335

Ser Pro Ile Glu Arg Thr Ile Ser Lys Ala Arg Gly Gln Ala His Gln
340 345 350

Pro Ser Val Tyr Val Leu Pro Pro Ser Arg Glu Glu Leu Ser Lys Asn
355 360 365

Thr Val Ser Leu Thr Cys Leu Ile Lys Asp Phe Tyr Pro Pro Asp Ile
370 375 380

Asp Val Glu Trp Gln Ser Asn Gly Gln Gln Glu Pro Glu Ser Lys Tyr
385 390 395 400

Arg Thr Thr Pro Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr
405 410 415

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

Ile Cys Ala Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Glu
435 440 445

Ser Leu Ser His Ser Pro Gly Lys
450 455

<210> 20
<211> 454
<212> PRT
<213> Artificial Sequence

<220>
<223> complete heavy chain of a canine version of human D2E7 anti-TNF MAb - canine VH and canine heavy chain C constant

<400> 20

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20 25 30

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

Ser Ala Ile Thr Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val
50 55 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80

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

```
Ala Lys Val Ser Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro Ser
        115                 120                 125

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

Ala Leu Ala Cys Leu Val Ser Gly Tyr Ile Pro Glu Pro Val Thr Val
145                 150                 155                 160

Ser Trp Asn Ser Val Ser Leu Thr Ser Gly Val His Thr Phe Pro Ser
                165                 170                 175

Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Met Val Thr Val
            180                 185                 190

Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Ala His
        195                 200                 205

Pro Ala Thr Asn Thr Lys Val Asp Lys Pro Val Ala Lys Glu Cys Glu
    210                 215                 220

Cys Lys Cys Asn Cys Asn Asn Cys Pro Cys Pro Gly Cys Gly Leu Leu
225                 230                 235                 240

Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Pro Lys Asp Ile Leu
                245                 250                 255

Val Thr Ala Arg Thr Pro Thr Val Thr Cys Val Val Val Asp Leu Asp
            260                 265                 270

Pro Glu Asn Pro Glu Val Gln Ile Ser Trp Phe Val Asp Ser Lys Gln
        275                 280                 285

Val Gln Thr Ala Asn Thr Gln Pro Arg Glu Glu Gln Ser Asn Gly Thr
    290                 295                 300

Tyr Arg Val Val Ser Val Leu Pro Ile Gly His Gln Asp Trp Leu Ser
305                 310                 315                 320

Gly Lys Gln Phe Lys Cys Lys Val Asn Asn Lys Ala Leu Pro Ser Pro
                325                 330                 335

Ile Glu Glu Ile Ile Ser Lys Thr Pro Gly Gln Ala His Gln Pro Asn
            340                 345                 350

Val Tyr Val Leu Pro Pro Ser Arg Asp Glu Met Ser Lys Asn Thr Val
        355                 360                 365
```

```
Thr Leu Thr Cys Leu Val Lys Asp Phe Phe Pro Pro Glu Ile Asp Val
    370                 375                 380

Glu Trp Gln Ser Asn Gly Gln Gln Glu Pro Glu Ser Lys Tyr Arg Met
385                 390                 395                 400

Thr Pro Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr Ser Lys
                405                 410                 415

Leu Ser Val Asp Lys Ser Arg Trp Gln Arg Gly Asp Thr Phe Ile Cys
            420                 425                 430

Ala Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Ile Ser Leu
        435                 440                 445

Ser His Ser Pro Gly Lys
    450
```

<210> 21
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> complete heavy chain of a canine version of human D2E7 anti-TNF MAb - canine VH and canine heavy chain D constant

<400> 21

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
            20                  25                  30

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

Ser Ala Ile Thr Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val
    50                  55                  60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65                  70                  75                  80

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

Ala Lys Val Ser Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro Ser
        115                 120                 125
```

```
Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr Val
    130                 135                 140

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

Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro Ser
                165                 170                 175

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

Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Val His
        195                 200                 205

Pro Ala Ser Asn Thr Lys Val Asp Lys Pro Val Pro Lys Glu Ser Thr
    210                 215                 220

Cys Lys Cys Ile Ser Pro Cys Pro Val Pro Glu Ser Leu Gly Gly Pro
225                 230                 235                 240

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

Arg Thr Pro Glu Ile Thr Cys Val Val Leu Asp Leu Gly Arg Glu Asp
            260                 265                 270

Pro Glu Val Gln Ile Ser Trp Phe Val Asp Gly Lys Glu Val His Thr
        275                 280                 285

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

Val Ser Val Leu Pro Ile Glu His Gln Asp Trp Leu Thr Gly Lys Glu
305                 310                 315                 320

Phe Lys Cys Arg Val Asn His Ile Gly Leu Pro Ser Pro Ile Glu Arg
                325                 330                 335

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

Leu Pro Pro Ser Pro Lys Glu Leu Ser Ser Ser Asp Thr Val Thr Leu
        355                 360                 365

Thr Cys Leu Ile Lys Asp Phe Tyr Pro Pro Glu Ile Asp Val Glu Trp
    370                 375                 380

Gln Ser Asn Gly Gln Pro Glu Pro Glu Ser Lys Tyr His Thr Thr Ala
385                 390                 395                 400
```

```
Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr Ser Lys Leu Ser
                405                 410                 415

Val Asp Lys Ser Arg Trp Gln Gln Gly Asp Thr Phe Thr Cys Ala Val
            420                 425                 430

Met His Glu Ala Leu Gln Asn His Tyr Thr Asp Leu Ser Leu Ser His
        435                 440                 445

Ser Pro Gly Lys
    450
```

<210> 22
<211> 217
<212> PRT
<213> Artificial Sequence

<220>
<223> chimeric anti-TNF MAb light chain - human VK and canine kappa light chain

<400> 22

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

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

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

Tyr Ala Ala Ser Thr Leu Gln Ser 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 Val Ala Thr Tyr Tyr Cys Gln Arg Tyr Asn Arg Ala Pro Tyr
                85                  90                  95

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

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

Ser Ala Ser Val Val Cys Leu Leu Asn Ser Phe Tyr Pro Lys Asp Ile
    130                 135                 140

Asn Val Lys Trp Lys Val Asp Gly Val Ile Gln Asp Thr Gly Ile Gln
145                 150                 155                 160
```

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

Thr Leu Thr Met Ser Ser Thr Glu Tyr Leu Ser His Glu Leu Tyr Ser
180 185 190

Cys Glu Ile Thr His Lys Ser Leu Pro Ser Thr Leu Ile Lys Ser Phe
195 200 205

Gln Arg Ser Glu Cys Gln Arg Val Asp
210 215

<210> 23
<211> 456
<212> PRT
<213> Artificial Sequence

<220>
<223> chimeric anti-TNF MAb heavy chain - human VH and canine heavy chain type B constant domain

<400> 23

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20 25 30

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

Ser Ala Ile Thr Trp Asn Ser Gly His Ile Asp Tyr Ala Asp Ser Val
50 55 60

Glu Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80

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

Ala Lys Val Ser Tyr Leu Ser Thr Ala Ser Ser Leu Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro Ser
115 120 125

Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr Val
130 135 140

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

Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro Ser

165 170 175

Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Met Val Thr Val
180 185 190

Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Ala His
195 200 205

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

Gly Arg Val Pro Arg Pro Pro Asp Cys Pro Lys Cys Pro Ala Pro Glu
225 230 235 240

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

Thr Leu Leu Ile Ala Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
260 265 270

Leu Asp Pro Glu Asp Pro Glu Val Gln Ile Ser Trp Phe Val Asp Gly
275 280 285

Lys Gln Met Gln Thr Ala Lys Thr Gln Pro Arg Glu Glu Gln Phe Asn
290 295 300

Gly Thr Tyr Arg Val Val Ser Val Leu Pro Ile Gly His Gln Asp Trp
305 310 315 320

Leu Lys Gly Lys Gln Phe Thr Cys Lys Val Asn Asn Lys Ala Leu Pro
325 330 335

Ser Pro Ile Glu Arg Thr Ile Ser Lys Ala Arg Gly Gln Ala His Gln
340 345 350

Pro Ser Val Tyr Val Leu Pro Pro Ser Arg Glu Glu Leu Ser Lys Asn
355 360 365

Thr Val Ser Leu Thr Cys Leu Ile Lys Asp Phe Tyr Pro Pro Asp Ile
370 375 380

Asp Val Glu Trp Gln Ser Asn Gly Gln Gln Glu Pro Glu Ser Lys Tyr
385 390 395 400

Arg Thr Thr Pro Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr
405 410 415

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

Ile Cys Ala Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Glu

435 440 445

Ser Leu Ser His Ser Pro Gly Lys
450 455

<210> 24
<211> 468
<212> PRT
<213> Artificial Sequence

<220>
<223> new Hu alpha D11 complete HC-IgG4

<400> 24

Met Ala Val Leu Val Leu Leu Leu Cys Leu Val Thr Phe Pro Thr Cys
1 5 10 15

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

Pro Ser Gln Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe Ser Leu
35 40 45

Thr Asn Asn Asn Val Asn Trp Val Arg Gln Ala Ser Gly Arg Gly Leu
50 55 60

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

Ala Leu Lys Ser Arg Leu Thr Ile Thr Arg Asp Thr Ser Lys Ser Gln
85 90 95

Val Phe Leu Lys Met His Ser Leu Gln Ser Glu Asp Thr Ala Thr Tyr
100 105 110

Tyr Cys Ala Arg Asp Gly Gly Tyr Ser Ser Ser Thr Leu Tyr Ala Met
115 120 125

Asp Ala Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
130 135 140

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

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

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

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

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

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

Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe 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

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

Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe 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 Gly Leu Pro Ser Ser
            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 Gln Glu Glu Met 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 Arg Leu Thr
            420                 425                 430

Val Asp Lys Ser Arg Trp Gln Glu 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 Leu Gly Lys
465
```

<210> 25
<211> 234
<212> PRT
<213> Artificial Sequence

<220>
<223> new Hu alpha D11 complete kappa LC

<400> 25

```
Met Gly Val Pro Thr Gln Leu Leu Gly Leu Leu Leu Leu Trp Ile Thr
1               5                  10                  15

Asp Ala Ile Cys Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Leu Ser
            20                  25                  30

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

Ile Tyr Asn Ala Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ser Pro
    50                  55                  60

Gln Leu Leu Ile Tyr Asn Thr Asp Thr Leu His Thr Gly Val Pro Ser
65                  70                  75                  80

Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Tyr Ser Leu Lys Ile Asn
                85                  90                  95

Ser Leu Gln Ser Glu Asp Val Ala Ser Tyr Phe Cys Gln His Tyr Phe
            100                 105                 110

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

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

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

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

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

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

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

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
```

225 230

<210> 26
<211> 480
<212> PRT
<213> Artificial Sequence

<220>
<223> ca148-HCB heavy chain

<400> 26

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

Val Gln Cys Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln
20 25 30

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ile Phe
35 40 45

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

Glu Trp Val Ala Phe Met Ser Tyr Asp Gly Ser Asn Lys Lys Tyr Ala
65 70 75 80

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
85 90 95

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

Tyr Tyr Cys Ala Arg Asp Arg Gly Ile Ala Ala Gly Gly Asn Tyr Tyr
115 120 125

Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Ser Val Thr Val Ser
130 135 140

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

Gly Ser Thr Ser Gly Ser Thr Val Ala Leu Ala Cys Leu Val Ser Gly
165 170 175

Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ser Leu Thr
180 185 190

Ser Gly Val His Thr Phe Pro Ser Val Leu Gln Ser Ser Gly Leu Tyr
195 200 205

Ser Leu Ser Ser Met Val Thr Val Pro Ser Ser Arg Trp Pro Ser Glu
210 215 220

```
Thr Phe Thr Cys Asn Val Ala His Pro Ala Ser Lys Thr Lys Val Asp
225                 230                 235                 240

Lys Pro Val Pro Lys Arg Glu Asn Gly Arg Val Pro Arg Pro Pro Asp
                245                 250                 255

Cys Pro Lys Cys Pro Ala Pro Glu Met Leu Gly Gly Pro Ser Val Phe
            260                 265                 270

Ile Phe Pro Pro Lys Pro Lys Asp Thr Leu Leu Ile Ala Arg Thr Pro
        275                 280                 285

Glu Val Thr Cys Val Val Val Asp Leu Asp Pro Glu Asp Pro Glu Val
    290                 295                 300

Gln Ile Ser Trp Phe Val Asp Gly Lys Gln Met Gln Thr Ala Lys Thr
305                 310                 315                 320

Gln Pro Arg Glu Glu Gln Phe Asn Gly Thr Tyr Arg Val Val Ser Val
                325                 330                 335

Leu Pro Ile Gly His Gln Asp Trp Leu Lys Gly Lys Gln Phe Thr Cys
            340                 345                 350

Lys Val Asn Asn Lys Ala Leu Pro Ser Pro Ile Glu Arg Thr Ile Ser
        355                 360                 365

Lys Ala Arg Gly Gln Ala His Gln Pro Ser Val Tyr Val Leu Pro Pro
    370                 375                 380

Ser Arg Glu Glu Leu Ser Lys Asn Thr Val Ser Leu Thr Cys Leu Ile
385                 390                 395                 400

Lys Asp Phe Tyr Pro Pro Asp Ile Asp Val Glu Trp Gln Ser Asn Gly
                405                 410                 415

Gln Gln Glu Pro Glu Ser Lys Tyr Arg Thr Thr Pro Pro Gln Leu Asp
            420                 425                 430

Glu Asp Gly Ser Tyr Phe Leu Tyr Ser Lys Leu Ser Val Asp Lys Ser
        435                 440                 445

Arg Trp Gln Arg Gly Asp Thr Phe Ile Cys Ala Val Met His Glu Ala
    450                 455                 460

Leu His Asn His Tyr Thr Gln Glu Ser Leu Ser His Ser Pro Gly Lys
465                 470                 475                 480
```

<210> 27
<211> 238
<212> PRT

<213> Artificial Sequence

<220>
<223> ca148-kLC light chain

<400> 27

```
Met Glu Ala Pro Ala Gln Leu Leu Phe Leu Leu Leu Leu Trp Leu Pro
1               5                  10                  15

Asp Thr Thr Gly Glu Ile Val Met Thr Gln Ser Pro Ala Ser Leu Ser
            20                  25                  30

Leu Ser Pro Gly Glu Lys Ala Thr Ile Ser Cys Arg Ala Ser Gln Ser
        35                  40                  45

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

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

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

Ser Leu Glu Pro Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln Pro Ser
            100                 105                 110

Asn Trp Pro Pro Phe Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
        115                 120                 125

Arg Asn Asp Ala Gln Pro Ala Val Tyr Leu Phe Gln Pro Ser Pro Asp
    130                 135                 140

Gln Leu His Thr Gly Ser Ala Ser Val Val Cys Leu Leu Asn Ser Phe
145                 150                 155                 160

Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Val Asp Gly Val Ile Gln
                165                 170                 175

Asp Thr Gly Ile Gln Glu Ser Val Thr Glu Gln Asp Lys Asp Ser Thr
            180                 185                 190

Tyr Ser Leu Ser Ser Thr Leu Thr Met Ser Ser Thr Glu Tyr Leu Ser
        195                 200                 205

His Glu Leu Tyr Ser Cys Glu Ile Thr His Lys Ser Leu Pro Ser Thr
    210                 215                 220

Leu Ile Lys Ser Phe Gln Arg Ser Glu Cys Gln Arg Val Asp
225                 230                 235
```

<210> 28

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

<220>
<223> rat alpha D11 FR1 region of VK light chain

<400> 28

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

Glu Thr Val Thr Ile Glu Cys
20

<210> 29
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> caninised FR1 region of VK light chain of rat alpha D11 antibody

<400> 29

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

Glu Lys Val Thr Ile Thr Cys
20

<210> 30
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> felinised FR1 region of VK light chain of rat alpha D11 antibody

<400> 30

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

Glu Pro Ala Ser Ile Ser Cys
20

<210> 31
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> equinised FR1 region of VK light chain of rat alpha D11 antibody

<400> 31

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

Glu Thr Val Thr Ile Glu Cys

20

<210> 32
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> rat alpha D11 FR2 region of VK light chain

<400> 32

Trp Tyr Gln Gln Lys Pro Gly Lys Ser Pro Gln Leu Leu Ile Tyr
1 5 10 15

<210> 33
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> caninised FR2 region of VK light chain of rat alpha D11 antibody

<400> 33

Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Lys Leu Leu Ile Tyr
1 5 10 15

<210> 34
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> felinised FR2 region of VK light chain of rat alpha D11 antibody

<400> 34

Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr
1 5 10 15

<210> 35
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> equinised FR2 region of VK light chain of rat alpha D11 antibody

<400> 35

Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr
1 5 10 15

<210> 36
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> rat alpha D11 FR3 region of VK light chain

<400> 36

Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Gln Tyr Ser
1 5 10 15

Leu Lys Ile Asn Ser Leu Gln Ser Glu Asp Val Ala Ser Tyr Phe Cys
20 25 30

<210> 37
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> caninised FR3 region of VK light chain of rat alpha D11 antibody

<400> 37

Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Ser
1 5 10 15

Leu Thr Ile Ser Ser Leu Glu Pro Glu Asp Val Ala Val Tyr Tyr Cys
20 25 30

<210> 38
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> felinised FR3 region of VK light chain of rat alpha D11 antibody

<400> 38

Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Arg Ile Ser Arg Val Glu Ala Asp Asp Val Gly Val Tyr Phe Cys
20 25 30

<210> 39
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> equinised FR3 region of VK light chain of rat alpha D11 antibody

<400> 39

Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Ser
1 5 10 15

Leu Thr Ile Asn Ser Leu Gln Ser Glu Asp Val Ala Ser Tyr Phe Cys
20 25 30

<210> 40
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> rat alpha D11 FR4 region of VK light chain

<400> 40

Phe Gly Gly Gly Thr Lys Leu Glu Leu Lys
1 5 10

<210> 41
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> caninised FR4 region of VK light chain of rat alpha D11 antibody

<400> 41

Phe Gly Ala Gly Thr Lys Val Glu Leu Lys
1 5 10

<210> 42
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> felinised FR4 region of VK light chain of rat alpha D11 antibody

<400> 42

Phe Gly Pro Gly Thr Lys Leu Glu Ile Lys
1 5 10

<210> 43
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> equinised FR4 region of VK light chain of rat alpha D11 antibody

<400> 43

Phe Gly Gln Gly Thr Lys Leu Glu Leu Lys
1 5 10

<210> 44
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> rat alpha D11 FR1 region of heavy chain

<400> 44

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe
20 25

<210> 45
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> caninised FR1 region of heavy chain of rat alpha D11 antibody

<400> 45

Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Asn Pro Gly Gly
1 5 10 15

Thr Leu Thr Leu Ser Cys Val Val Ser Gly Phe
20 25

<210> 46
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> felinised FR1 region of heavy chain of rat alpha D11 antibody

<400> 46

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

Ser Leu Arg Leu Thr Cys Ala Ala Ser Gly Phe
20 25

<210> 47
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> equinised FR1 region of heavy chain of rat alpha D11 antibody

<400> 47

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe
20 25

<210> 48
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> rat alpha D11 FR2 region of heavy chain

<400> 48

Trp Val Arg Gln Ala Thr Gly Arg Gly Leu Glu Trp Met Gly
1 5 10

<210> 49
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> caninised FR2 region of heavy chain of rat alpha D11 antibody

<400> 49

Trp Val Arg Gln Ala Leu Gly Arg Gly Leu Glu Trp Val Gly
1 5 10

<210> 50
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> felinised FR2 region of heavy chain of rat alpha D11 antibody

<400> 50

Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Met Gly
1 5 10

<210> 51
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> equinised FR2 region of heavy chain of rat alpha D11 antibody

<400> 51

Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly
1 5 10

<210> 52
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> rat alpha D11 FR3 region of heavy chain

<400> 52

Arg Leu Thr Ile Thr Arg Asp Thr Ser Lys Ser Gln Val Phe Leu Lys
1 5 10 15

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

<210> 53
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> caninised FR3 region of heavy chain of rat alpha D11 antibody

<400> 53

Arg Leu Thr Ile Thr Arg Asp Thr Ser Lys Ser Thr Val Phe Leu Gln
1 5 10 15

Met His Ser Leu Arg Ser Glu Asp Thr Ala Thr Tyr Tyr Cys Ala Arg
20 25 30

<210> 54
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> felinised FR3 region of heavy chain of rat alpha D11 antibody

<400> 54

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

Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Thr Tyr Tyr Cys Ala Arg
20 25 30

<210> 55
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> equinised FR3 region of heavy chain of rat alpha D11 antibody

<400> 55

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

Met Asn Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg
20 25 30

<210> 56
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> rat alpha D11 FR4 region of heavy chain

<400> 56

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
1 5 10

<210> 57
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> caninised FR4 region of heavy chain of rat alpha D11 antibody

<400> 57

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
1 5 10

<210> 58
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> felinised FR4 region of heavy chain of rat alpha D11 antibody

<400> 58

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
1 5 10

<210> 59
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> equinised FR4 region of heavy chain of rat alpha D11 antibody

<400> 59

Trp Gly Gln Gly Ile Leu Val Thr Val Ser Ser
1 5 10

<210> 60
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> FR1 region of light chain of a novel humanised variant of alpha D11 (new Hu)

<400> 60

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

Glu Thr Val Thr Ile Asn Cys
20

<210> 61
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> FR2 region of light chain of a novel humanised variant of alpha D11 (new Hu)

<400> 61

Trp Tyr Gln Gln Lys Pro Gly Lys Ser Pro Gln Leu Leu Ile Tyr
1 5 10 15

<210> 62
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> FR3 region of light chain of a novel humanised variant of alpha D11 (new Hu)

<400> 62

Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Tyr Ser
1 5 10 15

Leu Lys Ile Asn Ser Leu Gln Ser Glu Asp Val Ala Ser Tyr Phe Cys
20 25 30

<210> 63
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> FR4 region of light chain of a novel humanised variant of alpha D11 (new Hu)

<400> 63

Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
1 5 10

<210> 64
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> FR1 region of heavy chain of a novel humanised variant of alpha D11 (new Hu)

<400> 64

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

Thr Leu Ser Leu Thr Cys
20

<210> 65
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> FR2 region of heavy chain of a novel humanised variant of alpha D11 (new Hu)

<400> 65

Trp Val Arg Gln Ala Ser Gly Arg Gly Leu Glu Trp Met Gly
1 5 10

<210> 66
<211> 32
<212> PRT
<213> Artificial Sequence

<220>
<223> FR3 region of heavy chain of a novel humanised variant of alpha D11 (new Hu)

<400> 66

Arg Leu Thr Ile Thr Arg Asp Thr Ser Lys Ser Gln Val Phe Leu Lys
1 5 10 15

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

<210> 67
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> FR4 region of heavy chain of a novel humanised variant of alpha D11 (new Hu)

<400> 67

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
1 5 10

<210> 68
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> complete heavy chain of a caninised version of alpha D11 anti-NGF MAb - VH and HCA

<400> 68

Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Asn Pro Gly Gly
1 5 10 15

Thr Leu Thr Leu Ser Cys Val Val Ser Gly Phe Ser Leu Thr Asn Asn
20 25 30

Asn Val Asn Trp Val Arg Gln Ala Leu Gly Arg Gly Leu Glu Trp Val
35 40 45

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

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

Lys Met His Ser Leu Gln Ser Glu Asp Thr Ala Thr Tyr Tyr Cys Ala
85 90 95

```
Arg Asp Gly Gly Tyr Ser Ser Ser Thr Leu Tyr Ala Met Asp Ala Trp
            100                 105                 110

Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro
        115                 120                 125

Ser Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr
    130                 135                 140

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

Val Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro
                165                 170                 175

Ser Val Leu Gln Ser Ser Gly Leu His Ser Leu Ser Ser Met Val Thr
            180                 185                 190

Val Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Val
        195                 200                 205

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

Arg Cys Thr Asp Thr Pro Pro Cys Pro Val Pro Glu Pro Leu Gly Gly
225                 230                 235                 240

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

Thr Arg Thr Pro Glu Val Thr Cys Val Val Leu Asp Leu Gly Arg Glu
            260                 265                 270

Asp Pro Glu Val Gln Ile Ser Trp Phe Val Asp Gly Lys Glu Val His
        275                 280                 285

Thr Ala Lys Thr Gln Ser Arg Glu Gln Gln Phe Asn Gly Thr Tyr Arg
    290                 295                 300

Val Val Ser Val Leu Pro Ile Glu His Gln Asp Trp Leu Thr Gly Lys
305                 310                 315                 320

Glu Phe Lys Cys Arg Val Asn His Ile Asp Leu Pro Ser Pro Ile Glu
                325                 330                 335

Arg Thr Ile Ser Lys Ala Arg Gly Arg Ala His Lys Pro Ser Val Tyr
            340                 345                 350

Val Leu Pro Pro Ser Pro Lys Glu Leu Ser Ser Ser Asp Thr Val Ser
        355                 360                 365
```

```
Ile Thr Cys Leu Ile Lys Asp Phe Tyr Pro Pro Asp Ile Asp Val Glu
    370                 375                 380

Trp Gln Ser Asn Gly Gln Gln Glu Pro Glu Arg Lys His Arg Met Thr
385                 390                 395                 400

Pro Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr Ser Lys Leu
                405                 410                 415

Ser Val Asp Lys Ser Arg Trp Gln Gln Gly Asp Pro Phe Thr Cys Ala
            420                 425                 430

Val Met His Glu Thr Leu Gln Asn His Tyr Thr Asp Leu Ser Leu Ser
        435                 440                 445

His Ser Pro Gly Lys
    450
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<210> 69
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> heavy chain variable domain of an alternative canine version of alpha D11 anti-NGF MAb - canine VH

<400> 69

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

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

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

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

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

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

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

Gly Gln Gly Thr Ser Val Thr Val Ser Ser
        115                 120
```

<210> 70
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> complete heavy chain of an alternative caninised version of alpha D11 anti-NGF MAb - VH and HCA

<400> 70

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

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

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

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

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

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

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

Gly Gln Gly Thr Ser Val Thr Val Ser Ser Ala Ser Thr Thr Ala Pro
115 120 125

Ser Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr
130 135 140

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

Val Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro
165 170 175

Ser Val Leu Gln Ser Ser Gly Leu His Ser Leu Ser Ser Met Val Thr
180 185 190

Val Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Val
195 200 205

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

```
Arg Cys Thr Asp Thr Pro Pro Cys Pro Val Pro Glu Pro Leu Gly Gly
225                 230                 235                 240

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

Thr Arg Thr Pro Glu Val Thr Cys Val Val Leu Asp Leu Gly Arg Glu
            260                 265                 270

Asp Pro Glu Val Gln Ile Ser Trp Phe Val Asp Gly Lys Glu Val His
        275                 280                 285

Thr Ala Lys Thr Gln Ser Arg Glu Gln Gln Phe Asn Gly Thr Tyr Arg
    290                 295                 300

Val Val Ser Val Leu Pro Ile Glu His Gln Asp Trp Leu Thr Gly Lys
305                 310                 315                 320

Glu Phe Lys Cys Arg Val Asn His Ile Asp Leu Pro Ser Pro Ile Glu
                325                 330                 335

Arg Thr Ile Ser Lys Ala Arg Gly Arg Ala His Lys Pro Ser Val Tyr
            340                 345                 350

Val Leu Pro Pro Ser Pro Lys Glu Leu Ser Ser Ser Asp Thr Val Ser
        355                 360                 365

Ile Thr Cys Leu Ile Lys Asp Phe Tyr Pro Pro Asp Ile Asp Val Glu
    370                 375                 380

Trp Gln Ser Asn Gly Gln Gln Glu Pro Glu Arg Lys His Arg Met Thr
385                 390                 395                 400

Pro Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr Ser Lys Leu
                405                 410                 415

Ser Val Asp Lys Ser Arg Trp Gln Gln Gly Asp Pro Phe Thr Cys Ala
            420                 425                 430

Val Met His Glu Thr Leu Gln Asn His Tyr Thr Asp Leu Ser Leu Ser
        435                 440                 445

His Ser Pro Gly Lys
    450
```

<210> 71
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> updated light chain variable domain of a canine version of human D2E7 anti-TNF MAb - canine VK

<400> 71

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

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

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

Tyr Ala Ala Ser Thr Leu Gln Ser 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 Glu Pro
65                  70                  75                  80

Glu Asp Val Ala Val Tyr Tyr Cys Gln Arg Tyr Asn Arg Ala Pro Tyr
                85                  90                  95

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