

# SEQUENCE LISTING

<110> TXCELL  
 ABEL Tobias  
 GERTNER-DARDENNE Julie  
 MEYER François

<120> CHIMERIC ANTIGEN RECEPTOR SPECIFIC FOR INTERLEUKIN-23  
 RECEPTOR

<130> CV-976/PCT

<160> 78

<170> BiSSAP 1.3.6

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 <213> Artificial Sequence

<220>  
 <223> linker

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 Gly Gly Gly Ser  
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 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
 1 5 10 15  
 Gly Gly Gly Ser  
 20

<210> 3  
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<220>  
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<400> 3

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
1 5 10 15

<210> 4

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<212> PRT

<213> Artificial Sequence

<220>

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<400> 4

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
1 5 10

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<213> Artificial Sequence

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<400> 5

Gly Gly Gly Gly Ser  
1 5

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<211> 16

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<213> Artificial Sequence

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Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Ser  
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<210> 7

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Ala Gly Ser Ser Ser Ser Gly Gly Ser Thr Thr Gly Gly Ser Thr Thr  
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<213> Artificial Sequence

<220>

<223> linker

<400> 8

Gly Thr Thr Ala Ala Ser Gly Ser Ser Gly Gly Ser Ser Ser Gly Ala  
1 5 10 15

<210> 9

<211> 16

<212> PRT

<213> Artificial Sequence

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<400> 9

Ser Ser Ala Thr Ala Thr Ala Gly Thr Gly Ser Ser Thr Gly Ser Thr  
1 5 10 15

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<211> 16

<212> PRT

<213> Artificial Sequence

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Thr Ser Gly Ser Thr Gly Thr Ala Ala Ser Ser Thr Ser Thr Ser Thr  
1 5 10 15

<210> 11

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> linker

<400> 11

ggtggcggag gttctggagg tggaggttcc

30

<210> 12

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> hinge KIR2DS2

<400> 12

Lys Ile Arg Arg Asp Ser Ser

1 5

<210> 13

<211> 45

<212> PRT

<213> Artificial Sequence

<220>

<223> CD8 hinge

<400> 13

Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala

1 5 10 15

Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly

20 25 30

Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp

35 40 45

<210> 14

<211> 135

<212> DNA

<213> Artificial Sequence

<220>

<223> CD8 hinge

<400> 14

accacgacgc cagcgccgcg accaccaaca ccggcgccca ccatcgcgtc gcagcccctg

60

tccctgcgcc cagaggcgtg ccggccagcg gcggggggcg cagtgcacac gagggggctg

120

gacttcgcct gtgat

135

<210> 15  
 <211> 230  
 <212> PRT  
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<220>  
 <223> IgG4 hinge

<400> 15  
 Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe  
 1 5 10 15  
 Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr  
 20 25 30  
 Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val  
 35 40 45  
 Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val  
 50 55 60  
 Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser  
 65 70 75 80  
 Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu  
 85 90 95  
 Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser  
 100 105 110  
 Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro  
 115 120 125  
 Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln  
 130 135 140  
 Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala  
 145 150 155 160  
 Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr  
 165 170 175  
 Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu  
 180 185 190  
 Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser  
 195 200 205  
 Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser  
 210 215 220  
 Leu Ser Leu Gly Lys Met  
 225 230

<210> 16  
 <211> 690  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> IgG4 hinge

<400> 16  
 gagagcaagt acggccctcc ctgccccct tgccctgccc ccgagttcct gggcggaccc

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agcgtgttcc tgttcccccc caagcccaag gacaccctga tgatcagccg gacccccgag      120
gtgacctgtg tgggtggtgga cgtgtcccag gaggaccccc aggtccagtt caactggtac      180
gtggacggcg tggaggtgca caacgccaag accaagcccc gggaggagca gttcaatagc      240
acctaccggg tgggtgtccgt gctgaccgtg ctgcaccagg actggctgaa cggcaaggaa      300
tacaagtgtg aggtgtccaa caagggcctg cccagcagca tcgagaaaac catcagcaag      360
gccaagggcc agcctcgggg gccccaggtg tacaccctgc cccctagcca agaggagatg      420
accaagaacc aggtgtccct gacctgcctg gtgaagggtt tctaccccag cgacatcgcc      480
gtggagtggg agagcaacgg ccagccccgag aacaactaca agaccacccc ccctgtgctg      540
gacagcgacg gcagcttctt cctgtacagc cggctgaccg tggacaagag ccggtggcag      600
gagggcaacg tctttagctg ctccgtgatg cacgaggccc tgcacaacca ctacaccag      660
aagagcctga gcctgtccct gggcaagatg                                     690

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

<220>  
 <223> IgD hinge

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<400> 17
Arg Trp Pro Glu Ser Pro Lys Ala Gln Ala Ser Ser Val Pro Thr Ala
1          5          10          15
Gln Pro Gln Ala Glu Gly Ser Leu Ala Lys Ala Thr Thr Ala Pro Ala
20        25        30
Thr Thr Arg Asn Thr Gly Arg Gly Gly Glu Glu Lys Lys Lys Glu Lys
35        40        45
Glu Lys Glu Glu Gln Glu Glu Arg Glu Thr Lys Thr Pro Glu Cys Pro
50        55        60
Ser His Thr Gln Pro Leu Gly Val Tyr Leu Leu Thr Pro Ala Val Gln
65        70        75        80
Asp Leu Trp Leu Arg Asp Lys Ala Thr Phe Thr Cys Phe Val Val Gly
85        90        95
Ser Asp Leu Lys Asp Ala His Leu Thr Trp Glu Val Ala Gly Lys Val
100       105       110
Pro Thr Gly Gly Val Glu Glu Gly Leu Leu Glu Arg His Ser Asn Gly
115       120       125
Ser Gln Ser Gln His Ser Arg Leu Thr Leu Pro Arg Ser Leu Trp Asn
130       135       140
Ala Gly Thr Ser Val Thr Cys Thr Leu Asn His Pro Ser Leu Pro Pro
145       150       155       160

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Arg | Leu | Met | Ala | Leu | Arg | Glu | Pro | Ala | Ala | Gln | Ala | Pro | Val | Lys |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Leu | Ser | Leu | Asn | Leu | Leu | Ala | Ser | Ser | Asp | Pro | Pro | Glu | Ala | Ala | Ser |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Trp | Leu | Leu | Cys | Glu | Val | Ser | Gly | Phe | Ser | Pro | Pro | Asn | Ile | Leu | Leu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Met | Trp | Leu | Glu | Asp | Gln | Arg | Glu | Val | Asn | Thr | Ser | Gly | Phe | Ala | Pro |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ala | Arg | Pro | Pro | Pro | Gln | Pro | Gly | Ser | Thr | Thr | Phe | Trp | Ala | Trp | Ser |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Val | Leu | Arg | Val | Pro | Ala | Pro | Pro | Ser | Pro | Gln | Pro | Ala | Thr | Tyr | Thr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Cys | Val | Val | Ser | His | Glu | Asp | Ser | Arg | Thr | Leu | Leu | Asn | Ala | Ser | Arg |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ser | Leu | Glu | Val | Ser | Tyr | Val | Thr | Asp | His |     |     |     |     |     |     |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     |     |     |     |     |

<210> 18

<211> 847

<212> DNA

<213> Artificial Sequence

<220>

<223> IgD hinge

<400> 18

|                                                                     |     |
|---------------------------------------------------------------------|-----|
| aggtagggcccg aaagtcccaa ggcccaggca tctagtgttc ctactgcaca gccccaggca | 60  |
| gaaggcagcc tagccaaagc tactactgca cctgccacta cgcgcaatac tggccgtggc   | 120 |
| ggggaggaga agaaaaagga gaaagagaaa gaagaacagg aagagaggga gaccaagacc   | 180 |
| cctgaatgtc catcccatac ccagccgctg ggcgtctatc tcttgactcc cgcagtagac   | 240 |
| gacttgtggc ttagagataa ggccaccttt acatgtttcg tcgtgggctc tgacctgaag   | 300 |
| gatgcccatt tgacttggga gggtgccgga aaggtaccca caggggggggt tgaggaaggg  | 360 |
| ttgctggagc gccattccaa tggctctcag agccagcact caagactcac ctttccgaga   | 420 |
| tccctgtgga acgccgggac ctctgtcaca tgtactctaa atcatcctag cctgccccca   | 480 |
| cagcgtctga tggcccttag agagccagcc gccagggcac cagttaagct tagcctgaat   | 540 |
| ctgctcgcca gtagtgatcc ccagaggcc gccagctggc tcttatgcga agtgtccggc    | 600 |
| tttagcccg ccaacatctt gctcatgtgg ctggaggacc agcgagaagt gaacaccagc    | 660 |
| ggcttcgctc cagcccggcc cccaccccag ccgggttcta ccacattctg ggcctggagt   | 720 |
| gtcttaaggg tcccagcacc acctagcccc cagccagcca catacacctg tgttgtgtcc   | 780 |
| catgaagata gcaggaccct gctaaatgct tctaggagtc tggaggtttc ctacgtgact   | 840 |

gaccatt

847

<210> 19  
<211> 39  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CD28 hinge

<400> 19  
Ile Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn  
1 5 10 15  
Gly Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser Pro Leu  
20 25 30  
Phe Pro Gly Pro Ser Lys Pro  
35

<210> 20  
<211> 117  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> CD28 hinge

<400> 20  
attgaagtta tgtatcctcc tccttaccta gacaatgaga agagcaatgg aaccattatc 60  
catgtgaaag ggaaacacct ttgtccaagt cccctatttc ccggaccttc taagccc 117

<210> 21  
<211> 24  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CD8 transmembrane

<400> 21  
Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu  
1 5 10 15  
Ser Leu Val Ile Thr Leu Tyr Cys  
20

<210> 22  
<211> 72  
<212> DNA

<213> Artificial Sequence

<220>

<223> CD8 transmembrane

<400> 22

atctacatct gggcgccctt ggccgggact tgtgggggtcc ttctcctgtc actggttatc 60

accctttact gc 72

<210> 23

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> CD28 transmembrane

<400> 23

Phe Trp Val Leu Val Val Val Gly Gly Val Leu Ala Cys Tyr Ser Leu

1 5 10 15

Leu Val Thr Val Ala Phe Ile Ile Phe Trp Val

20 25

<210> 24

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> CD28 transmembrane

<400> 24

ttttgggtgc tgggtggtggt tgggtggagtc ctggcttgct atagcttgct agtaacagtg 60

gcctttatta ttttctgggt g 81

<210> 25

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> CD3-zeta

<400> 25

Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Lys Gln Gly

1 5 10 15

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

<210> 26  
 <211> 112  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CD3-zeta

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

<210> 27  
 <211> 336  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> CD3-zeta

<400> 27  
 agagtgaagt tcagcaggag cgcagacgcc cccgcgtaca agcagggcca gaaccagctc



<213> Artificial Sequence

<220>

<223> CD27 intracellular aa

<400> 30

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Arg | Arg | Lys | Tyr | Arg | Ser | Asn | Lys | Gly | Glu | Ser | Pro | Val | Glu | Pro |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Ala | Glu | Pro | Cys | Arg | Tyr | Ser | Cys | Pro | Arg | Glu | Glu | Glu | Gly | Ser | Thr |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ile | Pro | Ile | Gln | Glu | Asp | Tyr | Arg | Lys | Pro | Glu | Pro | Ala | Cys | Ser | Pro |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |

<210> 31

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> CD28 intracellular aa

<400> 31

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ser | Lys | Arg | Ser | Arg | Leu | Leu | His | Ser | Asp | Tyr | Met | Asn | Met | Thr |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Pro | Arg | Arg | Pro | Gly | Pro | Thr | Arg | Lys | His | Tyr | Gln | Pro | Tyr | Ala | Pro |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Pro | Arg | Asp | Phe | Ala | Ala | Tyr | Arg | Ser |     |     |     |     |     |     |     |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     |     |     |     |     |

<210> 32

<211> 126

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1BB intracellular nt

<400> 32

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| actactcaag aggaagatgg ctgtagctgc cgatttccag aagaagaaga aggaggatgt | 120 |
| gaactg                                                            | 126 |

<210> 33

<211> 144

<212> DNA

<213> Artificial Sequence

<220>

<223> CD27 intracellular nt

<400> 33

caacgaagga aatatagatc aaacaaagga gaaagtcctg tggagcctgc agagccttgt 60

cgttacagct gccccagga ggaggagggc agcaccatcc ccatccagga ggattaccga 120

aaaccggagc ctgcctgctc cccc 144

<210> 34

<211> 123

<212> DNA

<213> Artificial Sequence

<220>

<223> CD28 intracellular

<400> 34

aggagtaaga ggagcaggct cctgcacagt gactacatga acatgactcc cgcgccccc 60

gggcccaccc gcaagcatta ccagccctat gccccaccac gcgacttcgc agcctatcgc 120

tcc 123

<210> 35

<211> 222

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 35

Ala Ala Ala Ile Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu

1 5 10 15

Lys Ser Asn Gly Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro

20 25 30

Ser Pro Leu Phe Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val

35 40 45

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

50 55 60

Ile Ile Phe Trp Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp

65 70 75 80

Tyr Met Asn Met Thr Pro Arg Arg Pro Gly Pro Thr Arg Lys His Tyr

85 90 95

Gln Pro Tyr Ala Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser Arg Val

100 105 110

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Phe | Ser | Arg | Ser | Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly | Gln | Asn |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gln | Leu | Tyr | Asn | Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Pro | Arg |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys | Asp | Lys |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg | Arg | Arg |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asp | Thr | Tyr | Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |     |     |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |

<210> 36

<211> 249

<212> PRT

<213> Artificial Sequence

<220>

<223> scFv anti IL-23R

<400> 36

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ile | Gln | Met | Thr | Gln | Ser | Pro | Ser | Ser | Leu | Ser | Ala | Ser | Val | Gly |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Asp | Arg | Val | Thr | Ile | Thr | Cys | Gln | Ala | Ser | Glu | Asn | Ile | Tyr | Ser | Phe |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala | Pro | Lys | Leu | Leu | Ile |
|     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro | Ser | Arg | Phe | Ser | Gly |
|     | 50  |     |     |     | 55  |     |     | 60  |     |     |     |     |     |     |     |
| Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile | Ser | Ser | Leu | Gln | Pro |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr | Asn | Arg | Tyr | Ser | Asn |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gly | Gly | Thr | Lys | Leu | Thr | Val | Leu |
|     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |
|     | 115 |     |     |     |     | 120 |     |     |     | 125 |     |     |     |     |     |
| Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile | Asp | Phe | Asn | Ser | Asn |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     | 160 |
| Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | Glu | Trp |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn | Thr | Tyr | Tyr | Ala | Asn |
|     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |     |
| Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Lys | Asn | Thr |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | Tyr |
|     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr | Phe | Lys | Phe | Trp | Gly |

225                      230                      235                      240  
Gln Gly Thr Leu Val Thr Val Ser Ser  
                        245

|       | 100                 | 105 | 110 |
|-------|---------------------|-----|-----|
| Gly   |                     |     |     |
| <210> | 39                  |     |     |
| <211> | 21                  |     |     |
| <212> | PRT                 |     |     |
| <213> | Artificial Sequence |     |     |
| <220> |                     |     |     |
| <223> | CD8 leader          |     |     |
| <400> | 39                  |     |     |
| Met   | Ala                 | Leu | Pro |
| 1     | 5                   | 10  | 15  |
| His   | Ala                 | Ala | Arg |
|       | 20                  | Pro |     |
| <210> | 40                  |     |     |
| <211> | 493                 |     |     |
| <212> | PRT                 |     |     |
| <213> | Artificial Sequence |     |     |
| <220> |                     |     |     |
| <223> | CAR                 |     |     |
| <400> | 40                  |     |     |
| Met   | Ala                 | Leu | Pro |
| 1     | 5                   | 10  | 15  |
| His   | Ala                 | Ala | Arg |
|       | 20                  | Pro | Asp |
| Ser   | Ala                 | Ser | Val |
|       | 35                  | Gly | Asp |
| Asn   | Ile                 | Tyr | Ser |
|       | 50                  | Phe | Leu |
| Pro   | Lys                 | Leu | Leu |
| 65    | 70                  | Ile | Tyr |
| Ser   | Arg                 | Phe | Ser |
|       | 85                  | Gly | Ser |
| Ser   | Ser                 | Leu | Gln |
|       | 100                 | Pro | Glu |
| Asn   | Arg                 | Tyr | Ser |
|       | 115                 | Asn | Pro |
| Lys   | Leu                 | Thr | Val |
|       | 130                 | Leu | Gly |
| Gly   | Gly                 | Gly | Gly |
| 145   | 150                 | Val | Gln |
| Val   | Gln                 | Pro | Gly |
|       | 165                 | Gly | Ser |
| Asp   | Phe                 | Asn | Ser |
|       | 180                 | Asn | Tyr |
| Lys   | Gly                 | Leu | Glu |
|       | 190                 | Trp | Ile |



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

<210> 42  
 <211> 506  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CAR

<400> 42

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





<210> 45  
 <211> 239  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> GFP

<400> 45  
 Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
 1 5 10 15  
 Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly  
 20 25 30  
 Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
 35 40 45  
 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
 50 55 60  
 Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
 65 70 75 80  
 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
 85 90 95  
 Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu  
 100 105 110  
 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly  
 115 120 125  
 Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr  
 130 135 140  
 Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn  
 145 150 155 160  
 Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 165 170 175  
 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly  
 180 185 190  
 Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu  
 195 200 205  
 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
 210 215 220  
 Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys  
 225 230 235

<210> 46  
 <211> 113  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> VL anti-IL-23R

<400> 46  
 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 | Gln | Ala | Ser | Glu | Asn | Ile | Tyr | Ser | Phe |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |
| Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala | Pro | Lys | Leu | Leu | Ile |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |
| Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro | Ser | Arg | Phe | Ser | Gly |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile | Ser | Ser | Leu | Gln | Pro |  |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr | Asn | Arg | Tyr | Ser | Asn |  |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |  |
| Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gly | Gly | Thr | Lys | Leu | Thr | Val | Leu |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |  |

Gly

<210> 47

<211> 496

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 47

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Ala | Leu | Pro | Val | Thr | Ala | Leu | Leu | Leu | Pro | Leu | Ala | Leu | Leu | Leu |  |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |  |
| His | Ala | Ala | Arg | Pro | Asp | Ile | Gln | Met | Thr | Gln | Ser | Pro | Ser | Ser | Leu |  |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |     |  |
| Ser | Ala | Ser | Val | Gly | Asp | Arg | Val | Thr | Ile | Thr | Cys | Gln | Ala | Ser | Glu |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |  |
| Asn | Ile | Tyr | Ser | Phe | Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Pro | Lys | Leu | Leu | Ile | Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro |  |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Ser | Arg | Phe | Ser | Gly | Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile |  |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |  |
| Ser | Ser | Leu | Gln | Pro | Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr |  |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |     |  |
| Asn | Arg | Tyr | Ser | Asn | Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |  |
| Lys | Leu | Thr | Val | Leu | Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |  |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |  |
| Gly | Gly | Gly | Gly | Ser | Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu |  |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Val | Gln | Pro | Gly | Gly | Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |  |
| Asp | Phe | Asn | Ser | Asn | Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly |  |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     |     | 190 |     |     |  |
| Lys | Gly | Leu | Glu | Trp | Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn |  |
|     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |  |
| Thr | Tyr | Tyr | Ala | Asn | Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ser | Lys | Asn | Thr | Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asp | Thr | Ala | Val | Tyr | Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Phe | Lys | Phe | Trp | Gly | Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Met | His |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |
| Thr | Thr | Thr | Pro | Ala | Pro | Arg | Pro | Pro | Thr | Pro | Ala | Pro | Thr | Ile | Ala |
|     |     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ser | Gln | Pro | Leu | Ser | Leu | Arg | Pro | Glu | Ala | Cys | Arg | Pro | Ala | Ala | Gly |
|     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |     |     |     |
| Gly | Ala | Val | His | Thr | Arg | Gly | Leu | Asp | Phe | Ala | Cys | Asp | Ile | Tyr | Ile |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Trp | Ala | Pro | Leu | Ala | Gly | Thr | Cys | Gly | Val | Leu | Leu | Leu | Ser | Leu | Val |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |
| Ile | Thr | Leu | Tyr | Cys | Arg | Ser | Lys | Arg | Ser | Arg | Leu | Leu | His | Ser | Asp |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Tyr | Met | Asn | Met | Thr | Pro | Arg | Arg | Pro | Gly | Pro | Thr | Arg | Lys | His | Tyr |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Gln | Pro | Tyr | Ala | Pro | Pro | Arg | Asp | Phe | Ala | Ala | Tyr | Arg | Ser | Thr | Arg |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Arg | Val | Lys | Phe | Ser | Arg | Ser | Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Gln | Asn | Gln | Leu | Tyr | Asn | Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |
| Asp | Val | Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Pro | Arg | Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Asp | Lys | Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Arg | Arg | Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Thr | Lys | Asp | Thr | Tyr | Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |

<210> 48

<211> 475

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 48

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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 | Gln | Ala | Ser | Glu | Asn | Ile | Tyr | Ser | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala | Pro | Lys | Leu | Leu | Ile |
|     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro | Ser | Arg | Phe | Ser | Gly |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 50  |     | 55  |     | 60  |     |     |     |     |     |     |     |     |     |     |     |
| Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile | Ser | Ser | Leu | Gln | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr | Asn | Arg | Tyr | Ser | Asn |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr | Lys | Leu | Thr | Val | Leu |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile | Asp | Phe | Asn | Ser | Asn |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     | 160 |
| Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | Glu | Trp |
|     |     |     | 165 |     |     |     | 170 |     |     |     |     |     |     | 175 |     |
| Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn | Thr | Tyr | Tyr | Ala | Asn |
|     |     | 180 |     |     |     | 185 |     |     |     | 190 |     |     |     |     |     |
| Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Lys | Asn | Thr |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | Tyr |
|     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr | Phe | Lys | Phe | Trp | Gly |
| 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     |     | 240 |
| Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Met | His | Thr | Thr | Thr | Pro | Ala |
|     |     |     | 245 |     |     |     | 250 |     |     |     |     |     |     | 255 |     |
| Pro | Arg | Pro | Pro | Thr | Pro | Ala | Pro | Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |
| Leu | Arg | Pro | Glu | Ala | Cys | Arg | Pro | Ala | Ala | Gly | Gly | Ala | Val | His | Thr |
|     | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Arg | Gly | Leu | Asp | Phe | Ala | Cys | Asp | Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala |
|     | 290 |     |     |     | 295 |     |     |     | 300 |     |     |     |     |     |     |
| Gly | Thr | Cys | Gly | Val | Leu | Leu | Leu | Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys |
| 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     |     | 320 |
| Arg | Ser | Lys | Arg | Ser | Arg | Leu | Leu | His | Ser | Asp | Tyr | Met | Asn | Met | Thr |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |
| Pro | Arg | Arg | Pro | Gly | Pro | Thr | Arg | Lys | His | Tyr | Gln | Pro | Tyr | Ala | Pro |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     |     | 350 |     |     |
| Pro | Arg | Asp | Phe | Ala | Ala | Tyr | Arg | Ser | Thr | Arg | Arg | Val | Lys | Phe | Ser |
|     | 355 |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Arg | Ser | Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly | Gln | Asn | Gln | Leu | Tyr |
|     | 370 |     |     | 375 |     |     |     |     | 380 |     |     |     |     |     |     |
| Asn | Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp | Val | Leu | Asp | Lys |
| 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     |     | 400 |
| Arg | Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Pro | Arg | Arg | Lys | Asn |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |
| Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys | Asp | Lys | Met | Ala | Glu |
|     |     | 420 |     |     |     |     | 425 |     |     |     |     |     | 430 |     |     |
| Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys | Gly |
|     | 435 |     |     |     | 440 |     |     |     |     |     |     | 445 |     |     |     |
| His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr | Tyr |
|     | 450 |     |     |     | 455 |     |     |     |     |     | 460 |     |     |     |     |
| Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |     |     |     |     |     |
| 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     |     |     |

<210> 49  
 <211> 223  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CAR

<400> 49  
 Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala  
 1 5 10 15  
 Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly  
 20 25 30  
 Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile  
 35 40 45  
 Trp Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu Ser Leu Val  
 50 55 60  
 Ile Thr Leu Tyr Cys Lys Arg Gly Arg Lys Lys Leu Leu Tyr Ile Phe  
 65 70 75 80  
 Lys Gln Pro Phe Met Arg Pro Val Gln Thr Thr Gln Glu Glu Asp Gly  
 85 90 95  
 Cys Ser Cys Arg Phe Pro Glu Glu Glu Gly Gly Cys Glu Leu Arg  
 100 105 110  
 Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln  
 115 120 125  
 Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp  
 130 135 140  
 Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro  
 145 150 155 160  
 Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp  
 165 170 175  
 Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg  
 180 185 190  
 Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr  
 195 200 205  
 Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg  
 210 215 220

<210> 50  
 <211> 236  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CAR

<400> 50  
 Asn Trp Ser His Pro Gln Phe Glu Lys Met His Thr Thr Thr Pro Ala  
 1 5 10 15  
 Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser Gln Pro Leu Ser  
 20 25 30  
 Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly Ala Val His Thr



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Tyr | Asp | Val | Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Lys | Pro | Arg | Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |
| Gln | Lys | Asp | Lys | Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Glu | Arg | Arg | Arg | Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr | Ala | Thr | Lys | Asp | Thr | Tyr | Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Pro | Arg |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 225 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 52

<211> 505

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 52

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Leu | Pro | Val | Thr | Ala | Leu | Leu | Leu | Pro | Leu | Ala | Leu | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| His | Ala | Ala | Arg | Pro | Asp | Ile | Gln | Met | Thr | Gln | Ser | Pro | Ser | Ser | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Ala | Ser | Val | Gly | Asp | Arg | Val | Thr | Ile | Thr | Cys | Gln | Ala | Ser | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asn | Ile | Tyr | Ser | Phe | Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Lys | Leu | Leu | Ile | Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ser | Arg | Phe | Ser | Gly | Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Ser | Leu | Gln | Pro | Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Arg | Tyr | Ser | Asn | Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Lys | Leu | Thr | Val | Leu | Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Gly | Gly | Gly | Ser | Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Gln | Pro | Gly | Gly | Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asp | Phe | Asn | Ser | Asn | Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Lys | Gly | Leu | Glu | Trp | Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr | Tyr | Tyr | Ala | Asn | Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asn | Ser | Lys | Asn | Thr | Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asp | Thr | Ala | Val | Tyr | Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     | 255 |     |     |  |  |
| Phe | Lys | Phe | Trp | Gly | Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Asn | Trp |  |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |  |
| Ser | His | Pro | Gln | Phe | Glu | Lys | Met | His | Thr | Thr | Thr | Pro | Ala | Pro | Arg |  |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |
| Pro | Pro | Thr | Pro | Ala | Pro | Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser | Leu | Arg |  |  |
|     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |
| Pro | Glu | Ala | Cys | Arg | Pro | Ala | Ala | Gly | Gly | Ala | Val | His | Thr | Arg | Gly |  |  |
| 305 |     |     |     | 310 |     |     |     |     |     | 315 |     |     |     |     | 320 |  |  |
| Leu | Asp | Phe | Ala | Cys | Asp | Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala | Gly | Thr |  |  |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |  |  |
| Cys | Gly | Val | Leu | Leu | Leu | Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys | Arg | Ser |  |  |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |     |  |  |
| Lys | Arg | Ser | Arg | Leu | Leu | His | Ser | Asp | Tyr | Met | Asn | Met | Thr | Pro | Arg |  |  |
|     |     | 355 |     |     |     | 360 |     |     |     |     | 365 |     |     |     |     |  |  |
| Arg | Pro | Gly | Pro | Thr | Arg | Lys | His | Tyr | Gln | Pro | Tyr | Ala | Pro | Pro | Arg |  |  |
|     |     | 370 |     |     | 375 |     |     |     |     |     | 380 |     |     |     |     |  |  |
| Asp | Phe | Ala | Ala | Tyr | Arg | Ser | Thr | Arg | Arg | Val | Lys | Phe | Ser | Arg | Ser |  |  |
| 385 |     |     |     | 390 |     |     |     |     |     | 395 |     |     |     |     | 400 |  |  |
| Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly | Gln | Asn | Gln | Leu | Tyr | Asn | Glu |  |  |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |  |  |
| Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp | Val | Leu | Asp | Lys | Arg | Arg |  |  |
|     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |  |  |
| Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Pro | Arg | Arg | Lys | Asn | Pro | Gln |  |  |
|     |     | 435 |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     |  |  |
| Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys | Asp | Lys | Met | Ala | Glu | Ala | Tyr |  |  |
|     |     | 450 |     |     | 455 |     |     |     |     | 460 |     |     |     |     |     |  |  |
| Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys | Gly | His | Asp |  |  |
| 465 |     |     |     | 470 |     |     |     |     |     | 475 |     |     |     |     | 480 |  |  |
| Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr | Tyr | Asp | Ala |  |  |
|     |     |     | 485 |     |     |     | 490 |     |     |     |     |     |     | 495 |     |  |  |
| Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |     |     |     |     |     |     |     |  |  |
|     |     | 500 |     |     |     |     | 505 |     |     |     |     |     |     |     |     |  |  |

<210> 53

<211> 484

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 53

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 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 | Gln | Ala | Ser | Glu | Asn | Ile | Tyr | Ser | Phe |  |  |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |  |  |
| Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala | Pro | Lys | Leu | Leu | Ile |  |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |  |  |
| Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro | Ser | Arg | Phe | Ser | Gly |  |  |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |  |  |
| Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile | Ser | Ser | Leu | Gln | Pro |  |  |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |  |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr | Asn | Arg | Tyr | Ser | Asn |  |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |
| Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr | Lys | Leu | Thr | Val | Leu |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |  |  |
| Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |
| Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |  |  |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |  |  |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile | Asp | Phe | Asn | Ser | Asn |  |  |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     | 160 |  |  |
| Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | Glu | Trp |  |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |  |  |
| Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn | Thr | Tyr | Tyr | Ala | Asn |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |  |  |
| Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Lys | Asn | Thr |  |  |
|     | 195 |     |     |     |     |     | 200 |     |     |     | 205 |     |     |     |     |  |  |
| Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | Tyr |  |  |
|     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |  |  |
| Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr | Phe | Lys | Phe | Trp | Gly |  |  |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     |     | 240 |  |  |
| Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Asn | Trp | Ser | His | Pro | Gln | Phe |  |  |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |  |  |
| Glu | Lys | Met | His | Thr | Thr | Thr | Pro | Ala | Pro | Arg | Pro | Pro | Thr | Pro | Ala |  |  |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |  |  |
| Pro | Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser | Leu | Arg | Pro | Glu | Ala | Cys | Arg |  |  |
|     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |  |  |
| Pro | Ala | Ala | Gly | Gly | Ala | Val | His | Thr | Arg | Gly | Leu | Asp | Phe | Ala | Cys |  |  |
|     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |  |  |
| Asp | Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala | Gly | Thr | Cys | Gly | Val | Leu | Leu |  |  |
| 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     |     | 320 |  |  |
| Leu | Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys | Arg | Ser | Lys | Arg | Ser | Arg | Leu |  |  |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |  |  |
| Leu | His | Ser | Asp | Tyr | Met | Asn | Met | Thr | Pro | Arg | Arg | Pro | Gly | Pro | Thr |  |  |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     |     | 350 |     |     |  |  |
| Arg | Lys | His | Tyr | Gln | Pro | Tyr | Ala | Pro | Pro | Arg | Asp | Phe | Ala | Ala | Tyr |  |  |
|     | 355 |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |  |  |
| Arg | Ser | Thr | Arg | Arg | Val | Lys | Phe | Ser | Arg | Ser | Ala | Asp | Ala | Pro | Ala |  |  |
|     | 370 |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |     |  |  |
| Tyr | Gln | Gln | Gly | Gln | Asn | Gln | Leu | Tyr | Asn | Glu | Leu | Asn | Leu | Gly | Arg |  |  |
| 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |     |  |  |
| Arg | Glu | Glu | Tyr | Asp | Val | Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro | Glu |  |  |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |  |  |
| Met | Gly | Gly | Lys | Pro | Arg | Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu | Tyr | Asn |  |  |
|     | 420 |     |     | 425 |     |     |     |     |     |     |     |     | 430 |     |     |  |  |
| Glu | Leu | Gln | Lys | Asp | Lys | Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met |  |  |
|     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     |  |  |
| Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly |  |  |
|     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |     |  |  |
| Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr | Tyr | Asp | Ala | Leu | His | Met | Gln | Ala |  |  |
| 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     |     | 480 |  |  |
| Leu | Pro | Pro | Arg |     |     |     |     |     |     |     |     |     |     |     |     |  |  |

<211> 754  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CAR

<400> 54

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Leu | Pro | Val | Thr | Ala | Leu | Leu | Leu | Pro | Leu | Ala | Leu | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| His | Ala | Ala | Arg | Pro | Asp | Ile | Gln | Met | Thr | Gln | Ser | Pro | Ser | Ser | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Ala | Ser | Val | Gly | Asp | Arg | Val | Thr | Ile | Thr | Cys | Gln | Ala | Ser | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asn | Ile | Tyr | Ser | Phe | Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Lys | Leu | Leu | Ile | Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     |     | 80  |
| Ser | Arg | Phe | Ser | Gly | Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Ser | Leu | Gln | Pro | Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Arg | Tyr | Ser | Asn | Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr |
|     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Lys | Leu | Thr | Val | Leu | Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Gly | Gly | Gly | Ser | Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Gln | Pro | Gly | Gly | Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asp | Phe | Asn | Ser | Asn | Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Lys | Gly | Leu | Glu | Trp | Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr | Tyr | Tyr | Ala | Asn | Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asn | Ser | Lys | Asn | Thr | Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asp | Thr | Ala | Val | Tyr | Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Phe | Lys | Phe | Trp | Gly | Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Thr | Thr |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Thr | Pro | Ala | Pro | Arg | Pro | Pro | Thr | Pro | Ala | Pro | Thr | Ile | Ala | Ser | Gln |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Pro | Leu | Ser | Leu | Arg | Pro | Glu | Ala | Cys | Arg | Pro | Ala | Ala | Gly | Gly | Ala |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Val | His | Thr | Arg | Gly | Leu | Asp | Phe | Ala | Cys | Asp | Ile | Tyr | Ile | Trp | Ala |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Pro | Leu | Ala | Gly | Thr | Cys | Gly | Val | Leu | Leu | Leu | Ser | Leu | Val | Ile | Thr |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Leu | Tyr | Cys | Lys | Arg | Gly | Arg | Lys | Lys | Leu | Leu | Tyr | Ile | Phe | Lys | Gln |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Pro | Phe | Met | Arg | Pro | Val | Gln | Thr | Thr | Gln | Glu | Glu | Asp | Gly | Cys | Ser |



<212> PRT  
<213> Artificial Sequence

<220>  
<223> scFv anti-IL-23R

<400> 55  
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 Gln Ala Ser Glu Asn Ile Tyr Ser Phe  
20 25 30  
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
35 40 45  
Tyr Ser Ala Ser Lys Leu Ala Ala Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60  
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
65 70 75 80  
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Thr Asn Arg Tyr Ser Asn  
85 90 95  
Pro Asp Ile Tyr Asn Val Phe Gly Gln Gly Thr Lys Leu Thr Val Leu  
100 105 110  
Gly Gly Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Gly Ser  
115 120 125  
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
130 135 140  
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ile Asp Phe Asn Ser Asn  
145 150 155 160  
Tyr Tyr Met Cys Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp  
165 170 175  
Ile Gly Cys Ile Tyr Val Gly Ser His Val Asn Thr Tyr Tyr Ala Asn  
180 185 190  
Trp Ala Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr  
195 200 205  
Val Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr  
210 215 220  
Tyr Cys Ala Thr Ser Gly Ser Ser Val Leu Tyr Phe Lys Phe Trp Gly  
225 230 235 240  
Gln Gly Thr Leu Val Thr Val Ser Ser  
245

<210> 56  
<211> 113  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VL

<400> 56  
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 Gln Ala Ser Glu Asn Ile Tyr Ser Phe

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

Gly

<210> 57

<211> 249

<212> PRT

<213> Artificial Sequence

<220>

<223> scFv anti IL-23R

<400> 57

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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 | Gln | Ala | Ser | Glu | Asn | Ile | Tyr | Ser | Phe |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala | Pro | Lys | Leu | Leu | Ile |
|     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro | Ser | Arg | Phe | Ser | Gly |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile | Ser | Ser | Leu | Gln | Pro |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr | Asn | Arg | Tyr | Ser | Asn |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Thr | Gly | Thr | Lys | Val | Thr | Val | Leu |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile | Asp | Phe | Asn | Ser | Asn |
| 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     |     | 160 |
| Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | Glu | Trp |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn | Thr | Tyr | Tyr | Ala | Asn |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Lys | Asn | Thr |
|     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | Tyr |
|     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |
| Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr | Phe | Lys | Phe | Trp | Gly |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |

Gln Gly Thr Leu Val Thr Val Ser Ser  
245

<210> 58  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> LAGLIDADG motif

<400> 58  
Leu Ala Gly Leu Ile Asp Ala Asp Gly  
1 5

<210> 59  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Tag

<400> 59  
Asn Trp Ser His Pro Gln Phe Glu Lys  
1 5

<210> 60  
<211> 10  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Tag

<400> 60  
Ser Ala Trp Ser His Pro Gln Phe Glu Lys  
1 5 10

<210> 61  
<211> 113  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CD3-zeta

<400> 61  
Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Lys Gln Gly  
1 5 10 15

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

Arg

<210> 62  
 <211> 113  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CD3-zeta

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

Arg

<210> 63  
 <211> 223  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CAR

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ala | Ala | Ile | Glu | Val | Met | Tyr | Pro | Pro | Pro | Tyr | Leu | Asp | Asn | Glu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| Lys | Ser | Asn | Gly | Thr | Ile | Ile | His | Val | Lys | Gly | Lys | His | Leu | Cys | Pro |  |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |  |
| Ser | Pro | Leu | Phe | Pro | Gly | Pro | Ser | Lys | Pro | Phe | Trp | Val | Leu | Val | Val |  |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |  |
| Val | Gly | Gly | Val | Leu | Ala | Cys | Tyr | Ser | Leu | Leu | Val | Thr | Val | Ala | Phe |  |  |  |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |  |
| Ile | Ile | Phe | Trp | Val | Arg | Ser | Lys | Arg | Ser | Arg | Leu | Leu | His | Ser | Asp |  |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |  |  |
| Tyr | Met | Asn | Met | Thr | Pro | Arg | Arg | Pro | Gly | Pro | Thr | Arg | Lys | His | Tyr |  |  |  |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     | 95  |     |     |  |  |  |
| Gln | Pro | Tyr | Ala | Pro | Pro | Arg | Asp | Phe | Ala | Ala | Tyr | Arg | Ser | Arg | Val |  |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |  |
| Lys | Phe | Ser | Arg | Ser | Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly | Gln | Asn |  |  |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |  |  |  |
| Gln | Leu | Tyr | Asn | Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp | Val |  |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |  |
| Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Pro | Gln |  |  |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |  |  |
| Arg | Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys | Asp |  |  |  |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |  |  |  |
| Lys | Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg | Arg |  |  |  |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |  |  |  |
| Arg | Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr |  |  |  |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |  |  |  |
| Lys | Asp | Thr | Tyr | Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |     |  |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |  |

<210> 64

<211> 494

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 64

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| Met | Ala | Leu | Pro | Val | Thr | Ala | Leu | Leu | Leu | Pro | Leu | Ala | Leu | Leu | Leu |  |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |  |
| His | Ala | Ala | Arg | Pro | Asp | Ile | Gln | Met | Thr | Gln | Ser | Pro | Ser | Ser | Leu |  |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |  |
| Ser | Ala | Ser | Val | Gly | Asp | Arg | Val | Thr | Ile | Thr | Cys | Gln | Ala | Ser | Glu |  |  |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |  |  |  |
| Asn | Ile | Tyr | Ser | Phe | Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala |  |  |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |  |
| Pro | Lys | Leu | Leu | Ile | Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro |  |  |  |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     |     | 80  |  |  |  |
| Ser | Arg | Phe | Ser | Gly | Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile |  |  |  |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     | 95  |     |     |  |  |  |
| Ser | Ser | Leu | Gln | Pro | Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr |  |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |  |
| Asn | Arg | Tyr | Ser | Asn | Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr |  |  |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |  |  |  |
| Lys | Leu | Thr | Val | Leu | Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |  |  |  |

|                     |                     |                         |     |     |  |
|---------------------|---------------------|-------------------------|-----|-----|--|
| 130                 |                     | 135                     |     | 140 |  |
| Gly Gly Gly Gly Ser | Glu Val Gln Leu Val | Glu Ser Gly Gly Gly Leu |     |     |  |
| 145                 | 150                 | 155                     | 160 |     |  |
| Val Gln Pro Gly Gly | Ser Leu Arg Leu Ser | Cys Ala Ala Ser Gly Ile |     |     |  |
| 165                 | 170                 | 175                     |     |     |  |
| Asp Phe Asn Ser Asn | Tyr Tyr Met Cys Trp | Val Arg Gln Ala Pro Gly |     |     |  |
| 180                 | 185                 | 190                     |     |     |  |
| Lys Gly Leu Glu Trp | Ile Gly Cys Ile Tyr | Val Gly Ser His Val Asn |     |     |  |
| 195                 | 200                 | 205                     |     |     |  |
| Thr Tyr Tyr Ala Asn | Trp Ala Lys Gly Arg | Phe Thr Ile Ser Arg Asp |     |     |  |
| 210                 | 215                 | 220                     |     |     |  |
| Asn Ser Lys Asn Thr | Val Tyr Leu Gln Met | Asn Ser Leu Arg Ala Glu |     |     |  |
| 225                 | 230                 | 235                     | 240 |     |  |
| Asp Thr Ala Val Tyr | Tyr Cys Ala Thr Ser | Gly Ser Ser Val Leu Tyr |     |     |  |
| 245                 | 250                 | 255                     |     |     |  |
| Phe Lys Phe Trp Gly | Gln Gly Thr Leu Val | Thr Val Ser Ser Thr Thr |     |     |  |
| 260                 | 265                 | 270                     |     |     |  |
| Thr Pro Ala Pro Arg | Pro Pro Thr Pro Ala | Pro Thr Ile Ala Ser Gln |     |     |  |
| 275                 | 280                 | 285                     |     |     |  |
| Pro Leu Ser Leu Arg | Pro Glu Ala Cys Arg | Pro Ala Ala Gly Gly Ala |     |     |  |
| 290                 | 295                 | 300                     |     |     |  |
| Val His Thr Arg Gly | Leu Asp Phe Ala Cys | Asp Ile Tyr Ile Trp Ala |     |     |  |
| 305                 | 310                 | 315                     | 320 |     |  |
| Pro Leu Ala Gly Thr | Cys Gly Val Leu Leu | Leu Ser Leu Val Ile Thr |     |     |  |
| 325                 | 330                 | 335                     |     |     |  |
| Leu Tyr Cys Lys Arg | Gly Arg Lys Lys Leu | Leu Tyr Ile Phe Lys Gln |     |     |  |
| 340                 | 345                 | 350                     |     |     |  |
| Pro Phe Met Arg Pro | Val Gln Thr Thr Gln | Glu Glu Asp Gly Cys Ser |     |     |  |
| 355                 | 360                 | 365                     |     |     |  |
| Cys Arg Phe Pro Glu | Glu Glu Glu Gly Gly | Cys Glu Leu Arg Val Lys |     |     |  |
| 370                 | 375                 | 380                     |     |     |  |
| Phe Ser Arg Ser Ala | Asp Ala Pro Ala Tyr | Gln Gln Gly Gln Asn Gln |     |     |  |
| 385                 | 390                 | 395                     | 400 |     |  |
| Leu Tyr Asn Glu Leu | Asn Leu Gly Arg Arg | Glu Glu Tyr Asp Val Leu |     |     |  |
| 405                 | 410                 | 415                     |     |     |  |
| Asp Lys Arg Arg Gly | Arg Asp Pro Glu Met | Gly Gly Lys Pro Gln Arg |     |     |  |
| 420                 | 425                 | 430                     |     |     |  |
| Arg Lys Asn Pro Gln | Glu Gly Leu Tyr Asn | Glu Leu Gln Lys Asp Lys |     |     |  |
| 435                 | 440                 | 445                     |     |     |  |
| Met Ala Glu Ala Tyr | Ser Glu Ile Gly Met | Lys Gly Glu Arg Arg Arg |     |     |  |
| 450                 | 455                 | 460                     |     |     |  |
| Gly Lys Gly His Asp | Gly Leu Tyr Gln Gly | Leu Ser Thr Ala Thr Lys |     |     |  |
| 465                 | 470                 | 475                     | 480 |     |  |
| Asp Thr Tyr Asp Ala | Leu His Met Gln Ala | Leu Pro Pro Arg         |     |     |  |
| 485                 | 490                 |                         |     |     |  |

<210> 65

<211> 473

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 65

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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 | Gln | Ala | Ser | Glu | Asn | Ile | Tyr | Ser | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala | Pro | Lys | Leu | Leu | Ile |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro | Ser | Arg | Phe | Ser | Gly |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile | Ser | Ser | Leu | Gln | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr | Asn | Arg | Tyr | Ser | Asn |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr | Lys | Leu | Thr | Val | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile | Asp | Phe | Asn | Ser | Asn |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | Glu | Trp |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn | Thr | Tyr | Tyr | Ala | Asn |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Lys | Asn | Thr |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | Tyr |
|     |     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr | Phe | Lys | Phe | Trp | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Thr | Thr | Thr | Pro | Ala | Pro | Arg |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Pro | Pro | Thr | Pro | Ala | Pro | Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser | Leu | Arg |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Pro | Glu | Ala | Cys | Arg | Pro | Ala | Ala | Gly | Gly | Ala | Val | His | Thr | Arg | Gly |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Leu | Asp | Phe | Ala | Cys | Asp | Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala | Gly | Thr |
|     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |     |     |     |
| Cys | Gly | Val | Leu | Leu | Leu | Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys | Lys | Arg |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Gly | Arg | Lys | Lys | Leu | Leu | Tyr | Ile | Phe | Lys | Gln | Pro | Phe | Met | Arg | Pro |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Val | Gln | Thr | Thr | Gln | Glu | Glu | Asp | Gly | Cys | Ser | Cys | Arg | Phe | Pro | Glu |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Glu | Glu | Glu | Gly | Gly | Cys | Glu | Leu | Arg | Val | Lys | Phe | Ser | Arg | Ser | Ala |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly | Gln | Asn | Gln | Leu | Tyr | Asn | Glu | Leu |
|     |     |     |     |     | 375 |     |     |     |     |     | 380 |     |     |     |     |
| Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp | Val | Leu | Asp | Lys | Arg | Arg | Gly |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Pro | Gln | Arg | Arg | Lys | Asn | Pro | Gln |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys | Asp | Lys | Met | Ala | Glu | Ala | Tyr |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys | Gly | His | Asp |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr | Tyr | Asp | Ala |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |     |     |     |     |     |     |     |
| 465 |     |     |     |     | 470 |     |     |     |     |     |     |     |     |     |     |

<210> 66

<211> 507

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 66

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     | 275 |     |     |     | 280 |     |     |     | 285 |     |     |     |     |     |
| Pro | Pro | Thr | Pro | Ala | Pro | Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser | Leu | Arg |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Pro | Glu | Ala | Cys | Arg | Pro | Ala | Ala | Gly | Gly | Ala | Val | His | Thr | Arg | Gly |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Leu | Asp | Phe | Ala | Cys | Asp | Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala | Gly | Thr |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Cys | Gly | Val | Leu | Leu | Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys | Lys | Arg |     |
|     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |     |
| Gly | Arg | Lys | Lys | Leu | Leu | Tyr | Ile | Phe | Lys | Gln | Pro | Phe | Met | Arg | Pro |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Val | Gln | Thr | Thr | Gln | Glu | Glu | Asp | Gly | Cys | Ser | Cys | Arg | Phe | Pro | Glu |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Glu | Glu | Glu | Gly | Gly | Cys | Glu | Leu | Thr | Arg | Arg | Val | Lys | Phe | Ser | Arg |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Ser | Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly | Gln | Asn | Gln | Leu | Tyr | Asn |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp | Val | Leu | Asp | Lys | Arg |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Pro | Gln | Arg | Arg | Lys | Asn |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys | Asp | Lys | Met | Ala | Glu |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys | Gly |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr | Tyr |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |     |     |     |     |     |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     |     |     |     |

<210> 67

<211> 486

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 67

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile | Asp | Phe | Asn | Ser | Asn |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | Glu | Trp |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn | Thr | Tyr | Tyr | Ala | Asn |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Lys | Asn | Thr |
|     |     | 195 |     |     |     |     | 200 |     |     |     | 205 |     |     |     |     |
| Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | Tyr |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr | Phe | Lys | Phe | Trp | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Asn | Trp | Ser | His | Pro | Gln | Phe |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Glu | Lys | Met | His | Thr | Thr | Thr | Pro | Ala | Pro | Arg | Pro | Pro | Thr | Pro | Ala |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Pro | Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser | Leu | Arg | Pro | Glu | Ala | Cys | Arg |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Pro | Ala | Ala | Gly | Gly | Ala | Val | His | Thr | Arg | Gly | Leu | Asp | Phe | Ala | Cys |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Asp | Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala | Gly | Thr | Cys | Gly | Val | Leu | Leu |
| 305 |     |     |     |     | 310 |     |     |     | 315 |     |     |     |     |     | 320 |
| Leu | Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys | Lys | Arg | Gly | Arg | Lys | Lys | Leu |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Leu | Tyr | Ile | Phe | Lys | Gln | Pro | Phe | Met | Arg | Pro | Val | Gln | Thr | Thr | Gln |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Glu | Glu | Asp | Gly | Cys | Ser | Cys | Arg | Phe | Pro | Glu | Glu | Glu | Glu | Gly | Gly |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Cys | Glu | Leu | Thr | Arg | Arg | Val | Lys | Phe | Ser | Arg | Ser | Ala | Asp | Ala | Pro |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Ala | Tyr | Gln | Gln | Gly | Gln | Asn | Gln | Leu | Tyr | Asn | Glu | Leu | Asn | Leu | Gly |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Arg | Arg | Glu | Glu | Tyr | Asp | Val | Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Glu | Met | Gly | Gly | Lys | Pro | Gln | Arg | Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Tyr | Asn | Glu | Leu | Gln | Lys | Asp | Lys | Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Gly | Met | Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr | Tyr | Asp | Ala | Leu | His | Met |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Gln | Ala | Leu | Pro | Pro | Arg |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 485 |     |     |     |     |     |     |     |     |     |     |     |

<210> 68

<211> 497

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 68

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Leu | Pro | Val | Thr | Ala | Leu | Leu | Leu | Pro | Leu | Ala | Leu | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| His | Ala | Ala | Arg | Pro | Asp | Ile | Gln | Met | Thr | Gln | Ser | Pro | Ser | Ser | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Ala | Ser | Val | Gly | Asp | Arg | Val | Thr | Ile | Thr | Cys | Gln | Ala | Ser | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asn | Ile | Tyr | Ser | Phe | Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Lys | Leu | Leu | Ile | Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ser | Arg | Phe | Ser | Gly | Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Ser | Leu | Gln | Pro | Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Arg | Tyr | Ser | Asn | Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Lys | Leu | Thr | Val | Leu | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Gly | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |
| Gly | Gly | Gly | Gly | Ser | Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Gln | Pro | Gly | Gly | Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asp | Phe | Asn | Ser | Asn | Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Lys | Gly | Leu | Glu | Trp | Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr | Tyr | Tyr | Ala | Asn | Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asn | Ser | Lys | Asn | Thr | Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asp | Thr | Ala | Val | Tyr | Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Phe | Lys | Phe | Trp | Gly | Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Met | His |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Thr | Thr | Thr | Pro | Ala | Pro | Arg | Pro | Pro | Thr | Pro | Ala | Pro | Thr | Ile | Ala |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ser | Gln | Pro | Leu | Ser | Leu | Arg | Pro | Glu | Ala | Cys | Arg | Pro | Ala | Ala | Gly |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Gly | Ala | Val | His | Thr | Arg | Gly | Leu | Asp | Phe | Ala | Cys | Asp | Ile | Tyr | Ile |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Trp | Ala | Pro | Leu | Ala | Gly | Thr | Cys | Gly | Val | Leu | Leu | Leu | Ser | Leu | Val |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Ile | Thr | Leu | Tyr | Cys | Arg | Ser | Lys | Arg | Ser | Arg | Leu | Leu | His | Ser | Asp |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Tyr | Met | Asn | Met | Thr | Pro | Arg | Arg | Pro | Gly | Pro | Thr | Arg | Lys | His | Tyr |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Gln | Pro | Tyr | Ala | Pro | Pro | Arg | Asp | Phe | Ala | Ala | Tyr | Arg | Ser | Thr | Arg |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Arg | Val | Lys | Phe | Ser | Arg | Ser | Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     | 400 |     |
| Gln | Asn | Gln | Leu | Tyr | Asn | Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Asp | Val | Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Pro | Gln | Arg | Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Lys | Asp | Lys | Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Arg | Arg | Arg | Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Ala | Thr | Lys | Asp | Thr | Tyr | Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |

Arg

<210> 69

<211> 476

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 69

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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 | Gln | Ala | Ser | Glu | Asn | Ile | Tyr | Ser | Phe |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala | Pro | Lys | Leu | Leu | Ile |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro | Ser | Arg | Phe | Ser | Gly |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile | Ser | Ser | Leu | Gln | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr | Asn | Arg | Tyr | Ser | Asn |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr | Lys | Leu | Thr | Val | Leu |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
|     |     |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile | Asp | Phe | Asn | Ser | Asn |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | Glu | Trp |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn | Thr | Tyr | Tyr | Ala | Asn |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |
| Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Lys | Asn | Thr |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | Tyr |
|     |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr | Phe | Lys | Phe | Trp | Gly | 225 | 230 | 235 | 240 |
| Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Met | His | Thr | Thr | Thr | Pro | Ala |     | 245 | 250 | 255 |
| Pro | Arg | Pro | Pro | Thr | Pro | Ala | Pro | Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser | 260 | 265 |     | 270 |
| Leu | Arg | Pro | Glu | Ala | Cys | Arg | Pro | Ala | Ala | Gly | Gly | Ala | Val | His | Thr | 275 | 280 | 285 |     |
| Arg | Gly | Leu | Asp | Phe | Ala | Cys | Asp | Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala | 290 | 295 | 300 |     |
| Gly | Thr | Cys | Gly | Val | Leu | Leu | Leu | Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys | 305 | 310 | 315 | 320 |
| Arg | Ser | Lys | Arg | Ser | Arg | Leu | Leu | His | Ser | Asp | Tyr | Met | Asn | Met | Thr | 325 | 330 |     | 335 |
| Pro | Arg | Arg | Pro | Gly | Pro | Thr | Arg | Lys | His | Tyr | Gln | Pro | Tyr | Ala | Pro | 340 | 345 |     | 350 |
| Pro | Arg | Asp | Phe | Ala | Ala | Tyr | Arg | Ser | Thr | Arg | Arg | Val | Lys | Phe | Ser | 355 | 360 | 365 |     |
| Arg | Ser | Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly | Gln | Asn | Gln | Leu | Tyr | 370 | 375 | 380 |     |
| Asn | Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp | Val | Leu | Asp | Lys | 385 | 390 | 395 | 400 |
| Arg | Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Pro | Gln | Arg | Arg | Lys | 405 | 410 |     | 415 |
| Asn | Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys | Asp | Lys | Met | Ala | 420 | 425 |     | 430 |
| Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys | 435 | 440 | 445 |     |
| Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr | 450 | 455 | 460 |     |
| Tyr | Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |     |     |     |     | 465 | 470 | 475 |     |

<210> 70

<211> 224

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 70

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |  |
| Cys | Ser | Cys | Arg | Phe | Pro | Glu | Glu | Glu | Glu | Gly | Gly | Cys | Glu | Leu | Arg |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Val | Lys | Phe | Ser | Arg | Ser | Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly | Gln |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |
| Asn | Gln | Leu | Tyr | Asn | Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp |  |
|     |     | 130 |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |  |
| Val | Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Pro |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Gln | Arg | Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |  |
| Asp | Lys | Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Arg | Arg | Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala |  |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |  |
| Thr | Lys | Asp | Thr | Tyr | Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |

<210> 71

<211> 237

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 71

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg | Arg | Arg | Gly |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Lys | Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Thr | Tyr | Asp | Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |     |     |     |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     |     |

<210> 72  
 <211> 227  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CAR

<400> 72

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | His | Thr | Thr | Thr | Pro | Ala | Pro | Arg | Pro | Pro | Thr | Pro | Ala | Pro | Thr |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Ile | Ala | Ser | Gln | Pro | Leu | Ser | Leu | Arg | Pro | Glu | Ala | Cys | Arg | Pro | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Gly | Gly | Ala | Val | His | Thr | Arg | Gly | Leu | Asp | Phe | Ala | Cys | Asp | Ile |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Tyr | Ile | Trp | Ala | Pro | Leu | Ala | Gly | Thr | Cys | Gly | Val | Leu | Leu | Leu | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu | Val | Ile | Thr | Leu | Tyr | Cys | Arg | Ser | Lys | Arg | Ser | Arg | Leu | Leu | His |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ser | Asp | Tyr | Met | Asn | Met | Thr | Pro | Arg | Arg | Pro | Gly | Pro | Thr | Arg | Lys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| His | Tyr | Gln | Pro | Tyr | Ala | Pro | Pro | Arg | Asp | Phe | Ala | Ala | Tyr | Arg | Ser |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Thr | Arg | Arg | Val | Lys | Phe | Ser | Arg | Ser | Ala | Asp | Ala | Pro | Ala | Tyr | Gln |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gln | Gly | Gln | Asn | Gln | Leu | Tyr | Asn | Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu | Tyr | Asp | Val | Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro | Glu | Met | Gly |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Lys | Pro | Gln | Arg | Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu | Tyr | Asn | Glu |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Leu | Gln | Lys | Asp | Lys | Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Met | Lys |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| Gly | Glu | Arg | Arg | Arg | Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ser | Thr | Ala | Thr | Lys | Asp | Thr | Tyr | Asp | Ala | Leu | His | Met | Gln | Ala | Leu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Pro | Pro | Arg |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 225 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 73  
 <211> 506  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> CAR

<400> 73

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Leu | Pro | Val | Thr | Ala | Leu | Leu | Leu | Pro | Leu | Ala | Leu | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| His | Ala | Ala | Arg | Pro | Asp | Ile | Gln | Met | Thr | Gln | Ser | Pro | Ser | Ser | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Ala | Ser | Val | Gly | Asp | Arg | Val | Thr | Ile | Thr | Cys | Gln | Ala | Ser | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asn | Ile | Tyr | Ser | Phe | Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro | Lys | Leu | Leu | Ile | Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ser | Arg | Phe | Ser | Gly | Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Ser | Leu | Gln | Pro | Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Arg | Tyr | Ser | Asn | Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Lys | Leu | Thr | Val | Leu | Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Gly | Gly | Gly | Ser | Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Val | Gln | Pro | Gly | Gly | Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asp | Phe | Asn | Ser | Asn | Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Lys | Gly | Leu | Glu | Trp | Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr | Tyr | Tyr | Ala | Asn | Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Asn | Ser | Lys | Asn | Thr | Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asp | Thr | Ala | Val | Tyr | Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Phe | Lys | Phe | Trp | Gly | Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Asn | Trp |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |
| Ser | His | Pro | Gln | Phe | Glu | Lys | Met | His | Thr | Thr | Thr | Pro | Ala | Pro | Arg |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Pro | Pro | Thr | Pro | Ala | Pro | Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser | Leu | Arg |
|     |     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Pro | Glu | Ala | Cys | Arg | Pro | Ala | Ala | Gly | Gly | Ala | Val | His | Thr | Arg | Gly |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Leu | Asp | Phe | Ala | Cys | Asp | Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala | Gly | Thr |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Cys | Gly | Val | Leu | Leu | Leu | Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys | Arg | Ser |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Lys | Arg | Ser | Arg | Leu | Leu | His | Ser | Asp | Tyr | Met | Asn | Met | Thr | Pro | Arg |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Arg | Pro | Gly | Pro | Thr | Arg | Lys | His | Tyr | Gln | Pro | Tyr | Ala | Pro | Pro | Arg |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Asp | Phe | Ala | Ala | Tyr | Arg | Ser | Thr | Arg | Arg | Val | Lys | Phe | Ser | Arg | Ser |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ala | Asp | Ala | Pro | Ala | Tyr | Gln | Gln | Gly | Gln | Asn | Gln | Leu | Tyr | Asn | Glu |  |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |  |
| Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp | Val | Leu | Asp | Lys | Arg | Arg |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |
| Gly | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Pro | Gln | Arg | Arg | Lys | Asn | Pro |  |
|     |     | 435 |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |  |
| Gln | Glu | Gly | Leu | Tyr | Asn | Glu | Leu | Gln | Lys | Asp | Lys | Met | Ala | Glu | Ala |  |
|     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |     |  |
| Tyr | Ser | Glu | Ile | Gly | Met | Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys | Gly | His |  |
| 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     |     | 480 |  |
| Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr | Tyr | Asp |  |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |  |
| Ala | Leu | His | Met | Gln | Ala | Leu | Pro | Pro | Arg |     |     |     |     |     |     |  |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     |     |     |     |  |

<210> 74

<211> 485

<212> PRT

<213> Artificial Sequence

<220>

<223> CAR

<400> 74

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| 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 | Gln | Ala | Ser | Glu | Asn | Ile | Tyr | Ser | Phe |  |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |  |
| Leu | Ala | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala | Pro | Lys | Leu | Leu | Ile |  |
|     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |  |
| Tyr | Ser | Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro | Ser | Arg | Phe | Ser | Gly |  |
|     | 50  |     |     |     | 55  |     |     | 60  |     |     |     |     |     |     |     |  |
| Ser | Gly | Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile | Ser | Ser | Leu | Gln | Pro |  |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |  |
| Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr | Asn | Arg | Tyr | Ser | Asn |  |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |  |
| Pro | Asp | Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr | Lys | Leu | Thr | Val | Leu |  |
|     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |  |
| Gly | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser |  |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |  |
| Glu | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |  |
|     | 130 |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |  |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Ile | Asp | Phe | Asn | Ser | Asn |  |
| 145 |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |     |  |
| Tyr | Tyr | Met | Cys | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | Glu | Trp |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |  |
| Ile | Gly | Cys | Ile | Tyr | Val | Gly | Ser | His | Val | Asn | Thr | Tyr | Tyr | Ala | Asn |  |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Trp | Ala | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Lys | Asn | Thr |  |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Val | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | Tyr |  |
|     | 210 |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |  |
| Tyr | Cys | Ala | Thr | Ser | Gly | Ser | Ser | Val | Leu | Tyr | Phe | Lys | Phe | Trp | Gly |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |
| Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Asn | Trp | Ser | His | Pro | Gln |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     | 255 |     |
| Glu | Lys | Met | His | Thr | Thr | Thr | Pro | Ala | Pro | Arg | Pro | Pro | Thr | Pro |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |
| Pro | Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser | Leu | Arg | Pro | Glu | Ala | Cys |
|     |     | 275 |     |     |     |     | 280 |     |     |     | 285 |     |     |     |
| Pro | Ala | Ala | Gly | Gly | Ala | Val | His | Thr | Arg | Gly | Leu | Asp | Phe | Ala |
|     | 290 |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Asp | Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala | Gly | Thr | Cys | Gly | Val | Leu |
| 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Leu | Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys | Arg | Ser | Lys | Arg | Ser | Arg |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Leu | His | Ser | Asp | Tyr | Met | Asn | Met | Thr | Pro | Arg | Arg | Pro | Gly | Pro |
|     |     |     | 340 |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Arg | Lys | His | Tyr | Gln | Pro | Tyr | Ala | Pro | Pro | Arg | Asp | Phe | Ala | Ala |
|     | 355 |     |     |     |     |     | 360 |     |     |     | 365 |     |     |     |
| Arg | Ser | Thr | Arg | Arg | Val | Lys | Phe | Ser | Arg | Ser | Ala | Asp | Ala | Pro |
|     | 370 |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Tyr | Gln | Gln | Gly | Gln | Asn | Gln | Leu | Tyr | Asn | Glu | Leu | Asn | Leu | Gly |
| 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Arg | Glu | Glu | Tyr | Asp | Val | Leu | Asp | Lys | Arg | Arg | Gly | Arg | Asp | Pro |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Met | Gly | Gly | Lys | Pro | Gln | Arg | Arg | Lys | Asn | Pro | Gln | Glu | Gly | Leu |
|     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Asn | Glu | Leu | Gln | Lys | Asp | Lys | Met | Ala | Glu | Ala | Tyr | Ser | Glu | Ile |
|     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Met | Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys | Gly | His | Asp | Gly | Leu | Tyr |
|     | 450 |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr | Tyr | Asp | Ala | Leu | His | Met |
| 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Ala | Leu | Pro | Pro | Arg |     |     |     |     |     |     |     |     |     |     |
|     |     |     | 485 |     |     |     |     |     |     |     |     |     |     |     |

<210> 75  
 <211> 4  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Cys2His2

<400> 75  
 Cys Cys His His  
 1

<210> 76  
 <211> 135  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Peptide comprising a marker moiety and a suicide moiety

<400> 76

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Pro | Tyr | Ser | Asn | Pro | Ser | Leu | Cys | Ser | Gly | Gly | Gly | Gly | Ser | Glu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Leu | Pro | Thr | Gln | Gly | Thr | Phe | Ser | Asn | Val | Ser | Thr | Asn | Val | Ser | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Lys | Pro | Thr | Thr | Thr | Ala | Cys | Pro | Tyr | Ser | Asn | Pro | Ser | Leu | Cys |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ser | Gly | Gly | Gly | Gly | Ser | Pro | Ala | Pro | Arg | Pro | Pro | Thr | Pro | Ala | Pro |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr | Ile | Ala | Ser | Gln | Pro | Leu | Ser | Leu | Arg | Pro | Glu | Ala | Cys | Arg | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ala | Ala | Gly | Gly | Ala | Val | His | Thr | Arg | Gly | Leu | Asp | Phe | Ala | Cys | Asp |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile | Tyr | Ile | Trp | Ala | Pro | Leu | Ala | Gly | Thr | Cys | Gly | Val | Leu | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Leu | Val | Ile | Thr | Leu | Tyr | Cys | Asn | His | Arg | Asn | Arg | Arg | Arg | Val |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Cys | Lys | Cys | Pro | Arg | Pro | Trp |     |     |     |     |     |     |     |     |     |
|     | 130 |     |     |     |     | 135 |     |     |     |     |     |     |     |     |     |

<210> 77

<211> 1479

<212> DNA

<213> Artificial Sequence

<220>

<223> CAR

<400> 77

|            |            |            |            |            |             |     |
|------------|------------|------------|------------|------------|-------------|-----|
| atggctctgc | ctgtgacagc | tctgctgctg | cctctggctc | tgcttcttca | tgccgccaga  | 60  |
| ccatctgagg | tgcagctagt | tgaatctggg | ggaggcctgg | ttcagcctgg | tggtctctctg | 120 |
| agactgtctt | gtgccgccag | cggcatcgac | ttcaacagca | actactacat | gtgctgggtc  | 180 |
| cgacaggccc | ccggcaaagg | acttgaatgg | attggctgca | tctacgtggg | cagccatgtg  | 240 |
| aacacctact | acgcaaactg | ggccaagggc | agattcacca | tcagccggga | caacagcaag  | 300 |
| aacaccgtgt | acctgcagat | gaacagcctg | agagcagaag | atactgccgt | gtactactgt  | 360 |
| gccacatctg | gcagcagcgt | gctgtacttc | aagttctggg | gccagggcac | cctggtcaca  | 420 |
| gtttcttcag | gaggtggagg | ctctggcggt | ggaggaagtg | gtgggggagg | ctctgacatc  | 480 |
| cagatgacac | agagccccag | cagcctgtct | gcctctgtgg | gagacagagt | gaccatcact  | 540 |
| tgccaggcca | gcgagaacat | ctacagcttc | ctggcctggg | accagcagaa | gccaggcaag  | 600 |
| gcccctaagc | tgctgatcta | cagcgcctct | aaactagctg | ccggggtgcc | aagcagattt  | 660 |

|                                                                    |      |
|--------------------------------------------------------------------|------|
| tctggctctg gcagcggcac cgacttcacc ctgaccatat caagcctgca gcctgaggac  | 720  |
| ttcgccacct actactgcca gcagaccaac aggtacagca accccgacat ctacaacgtg  | 780  |
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| ccttacctgg acaacgagag aagcaacggc accatcatcc acatcaaaga gaagcacctc  | 900  |
| tgtcacaccc agagcagccc caagctgttt tgggctcttg tgggtggtggc tggcgtgctg | 960  |
| ttttgttacg gcctgctggt cacagtggcc ctgtgtgtga tttggaccac gcgtaacagc  | 1020 |
| agaagaaaca gaggcggaca gagcgactac atgaacatga cccctagacg gcctggcctg  | 1080 |
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| gccaagttca gcagatccgc cgaaacagcc gccaacttgc aagatcctaa ccagctgtac  | 1200 |
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| gatccagaga tgggcggcaa gcagcagaga agaagaaacc ctcaagaggg cgtgtacaac  | 1320 |
| gctctgcaaa aagacaagat ggccgaggcc tacagcgaga tcggaactaa gggcgaacgc  | 1380 |
| agaagaggca agggccacga tggactgtac cagggcctga gcacagccac caaggacaca  | 1440 |
| tacgatgccc tgcacatgca gacactggcc cctagatag                         | 1479 |

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 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CAR

<400> 78

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     | 115 |     |     |     |     | 120 |     |     |     | 125 |     |     |     |     |
| Tyr | Phe | Lys | Phe | Trp | Gly | Gln | Gly | Thr | Leu | Val | Thr | Val | Ser | Ser | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Gly | Gly | Gly | Gly | Ser | Asp | Ile |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gln | Met | Thr | Gln | Ser | Pro | Ser | Ser | Leu | Ser | Ala | Ser | Val | Gly | Asp | Arg |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Val | Thr | Ile | Thr | Cys | Gln | Ala | Ser | Glu | Asn | Ile | Tyr | Ser | Phe | Leu | Ala |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | Ala | Pro | Lys | Leu | Leu | Ile | Tyr | Ser |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ala | Ser | Lys | Leu | Ala | Ala | Gly | Val | Pro | Ser | Arg | Phe | Ser | Gly | Ser | Gly |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Gly | Thr | Asp | Phe | Thr | Leu | Thr | Ile | Ser | Ser | Leu | Gln | Pro | Glu | Asp |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Phe | Ala | Thr | Tyr | Tyr | Cys | Gln | Gln | Thr | Asn | Arg | Tyr | Ser | Asn | Pro | Asp |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ile | Tyr | Asn | Val | Phe | Gly | Gln | Gly | Thr | Lys | Leu | Thr | Val | Leu | Gly | Met |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| His | Ile | Glu | Phe | Met | Tyr | Pro | Pro | Pro | Tyr | Leu | Asp | Asn | Glu | Arg | Ser |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Asn | Gly | Thr | Ile | Ile | His | Ile | Lys | Glu | Lys | His | Leu | Cys | His | Thr | Gln |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ser | Ser | Pro | Lys | Leu | Phe | Trp | Ala | Leu | Val | Val | Val | Ala | Gly | Val | Leu |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Phe | Cys | Tyr | Gly | Leu | Leu | Val | Thr | Val | Ala | Leu | Cys | Val | Ile | Trp | Thr |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Thr | Arg | Asn | Ser | Arg | Arg | Asn | Arg | Gly | Gly | Gln | Ser | Asp | Tyr | Met | Asn |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Met | Thr | Pro | Arg | Arg | Pro | Gly | Leu | Thr | Arg | Lys | Pro | Tyr | Gln | Pro | Tyr |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Ala | Pro | Ala | Arg | Asp | Phe | Ala | Ala | Tyr | Arg | Pro | Arg | Ala | Lys | Phe | Ser |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Arg | Ser | Ala | Glu | Thr | Ala | Ala | Asn | Leu | Gln | Asp | Pro | Asn | Gln | Leu | Tyr |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Asn | Glu | Leu | Asn | Leu | Gly | Arg | Arg | Glu | Glu | Tyr | Asp | Val | Leu | Glu | Lys |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     | 415 |     |     |
| Lys | Arg | Ala | Arg | Asp | Pro | Glu | Met | Gly | Gly | Lys | Gln | Gln | Arg | Arg | Arg |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Asn | Pro | Gln | Glu | Gly | Val | Tyr | Asn | Ala | Leu | Gln | Lys | Asp | Lys | Met | Ala |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Glu | Ala | Tyr | Ser | Glu | Ile | Gly | Thr | Lys | Gly | Glu | Arg | Arg | Arg | Gly | Lys |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gly | His | Asp | Gly | Leu | Tyr | Gln | Gly | Leu | Ser | Thr | Ala | Thr | Lys | Asp | Thr |
| 465 |     |     |     |     | 470 |     |     |     |     |     |     |     |     |     |     |