

Sequence Listing

<110> Carsgen therapeutics limited

<120> ANTIBODY AGAINST GLYPICAN-3 AND APPLICATION THEREOF

<130> 165497 PCWO

<150> 201510481235.1

<151> 2015-08-03

<160> 98

<170> PatentIn version 3.3

<210> 1

<211> 729

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Nucleotide sequence of single chain antibody P1B12E

<400> 1

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tcctgcaagg cttctggagg caccttcagc agctatgcta tcagctgggt gcgacaggcc      120
cctggacaag ggcttgagtg gatgggaggg atcatcccta tctttggtac agcaaactac      180
gcacagaagt tccagggcag agtcacgatt accgcggacg aatccacgag cacagcctac      240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gaagtcccca      300
tttagtggga cccccgggga gtactggggc agaggaaccc tggtcaccgt ctcgagtgg      360
ggaggcgggt caggcggagg tggttctggc ggtggcggat cggaaattgt gttgacacag      420
tctccaggca ccctgtcttt atctccaggg gaaagagcca ccctctcctg cagggccagt      480
cagagtgtta gcagcaacta cttagcctgg tatcagcaga aacctggcca ggctcccaga      540
ctcctcatct atggtgcatc ccgcagggcc actggcatcc cagacagggt cagtggcagt      600
gggtctggga cagacttcac tctcaccatc agcagagtgg agcctgaaga ctttgagtg      660
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atcaaacgt                                         729
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<210> 2

<211> 243

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of single chain antibody P1B12E

<400> 2

Sequence Listing

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

Sequence Listing

<210> 3
 <211> 741
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Nucleotide sequence of single chain antibody P7D4

<400> 3
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 ccaggcaagg ggctggagtg ggtctcagct attagtggta gtggtggtag cacatactac 180
 gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
 ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcga 300
 cgaggggagcc acgctgatgc ttttgatgtc tggggccaag gaaccctgggt caccgtctcg 360
 agtgggtggag gcggttcagg cggaggtggg tctggcggtg gcggatcgca gtctgccctg 420
 actcagcctc cctccgcgtc cgggtctcct ggacagtcag tcaccatctc ctgactgga 480
 accagcagtg acgttggtgg ttataactat gtctcctggg accaacagta cccaggcaaa 540
 gcccccaaac tcctcatcta tggtaacagc aatcggccct caggggtccc tgaccgattc 600
 tctggctcca agtctggcac ctacgcctcc ctggccatca ctgggctcca ggctgaggat 660
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<210> 4
 <211> 247
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> amino acid sequence of single chain antibody P7D4

<400> 4
 Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Sequence Listing

Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala Phe Asp Val Trp Gly
100 105 110

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

Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Ala Leu Thr Gln Pro Pro
130 135 140

Ser Ala Ser Gly Ser Pro Gly Gln Ser Val Thr Ile Ser Cys Thr Gly
145 150 155 160

Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp Tyr Gln Gln
165 170 175

Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly Asn Ser Asn Arg
180 185 190

Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser
195 200 205

Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Gly Ala Asp Tyr
210 215 220

Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Arg Val Val Phe Gly Gly Gly
225 230 235 240

Thr Lys Val Thr Val Leu Gly
245

<210> 5
<211> 28
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 5

Sequence Listing

acagtgctag cacaggtgca gctggtgg 28

<210> 6
<211> 27
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 6
ttgtcggatc cacgtttgat ctccagc 27

<210> 7
<211> 0
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 7
<210> 8
<211> 27
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 8
ttgtcggatc cacctaggac ggtgacc 27

<210> 9
<211> 30
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Nucleotide sequence of P7D4 VH CDR1

<400> 9
ggattcacct tcagtagcta tgctatgcac 30

<210> 10
<211> 10
<212> PRT
<213> Artificial sequence

<220>

Sequence Listing

<221> MISC_FEATURE

<223> amino acid sequence of P7D4 VH CDR1

<400> 10

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

<210> 11

<211> 51

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Nucleotide sequence of P7D4 VH CDR2

<400> 11

gctattagtg gtagtggtgg tagcacatac tacgcagact ccgtgaaggg c 51

<210> 12

<211> 17

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of P7D4 VH CDR2

<400> 12

Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 13

<211> 36

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Nucleotide sequence of P7D4 VH CDR3

<400> 13

gatcgacgag ggagccacgc tgatgctttt gatgtc 36

<210> 14

<211> 12

<212> PRT

<213> Artificial sequence

Sequence Listing

<220>

<221> MISC_FEATURE

<223> amino acid sequence of P7D4 VH CDR3

<400> 14

Asp Arg Arg Gly Ser His Ala Asp Ala Phe Asp Val
1 5 10

<210> 15

<211> 42

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Nucleotide sequence of P7D4 VL CDR1

<400> 15

actggaacca gcagtgacgt tgggtggttat aactatgtct cc

42

<210> 16

<211> 14

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of P7D4 VL CDR1

<400> 16

Thr Gly Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser
1 5 10

<210> 17

<211> 21

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Nucleotide sequence of P7D4 VL CDR2

<400> 17

ggtaacagca atcggccctc a

21

<210> 18

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of P7D4 VL CDR2

Sequence Listing

<400> 18

Gly Asn Ser Asn Arg Pro Ser
1 5

<210> 19

<211> 30

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Nucleotide sequence of P7D4 VL CDR3

<400> 19

cagtcctatg acagcagcct gcgtgtggta

30

<210> 20

<211> 10

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of P7D4 VL CDR3

<400> 20

Gln Ser Tyr Asp Ser Ser Leu Arg Val Val
1 5 10

<210> 21

<211> 24

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Primer

<400> 21

caacgtgaaa aaattattat tcgc

24

<210> 22

<211> 63

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Primer

<220>

<221> misc_feature

Sequence Listing

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<222> (33)..(34)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (45)..(46)
<223> n is a, c, g, or t

<400> 22
ccagcccctt gcctggagcc tggcggaccc amnncatagc atamnactg aaggtgaatc 60
cag 63

<210> 23
<211> 72
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<220>
<221> misc_feature
<222> (31)..(32)
<223> n is a, c, g, or t

<220>
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<222> (40)..(41)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (43)..(44)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (47)..(47)
<223> n is a, c, g, or t

<220>
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<222> (49)..(50)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (52)..(53)
<223> n is a, c, g, or t

<400> 23
gctccaggca aggggctgga gtgggtctca nnkattagtn nknkgntnn knnkacatac 60
tacgcagact cc 72

<210> 24
<211> 741
<212> DNA

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Sequence Listing

<213> Artificial sequence

<220>

<221> misc_feature

<223> Nucleotide sequence of am4

<400> 24

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ccaggcaagg ggctggagtg ggtctcatct attagtagta gtggtgaaag tacatactac      180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cagctgtat      240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcga      300
cgagggagcc acgtgatgc ttttgatgtc tggggccaag gaaccctggt caccgtctcg      360
agtgggtggag gcggttcagg cggaggtggt tctggcgggt gcggatcgca gtctgccctg      420
actcagcctc cctccgcgtc cgggtctcct ggacagtcag tcaccatctc ctgactgga      480
accagcagtg acgttggtgg ttataactat gtctcctggt accaacagta cccaggcaaa      540
gccccaaaac tcctcatcta tggtaacagc aatcggccct caggggtccc tgaccgattc      600
tctggctcca agtctggcac ctcagcctcc ctggccatca ctgggctcca ggctgaggat      660
ggggctgatt attactgcca gtcctatgac agcagcctgc gtgtggtatt cggcggaggg      720
accaaggtca ccgtcctagg t                                     741
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<210> 25

<211> 247

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of am4

<400> 25

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

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

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

Ser Ser Ile Ser Ser Ser Gly Glu Ser Thr Tyr Tyr Ala Asp Ser Val
50          55          60
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Sequence Listing

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

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

Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala Phe Asp Val Trp Gly
100 105 110

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

Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Ala Leu Thr Gln Pro Pro
130 135 140

Ser Ala Ser Gly Ser Pro Gly Gln Ser Val Thr Ile Ser Cys Thr Gly
145 150 155 160

Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp Tyr Gln Gln
165 170 175

Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly Asn Ser Asn Arg
180 185 190

Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser
195 200 205

Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Gly Ala Asp Tyr
210 215 220

Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Arg Val Val Phe Gly Gly Gly
225 230 235 240

Thr Lys Val Thr Val Leu Gly
245

<210> 26
<211> 741
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Nucleotide sequence of am14

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tcctgtgcag cctctggatt caccttcagt acttatgcta tggcttgggt ccgccaggct 120

Sequence Listing

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ccaggcaagg ggctggagtg ggtctcagaa attagtagtt ctggtagtag gacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcga 300
cgagggagcc acgctgatgc ttttgatgtc tggggccaag gaaccctggt caccgtctcg 360
agtgggtggag gcgggttcagg cggaggtggt tctggcggtg gcggatcgca gtctgccctg 420
actcagcctc cctccgcgtc cgggtctcct ggacagtcag tcaccatctc ctgcactgga 480
accagcagtg acgttggtgg ttataactat gtctcctggt accaacagta cccaggcaaa 540
gcccccaaac tcctcatcta tggtaacagc aatcggccct caggggtccc tgaccgattc 600
tctggctcca agtctggcac ctcagcctcc ctggccatca ctgggctcca ggctgaggat 660
ggggctgatt attactgcca gtcctatgac agcagcctgc gtgtggtatt cggcggaggg 720
accaaggtca ccgtcctagg t 741

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<210> 27
<211> 247
<212> PRT
<213> Artificial sequence

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<220>
<221> MISC_FEATURE
<223> amino acid sequence of am14
<400> 27

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

```

```

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

```

```

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

```

```

Ser Glu Ile Ser Ser Ser Gly Ser Arg Thr Tyr Tyr Ala Asp Ser Val
50          55          60

```

```

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

```

```

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

```

```

Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala Phe Asp Val Trp Gly
100         105         110

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Sequence Listing

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

Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Ala Leu Thr Gln Pro Pro
130 135 140

Ser Ala Ser Gly Ser Pro Gly Gln Ser Val Thr Ile Ser Cys Thr Gly
145 150 155 160

Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp Tyr Gln Gln
165 170 175

Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly Asn Ser Asn Arg
180 185 190

Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser
195 200 205

Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Gly Ala Asp Tyr
210 215 220

Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Arg Val Val Phe Gly Gly Gly
225 230 235 240

Thr Lys Val Thr Val Leu Gly
245

<210> 28
<211> 741
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Nucleotide sequence of am20

<400> 28
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ccaggcaagg ggctggagtg ggtctcagcg attagtatgt ctggtgaatc tacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcga 300
cgagggagcc acgctgatgc ttttgatgtc tggggccaag gaaccctgggt caccgtctcg 360
agtgggtggag gcggttcagg cggaggtggg tctggcggtg gcggatcgca gtctgccctg 420
actcagcctc cctccgcgtc cgggtctcct ggacagtcag tcaccatctc ctgcactgga 480

Sequence Listing

accagcagtg acgttggtgg ttataactat gtctcctggt accaacagta cccaggcaaa 540
 gccccaaac tcctcatcta tggtaacagc aatcggcctt caggggtccc tgaccgattc 600
 tctgggtcca agtctggcac ctcagcctcc ctggccatca ctggggtcca ggctgaggat 660
 ggggctgatt attactgcca gtcctatgac agcagcctgc gtgtggtatt cggcggaggg 720
 accaaggtca ccgtcctagg t 741

<210> 29
 <211> 247
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> amino acid sequence of am20

<400> 29

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

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

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

Ser Ala Ile Ser Met Ser Gly Glu Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60

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

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

Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala Phe Asp Val Trp Gly
 100 105 110

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

Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Ala Leu Thr Gln Pro Pro
 130 135 140

Ser Ala Ser Gly Ser Pro Gly Gln Ser Val Thr Ile Ser Cys Thr Gly
 145 150 155 160

Sequence Listing

Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp Tyr Gln Gln
165 170 175

Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly Asn Ser Asn Arg
180 185 190

Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser
195 200 205

Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Gly Ala Asp Tyr
210 215 220

Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Arg Val Val Phe Gly Gly Gly
225 230 235 240

Thr Lys Val Thr Val Leu Gly
245

<210> 30
<211> 741
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Nucleotide sequence of am35

<400> 30
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ccaggcaagg ggctggagtg ggtctcagct attagtagta gtggtggttag cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcga 300
cgagggagcc acgctgatgc ttttgatgtc tggggccaag gaaccctggg caccgtctcg 360
agtgggtggag gcggttcagg cggaggtggg tctggcgggt gcggatcgca gtctgccctg 420
actcagcctc cctccgcgtc cgggtctcct ggacagtcag tcaccatctc ctgcactgga 480
accagcagtg acgttggtca taagtttcct gtctcctggg accaacagta cccaggcaaa 540
gccccaaac tcctcatcta taagaatctt ttgcggccct caggggtccc tgaccgattc 600
tctgggtcca agtctggcac ctcagcctcc ctggccatca ctggggtcca ggctgaggat 660
ggggctgatt attactgcca gtcctatgac agcagcctgc gtgtggtatt cggcggaggg 720
accaaggtca ccgtcctagg t 741

<210> 31

Sequence Listing

<211> 247
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of am35

<400> 31

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

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

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

Ser Ala Ile Ser Ser Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala Phe Asp Val Trp Gly
100 105 110

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

Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Ala Leu Thr Gln Pro Pro
130 135 140

Ser Ala Ser Gly Ser Pro Gly Gln Ser Val Thr Ile Ser Cys Thr Gly
145 150 155 160

Thr Ser Ser Asp Val Gly His Lys Phe Pro Val Ser Trp Tyr Gln Gln
165 170 175

Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Lys Asn Leu Leu Arg
180 185 190

Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser
195 200 205

Sequence Listing

Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Gly Ala Asp Tyr
 210 215 220

Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Arg Val Val Phe Gly Gly Gly
 225 230 235 240

Thr Lys Val Thr Val Leu Gly
 245

<210> 32
 <211> 741
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Nucleotide sequence of am42

<400> 32
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 tcctgtgcag cctctggatt caccttcagt agctatgcta tgcactgggt ccgccaggct 120
 ccaggcaagg ggctggagtg ggtctcagct attagtagta gtggtggtag cacatactac 180
 gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cagctgtat 240
 ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcga 300
 cgagggagcc acgctgatgc ttttgatgtc tggggccaag gaaccctggt caccgtctcg 360
 agtgggtggag gcggttcagg cggaggtggt tctggcgggt gcggatcgca gtctgccctg 420
 actcagcctc cctccgcgtc cgggtctcct ggacagtcag tcaccatctc ctgcactgga 480
 accagcagtg acgttgggtct tatgcataat gtctcctggt accaacagta cccaggcaaa 540
 gccccaaac tcctcatcta taagtcttcg tctcggccct caggggtccc tgaccgattc 600
 tctgggtcca agtctggcac ctcagcctcc ctggccatca ctgggctcca ggctgaggat 660
 ggggctgatt attactgcca gtcctatgac agcagcctgc gtgtggtatt cggcggaggg 720
 accaaggtca ccgtcctagg t 741

<210> 33
 <211> 247
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> amino acid sequence of am42

<400> 33
 Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg

Sequence Listing

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

Sequence Listing

<210> 34
 <211> 741
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Nucleotide sequence of T2-23

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<400> 34
caggtgcagc tgcaggagtc cgggggaggc ttagttcagc ctgggaggtc cctgagactc      60
tcctgtgcag cctctggatt caccttcagt agctatgcta tgcactgggt ccgccaggct      120
ccaggcaagg ggctggagtg ggtctcagct attagtagta gtggtcgtag cacatactac      180
gcagactccg tggagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat      240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcga      300
cgagggagcc acgctgatgc tttaaattgtc tggggccaag gaaccctggt caccgtctcg      360
agtgggtggag gcggttcagg cggaggtggt tctggcgggtg gcggatcgca gtctgccctg      420
actcagcctc cctccgcgtc cgggtctcct ggacagtcag tcaccatctc ctgcactgga      480
accagcagtg acgttggtgg ttataactat gtctcctggt accaacagta cccaggcaaa      540
gccccaaac tcctcatcta tggtaacagc aatcggccct caggggtccc tgaccgattc      600
tctggctcca agtctggcac ctacgcctcc ctggccatca ctgggctcca ggctgaggat      660
ggggctgatt attactgcca gtcctatgac agcagcctgc gtgtggtatt cggcggaggg      720
accaaggtca ccgtcctagg t                                     741
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<210> 35
 <211> 247
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> amino acid sequence of T2-23

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<400> 35

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

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

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

Ser Ala Ile Ser Ser Ser Gly Arg Ser Thr Tyr Tyr Ala Asp Ser Val
```

Sequence Listing

50

55

60

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

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

Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala Leu Asn Val Trp Gly
100 105 110

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

Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Ala Leu Thr Gln Pro Pro
130 135 140

Ser Ala Ser Gly Ser Pro Gly Gln Ser Val Thr Ile Ser Cys Thr Gly
145 150 155 160

Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val Ser Trp Tyr Gln Gln
165 170 175

Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Gly Asn Ser Asn Arg
180 185 190

Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser
195 200 205

Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu Asp Gly Ala Asp Tyr
210 215 220

Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Arg Val Val Phe Gly Gly Gly
225 230 235 240

Thr Lys Val Thr Val Leu Gly
245

<210> 36
<211> 36
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 36
ctccacgccg ccaggccgca ggtgcagctg caggag

36

Sequence Listing

<210> 37
 <211> 38
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 37
 cggcgcctggc gtcgtggtac ctaggacggt gaccttgg 38

<210> 38
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 38
 gcaggggaaa gaatagtaga ca 22

<210> 39
 <211> 0
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> CGGCCTGGCGGCGTGGAG

<400> 39
 <210> 40
 <211> 18
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 40
 accacgacgc cagcgccg 18

<210> 41
 <211> 48
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature

Sequence Listing

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<223> Primer

<400> 41
gaggtcgacc tacgcggggg cgtctgcgct cctgctgaac ttcactct 48

<210> 42
<211> 18
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 42
accacgacgc cagcgccg 18

<210> 43
<211> 44
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 43
aatccagagg ttgattgtcg acctagcgag ggggcagggc ctgc 44

<210> 44
<211> 1442
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Nucleotide sequence of P7D4 scFv-|ÄZ

<400> 44
gcaggggaaa gaatagtaga cataatagca acagacatac aaactaaaga attacaaaaa 60
caaattacaa aaattcaaaa ttttatcgat ggctccgggtg cccgtcagtg ggcagagcgc 120
acatcgccca cagtccccga gaagttgggg ggaggggtcg gcaattgaac cgggtgcctag 180
agaaggtggc gcggggtaaa ctgggaaagt gatgtcgtgt actggctccg cctttttccc 240
gaggggtggg gagaaccgta tataagtgc gtagtcgccg tgaacgttct ttttcgcaac 300
gggtttgccg ccagaacaca ggtgtcgtga cgcggatcca ggcctaagct tacgcgtcct 360
agcgctaccg gtcgccacca tggccttacc agtgaccgcc ttgctcctgc cgctggcctt 420
gctgctccac gccgccaggc cgcaggtgca gctgcaggag tccgggggag gcttagttca 480
gcctgggagg tccctgagac tctcctgtgc agcctctgga ttcaccttca gtagctatgc 540

```

Sequence Listing

tatgcactgg gtccgccagg ctccaggcaa ggggctggag tgggtctcag ctattagtgg	600
tagtgggtgg agcacatact acgcagactc cgtgaagggc cggttcacca tctccagaga	660
caattccaag aacacgctgt atctgcaa at gaacagcctg agagccgagg acacggccgt	720
atattactgt gcgaaagatc gacgaggag ccacgctgat gcttttgatg tctggggcca	780
aggaaccctg gtcaccgtct cgagtgggtg aggcgggttca ggcggagggtg gttctggcgg	840
tggcggatcg cagtctgccc tgactcagcc tccctccgcg tccgggtctc ctggacagtc	900
agtcaccatc tcctgcactg gaaccagcag tgacgttggg ggttataact atgtctcctg	960
gtaccaacag taccaggca aagcccccaa actcctcatc tatggtaaca gcaatcggcc	1020
ctcaggggtc cctgaccgat tctctggctc caagtctggc acctcagcct ccctggccat	1080
cactgggctc caggctgagg atggggctga ttattactgc cagtcctatg acagcagcct	1140
gcgtgtggta ttcggcggag ggaccaaggt caccgtccta ggtaccacga cgccagcgcc	1200
gcgaccacca acaccggcgc ccaccatcgc gtcgcagccc ctgtccctgc gccagaggc	1260
gtgccggcca gcggcggggg gcgcagtga cagaggggg ctggacttcg cctgtgatat	1320
ctacatctgg gcgcccttgg ccgggacttg tggggtcctt ctctgtcac tggttatcac	1380
cagagtgaag ttcagcagga gcgcagacgc cccgcgtag gtcgacaatc aacctctgga	1440
tt	1442

<210> 45
 <211> 1745
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Nucleotide sequence of P7D4 scFv-Z

<400> 45	
gcaggggaaa gaatagtaga cataatagca acagacatac aaactaaaga attacaaaaa	60
caaattacaa aaattcaaaa ttttatcgat ggctccggtg cccgtcagtg ggcagagcgc	120
acatcgccca cagtccccga gaagttgggg ggaggggtcg gcaattgaac cgggtgcctag	180
agaaggtggc gcggggtaaa ctgggaaagt gatgtcgtgt actggctccg cttttttccc	240
gaggggtggg gagaaccgta tataagtga gtagtcgccg tgaacgttct ttttcgcaac	300
gggtttgccg ccagaacaca ggtgtcgtga cgcggatcca ggcctaagct tacgcgtcct	360
agcgctaccg gtcgccacca tggccttacc agtgaccgcc ttgctcctgc cgctggcctt	420
gctgtccac gccgccaggc cgcaggtgca gctgcaggag tccgggggag gcttagttca	480
gcctgggagg tccctgagac tctcctgtgc agcctctgga ttcaccttca gtagctatgc	540
tatgcactgg gtccgccagg ctccaggcaa ggggctggag tgggtctcag ctattagtgg	600

Sequence Listing

tagtggtggt agcacatact acgcagactc cgtgaagggc cggttcacca tctccagaga	660
caattccaag aacacgctgt atctgcaa at gaacagcctg agagccgagg acacggccgt	720
atattactgt gcgaaagatc gacgagggag ccacgctgat gcttttgatg tctggggcca	780
aggaaccctg gtcaccgtct cgagtgggtg aggcgggttca ggcggaggtg gttctggcgg	840
tggcgggatcg cagtctgccc tgactcagcc tccctccgcg tccgggtctc ctggacagtc	900
agtcaccatc tcctgactg gaaccagcag tgacgttggt gggtataact atgtctcctg	960
gtaccaacag taccagggca aagcccccaa actcctcatc tatggtaaca gcaatcggcc	1020
ctcaggggtc cctgaccgat tctctggctc caagtctggc acctcagcct ccctggccat	1080
cactgggctc caggctgagg atggggctga ttattactgc cagtcctatg acagcagcct	1140
gcgtgtggta ttcggcggag ggaccaaggt caccgtccta ggtaccacga cgccagcgcc	1200
gcgaccacca acaccggcgc ccaccatcgc gtcgcagccc ctgtccctgc gccagaggc	1260
gtgccggcca gcggcggggg gcgcagtgca cagcaggggg ctggacttcg cctgtgatat	1320
ctacatctgg gcgcccttgg ccgggacttg tggggtcctt ctctgtcac tggttatcac	1380
cagagtgaag ttcagcagga gcgcagacgc ccccgctac cagcagggcc agaaccagct	1440
ctataacgag ctcaatctag gacgaagaga ggagtacgat gttttggaca agagacgtgg	1500
ccgggaccct gagatggggg gaaagccgca gagaaggaag aaccctcagg aaggcctgta	1560
caatgaactg cagaaagata agatggcgga ggcctacagt gagattggga tgaaaggcga	1620
gcgccggagg ggcaaggggc acgatggcct ttaccagggc ctcagtacag ccaccaagga	1680
cacctacgac gcccttcaca tgcaggccct gcccctcgc taggtcgaca atcaacctct	1740
ggatt	1745

<210> 46
 <211> 1877
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Nucleotide sequence of P7D4 scFv-BBZ

<400> 46	
gcaggggaaa gaatagtaga cataatagca acagacatac aaactaaaga attacaaaaa	60
caaattacaa aaattcaaaa ttttatcgat ggctccgggtg cccgtcagtg ggcagagcgc	120
acatcgccca cagtccccga gaagttgggg ggaggggtcg gcaattgaac cgggtgcctag	180
agaaggtggc gcggggtaaa ctgggaaagt gatgtcgtgt actggctccg ctttttccc	240
gaggggtggg gagaaccgta tataagtgca gtagtcgccg tgaacgttct ttttcgcaac	300

Sequence Listing

```

gggtttgccg ccagaacaca ggtgtcgtga cgcggatcca ggcctaagct tacgcgtcct 360
agcgctaccg gtcgccacca tggccttacc agtgaccgcc ttgctcctgc cgctggcctt 420
gctgctccac gccgccaggc cgcaggtgca gctgcaggag tccgggggag gcttagttca 480
gcctgggagg tccctgagac tctcctgtgc agcctctgga ttcaccttca gtagctatgc 540
tatgcactgg gtccgccagg ctccaggcaa ggggctggag tgggtctcag ctattagtgg 600
tagtggtggt agcacatact acgcagactc cgtgaagggc cggttcacca tctccagaga 660
caattccaag aacacgctgt atctgcaaat gaacagcctg agagccgagg acacggccgt 720
atattactgt gcgaaagatc gacgaggagg ccacgctgat gcttttgatg tctggggcca 780
aggaaccctg gtcaccgtct cgagtgggtg aggcggttca ggcggagggtg gttctggcgg 840
tggcggatcg cagtctgccc tgactcagcc tccctccgcg tccgggtctc ctggacagtc 900
agtcaccatc tcctgactg gaaccagcag tgacgttggg gggtataact atgtctcctg 960
gtaccaacag taccagga aagccccaa actcctcatc tatggtaaca gcaatcggcc 1020
ctcaggggtc cctgaccgat tctctggctc caagtctggc acctcagcct ccctggccat 1080
cactggggtc caggctgagg atggggctga ttattactgc cagtcctatg acagcagcct 1140
gcgtgtggta ttcggcggag ggaccaaggt caccgtccta ggtaccacga cgccagcgcc 1200
gcgaccacca acaccggcgc ccaccatcgc gtcgcagccc ctgtccctgc gccagaggc 1260
gtgccggcca gcggcggggg gcgcagtgca cagagggggg ctggacttcg cctgtgatat 1320
ctacatctgg gcgcccttgg ccgggacttg tggggtcctt ctctgtcac tggttatcac 1380
cctttactgc aaacggggca gaaagaaact cctgtatata ttcaaacaac cttttatgag 1440
accagtacaa actactcaag aggaagatgg ctgtagctgc cgatttccag aagaagaaga 1500
aggaggatgt gaactgagag tgaagttcag caggagcgca gacgccccg cgtacaagca 1560
gggccagaac cagctctata acgagctcaa tctaggacga agagaggagt acgatgtttt 1620
ggacaagaga cgtggccggg accctgagat ggggggaaag ccgagaagga agaaccctca 1680
ggaaggcctg tacaatgaac tgcagaaaga taagatggcg gaggcctaca gtgagattgg 1740
gatgaaaggc gagcgccgga ggggcaaggg gcacgatggc ctttaccagg gtctcagtac 1800
agccaccaag gacacctacg acgcccttca catgcaggcc ctgccccctc gctaggtcga 1860
caatcaacct ctggatt 1877

```

<210> 47
<211> 1886
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature

Sequence Listing

<223> Nucleotide sequence of P7D4 scFv-28Z

<400> 47

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gcaggggaaa gaatagtaga cataatagca acagacatac aaactaaaga attacaaaaa    60
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acatcgccca cagtccccga gaagttgggg ggaggggtcg gcaattgaac cggcgcctag    180
agaaggtggc gcggggtaaa ctgggaaagt gatgtcgtgt actggctccg cttttttccc    240
gaggggtggg gagaaccgta tataagtgca gtagtcgccg tgaacgttct ttttcgcaac    300
gggtttgccg ccagaacaca ggtgtcgtga cgcggatcca ggcctaagct tacgcgtcct    360
agcgctaccg gtcgccacca tggccttacc agtgaccgcc ttgctcctgc cgctggcctt    420
gctgctccac gccgccaggc cgcaggtgca gctgcaggag tccgggggag gcttagttca    480
gcctgggagg tccctgagac tctcctgtgc agcctctgga ttcacattca gtagctatgc    540
tatgcactgg gtccgccagg ctccaggcaa ggggctggag tgggtctcag ctattagtgg    600
tagtggtggt agcacatact acgcagactc cgtgaagggc cggttcacca tctccagaga    660
caattccaag aacacgctgt atctgcaa atgaacagcctg agagccgagg acacggccgt    720
atattactgt gcgaaagatc gacgaggagg ccacgctgat gcttttgatg tctggggcca    780
aggaaccctg gtcaccgtct cgagtgggtg aggcgggttca ggcggagggtg gttctggcgg    840
tggcggatcg cagtctgccc tgactcagcc tccctccgcg tccgggtctc ctggacagtc    900
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gtaccaacag taccagga aagccccaa actcctcatc tatggtaaca gcaatcggcc    1020
ctcaggggtc cctgaccgat tctctggctc caagtctggc acctcagcct ccctggccat    1080
cactggggtc caggctgagg atggggctga ttattactgc cagtcctatg acagcagcct    1140
gcgtgtggta ttcggcggag ggaccaaggt caccgtccta ggtaccacga cgccagcgcc    1200
gcgaccacca acaccggcgc ccaccatcgc gtcgcagccc ctgtccctgc gccagaggc    1260
gtgccggcca gcggcggggg gcgcagtgca cacgaggggg ctggacttcg cctgtgattt    1320
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catgactccc cgccgccccg ggccaaccg caagcattac cagccctatg ccccaccacg    1500
cgacttcgca gcctatcgt ccagagtga gttcagcagg agcgagacg ccccgcgta    1560
ccagcagggc cagaaccagc tctataacga gctcaatcta ggacgaagag aggagtacga    1620
tgttttggac aagagacgtg gccgggaccc tgagatgggg ggaaagccgc agagaaggaa    1680
gaaccctcag gaaggcctgt acaatgaact gcagaaagat aagatggcgg aggcctacag    1740
tgagattggg atgaaaggcg agcgccggag gggcaagggg cacgatggcc ttaccaggg    1800
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Sequence Listing

tctcagtaca gccaccaagg acacctacga cgcccttcac atgcaggccc tgccccctcg 1860
ctaggtcgac aatcaacctc tggatt 1886

<210> 48
<211> 2012
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Nucleotide sequence of P7D4 scFv-28BBZ

<400> 48
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acatcgccca cagtccccga gaagttgggg ggaggggtcg gcaattgaac cgggtgcctag 180
agaaggtggc gcggggtaaa ctgggaaagt gatgtcgtgt actgggtccg cttttttccc 240
gaggggtggg gagaaccgta tataagtgca gtagtcgccg tgaacgttct ttttcgcaac 300
gggtttgccg ccagaacaca ggtgtcgtga cgcggtacca ggcctaagct tacgcgtcct 360
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tatgcactgg gtccgccagg ctccaggcaa ggggctggag tgggtctcag ctattagtgg 600
tagtgggtgg agcacatact acgcagactc cgtgaagggc cggttcacca tctccagaga 660
caattccaag aacacgctgt atctgcaa atgaacagcctg agagccgagg acacggccgt 720
atattactgt gcgaaagatc gacgaggagg ccacgctgat gcttttgatg tctggggcca 780
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agtcaccatc tcctgactg gaaccagcag tgacgttggg ggttataact atgtctcctg 960
gtaccaacag taccagga aagccccca actcctcatc tatggtaaca gcaatcggcc 1020
ctcaggggtc cctgaccgat tctctggctc caagtctggc acctcagcct ccctggccat 1080
cactgggctc caggctgagg atggggctga ttattactgc cagtcctatg acagcagcct 1140
gcgtgtggta ttcggcggag ggaccaaggt caccgtccta ggtaccacga cgccagcgcc 1200
gcgaccacca acaccggcgc ccaccatcgc gtcgcagccc ctgtccctgc gccagaggc 1260
gtgccggcca gcggcggggg gcgcagtgca cagcaggggg ctggacttcg cctgtgattt 1320
ttgggtgctg gtgggtggtg gtggagtcct ggcttgctat agcttgctag taacagtggc 1380
ctttattatt ttctgggtga ggagtaagag gagcaggctc ctgcacagtg actacatgaa 1440

Sequence Listing

```
catgactccc cgccgccccg ggccaacccg caagcattac cagccctatg ccccaccacg 1500
cgacttcgca gcctatcgct ccaaacgggg cagaaagaaa ctctgtata tattcaaaca 1560
accatttatg agaccagtac aaactactca agaggaagat ggctgtagct gccgatttcc 1620
agaagaagaa gaaggaggat gtgaactgag agtgaagttc agcaggagcg cagacgcccc 1680
cgcgtaccag cagggccaga accagctcta taacgagctc aatctaggac gaagagagga 1740
gtacgatgtt ttggacaaga gacgtggccg ggaccctgag atgggggggaa agccgcagag 1800
aaggaagaac cctcaggaag gcctgtacaa tgaactgcag aaagataaga tggcggaggc 1860
ctacagtgag attgggatga aaggcgagcg ccggaggggc aaggggcacg atggccttta 1920
ccagggtctc agtacagcca ccaaggacac ctacgacgcc cttcacatgc aggccctgcc 1980
ccctcgctag gtcgacaatc aacctctgga tt 2012
```

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<210> 49
<211> 346
<212> PRT
<213> Artificial sequence
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<220>
<221> MISC_FEATURE
<223> amino acid sequence of P7D4-|ÄZ
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```
<400> 49
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```
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 Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu
20          25          30
```

```
Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe
35          40          45
```

```
Thr Phe Ser Ser Tyr Ala Met His Trp Val Arg Gln Ala Pro Gly Lys
50          55          60
```

```
Gly Leu Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr
65          70          75          80
```

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

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

```
Ala Val Tyr Tyr Cys Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala
```

Sequence Listing

115

120

125

Phe Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly
130 135 140

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Ala
145 150 155 160

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

Ile Ser Cys Thr Gly Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val
180 185 190

Ser Trp Tyr Gln Gln Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
195 200 205

Gly Asn Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
210 215 220

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

Asp Gly Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Arg Val
245 250 255

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

Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser Gln Pro Leu
275 280 285

Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly Ala Val His
290 295 300

Thr Arg Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp Ala Pro Leu
305 310 315 320

Ala Gly Thr Cys Gly Val Leu Leu Leu Ser Leu Val Ile Thr Arg Val
325 330 335

Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala
340 345

<210> 50

<211> 447

<212> PRT

<213> Artificial sequence

Sequence Listing

<220>

<221> MISC_FEATURE

<223> amino acid sequence of P7D4-Z

<400> 50

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

Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe
35 40 45

Thr Phe Ser Ser Tyr Ala Met His Trp Val Arg Gln Ala Pro Gly Lys
50 55 60

Gly Leu Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr
65 70 75 80

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

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

Ala Val Tyr Tyr Cys Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala
115 120 125

Phe Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly
130 135 140

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Ala
145 150 155 160

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

Ile Ser Cys Thr Gly Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val
180 185 190

Ser Trp Tyr Gln Gln Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
195 200 205

Gly Asn Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
210 215 220

Sequence Listing

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

Asp Gly Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Arg Val
245 250 255

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

Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser Gln Pro Leu
275 280 285

Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly Ala Val His
290 295 300

Thr Arg Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp Ala Pro Leu
305 310 315 320

Ala Gly Thr Cys Gly Val Leu Leu Leu Ser Leu Val Ile Thr Arg Val
325 330 335

Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn
340 345 350

Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val
355 360 365

Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Gln
370 375 380

Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp
385 390 395 400

Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg
405 410 415

Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr
420 425 430

Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
435 440 445

<210> 51
<211> 491
<212> PRT
<213> Artificial sequence

Sequence Listing

<220>

<221> MISC_FEATURE

<223> amino acid sequence of P7D4-BBZ

<400> 51

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

Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe
35 40 45

Thr Phe Ser Ser Tyr Ala Met His Trp Val Arg Gln Ala Pro Gly Lys
50 55 60

Gly Leu Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr
65 70 75 80

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

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

Ala Val Tyr Tyr Cys Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala
115 120 125

Phe Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly
130 135 140

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ser Ala
145 150 155 160

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

Ile Ser Cys Thr Gly Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val
180 185 190

Ser Trp Tyr Gln Gln Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
195 200 205

Gly Asn Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
210 215 220

Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Thr Gly Leu Gln Ala Glu

Sequence Listing

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

Sequence Listing

Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
485 490

<210> 52
<211> 494
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of P7D4-28Z

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

Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe
35 40 45

Thr Phe Ser Ser Tyr Ala Met His Trp Val Arg Gln Ala Pro Gly Lys
50 55 60

Gly Leu Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr
65 70 75 80

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

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

Ala Val Tyr Tyr Cys Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala
115 120 125

Phe Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly
130 135 140

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser Gln Ser Ala
145 150 155 160

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

Ile Ser Cys Thr Gly Thr Ser Ser Asp Val Gly Gly Tyr Asn Tyr Val
180 185 190

Sequence Listing

Ser Trp Tyr Gln Gln Tyr Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
195 200 205

Gly Asn Ser Asn Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
210 215 220

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

Asp Gly Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser Leu Arg Val
245 250 255

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

Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser Gln Pro Leu
275 280 285

Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly Ala Val His
290 295 300

Thr Arg Gly Leu Asp Phe Ala Cys Asp Phe Trp Val Leu Val Val Val
305 310 315 320

Gly Gly Val Leu Ala Cys Tyr Ser Leu Leu Val Thr Val Ala Phe Ile
325 330 335

Ile Phe Trp Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr
340 345 350

Met Asn Met Thr Pro Arg Arg Pro Gly Pro Thr Arg Lys His Tyr Gln
355 360 365

Pro Tyr Ala Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser 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

Sequence Listing

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> 53
<211> 536
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of P7D4-28BBZ

<400> 53

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

Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe
35 40 45

Thr Phe Ser Ser Tyr Ala Met His Trp Val Arg Gln Ala Pro Gly Lys
50 55 60

Gly Leu Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr
65 70 75 80

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

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

Ala Val Tyr Tyr Cys Ala Lys Asp Arg Arg Gly Ser His Ala Asp Ala
115 120 125

Phe Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly
130 135 140

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser Gln Ser Ala

Sequence Listing

145		150		155		160									
Leu	Thr	Gln	Pro	Pro	Ser	Ala	Ser	Gly	Ser	Pro	Gly	Gln	Ser	Val	Thr
				165					170					175	
Ile	Ser	Cys	Thr	Gly	Thr	Ser	Ser	Asp	Val	Gly	Gly	Tyr	Asn	Tyr	Val
			180					185					190		
Ser	Trp	Tyr	Gln	Gln	Tyr	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile	Tyr
		195					200					205			
Gly	Asn	Ser	Asn	Arg	Pro	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser
	210					215					220				
Lys	Ser	Gly	Thr	Ser	Ala	Ser	Leu	Ala	Ile	Thr	Gly	Leu	Gln	Ala	Glu
225					230					235					240
Asp	Gly	Ala	Asp	Tyr	Tyr	Cys	Gln	Ser	Tyr	Asp	Ser	Ser	Leu	Arg	Val
				245					250					255	
Val	Phe	Gly	Gly	Gly	Thr	Lys	Val	Thr	Val	Leu	Gly	Thr	Thr	Thr	Pro
			260					265					270		
Ala	Pro	Arg	Pro	Pro	Thr	Pro	Ala	Pro	Thr	Ile	Ala	Ser	Gln	Pro	Leu
		275					280					285			
Ser	Leu	Arg	Pro	Glu	Ala	Cys	Arg	Pro	Ala	Ala	Gly	Gly	Ala	Val	His
	290					295					300				
Thr	Arg	Gly	Leu	Asp	Phe	Ala	Cys	Asp	Phe	Trp	Val	Leu	Val	Val	Val
305					310					315					320
Gly	Gly	Val	Leu	Ala	Cys	Tyr	Ser	Leu	Leu	Val	Thr	Val	Ala	Phe	Ile
				325					330					335	
Ile	Phe	Trp	Val	Arg	Ser	Lys	Arg	Ser	Arg	Leu	Leu	His	Ser	Asp	Tyr
			340					345					350		
Met	Asn	Met	Thr	Pro	Arg	Arg	Pro	Gly	Pro	Thr	Arg	Lys	His	Tyr	Gln
		355						360				365			
Pro	Tyr	Ala	Pro	Pro	Arg	Asp	Phe	Ala	Ala	Tyr	Arg	Ser	Lys	Arg	Gly
	370					375					380				
Arg	Lys	Lys	Leu	Leu	Tyr	Ile	Phe	Lys	Gln	Pro	Phe	Met	Arg	Pro	Val
385					390					395					400

Sequence Listing

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

Glu Glu Gly Gly Cys Glu Leu Arg Val Lys Phe Ser Arg Ser Ala Asp
420 425 430

Ala Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn
435 440 445

Leu Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg
450 455 460

Asp Pro Glu Met Gly Gly Lys Pro Gln Arg Arg Lys Asn Pro Gln Glu
465 470 475 480

Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser
485 490 495

Glu Ile Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His Asp Gly
500 505 510

Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu
515 520 525

His Met Gln Ala Leu Pro Pro Arg
530 535

<210> 54
<211> 27
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 54
gatcgctagc acagcccccg ccgccgc

27

<210> 55
<211> 31
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 55
gtacggatcc ttcagcgggg aatgaacgtt c

31

Sequence Listing

<210> 56
 <211> 345
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Nucleotide sequence of 5A5 heavy chain

<400> 56
 caggttcaac tgcagcagtc tgggactgag ctggtgaggc ctggggcttc agtgaagctg 60
 tcctgcaagg ctttgggcta cacatttact gactatgaaa tgcactgggt gaagcagaca 120
 cctgtgcatg gcctggagt gattggagct attcatccag gaagtgggtga tactgcctac 180
 aatcagaggt tcaagggcaa ggccacactg actgcagaca aatcttccag cacagcctac 240
 atggagtaca gcagcctgac atctgaggac tctgctgtct attactgtac aagattttat 300
 tcctatgctt actggggcca agggactctg gtcactgtct ctgca 345

<210> 57
 <211> 339
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Nucleotide sequence of 5A5 light chain

<400> 57
 gatgttgta tgacccaaac tccactctcc ctgcctgtca gtcttggaga tcaagcctcc 60
 atctcttgca gatctagtca gagccttgta cacagtaatg gaaacaccta tttacagtgg 120
 tacctgcaga agccaggcca gtctccaaag ctctgatct acaaagtttc caatcgattt 180
 tctgggggtcc cagacagggt cagtggcaga ggatcagga cagatttcac actcaagatc 240
 agcagagtgg aggctgagga tctgggagtt tatttctgct ctcaaagtat atatgttccg 300
 tacacgttcg gaggaggac caagctggaa ataaaacgg 339

<210> 58
 <211> 115
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> Nucleotide sequence of humanized Y035 heavy chain

<400> 58
 Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15

Sequence Listing

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

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

Gly Ala Ile His Pro Gly Ser Gly Asp Thr Ala Tyr Asn Gln Arg Phe
50 55 60

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

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

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

Val Ser Ala
115

<210> 59
<211> 113
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of humanized Y035 light chain
<400> 59

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

Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30

Asn Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45

Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60

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

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Ser

Sequence Listing

85

90

95

Ile Tyr Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

Arg

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

<220>
<221> MISC_FEATURE
<223> amino acid sequence of am4 heavy chain CDR1

<400> 60

Gly Phe Thr Phe Ser Thr Tyr Ala Met Thr
1 5 10

<210> 61
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of am4 heavy chain CDR2

<400> 61

Ser Ile Ser Ser Ser Gly Glu Ser Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 62
<211> 10
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of am14 heavy chain CDR1

<400> 62

Gly Phe Thr Phe Ser Thr Tyr Ala Met Ala
1 5 10

Sequence Listing

<210> 63
 <211> 17
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> amino acid sequence of am14 heavy chain CDR2
 <400> 63

Glu	Ile	Ser	Ser	Ser	Gly	Ser	Arg	Thr	Tyr	Tyr	Ala	Asp	Ser	Val	Lys
1				5					10					15	

Gly

<210> 64
 <211> 10
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> amino acid sequence of am20 heavy chain CDR1
 <400> 64

Gly	Phe	Thr	Phe	Ser	Thr	Tyr	Ala	Met	Ala
1				5					10

<210> 65
 <211> 17
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> amino acid sequence of am20 heavy chain CDR2
 <400> 65

Ala	Ile	Ser	Met	Ser	Gly	Glu	Ser	Thr	Tyr	Tyr	Ala	Asp	Ser	Val	Lys
1				5					10					15	

Gly

<210> 66
 <211> 17
 <212> PRT
 <213> Artificial sequence

<220>

Sequence Listing

<221> MISC_FEATURE

<223> amino acid sequence of am35 heavy chain CDR2

<400> 66

Ala Ile Ser Ser Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 67

<211> 14

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of am35 light chain CDR1

<400> 67

Thr Gly Thr Ser Ser Asp Val Gly His Lys Phe Pro Val Ser
1 5 10

<210> 68

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of am35 light chain CDR2

<400> 68

Lys Asn Leu Leu Arg Pro Ser
1 5

<210> 69

<211> 14

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of am42 light chain CDR1

<400> 69

Thr Gly Thr Ser Ser Asp Val Gly Leu Met His Asn Val Ser
1 5 10

<210> 70

<211> 7

Sequence Listing

<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of am42 light chain CDR2

<400> 70

Lys Ser Ser Ser Arg Pro Ser
1 5

<210> 71
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of T2-23 heavy chain CDR2

<400> 71

Ala Ile Ser Ser Ser Gly Arg Ser Thr Tyr Tyr Ala Asp Ser Val Glu
1 5 10 15

Gly

<210> 72
<211> 12
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of T2-23 heavy chain CDR3

<400> 72

Asp Arg Arg Gly Ser His Ala Asp Ala Leu Asn Val
1 5 10

<210> 73
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of humanized Y035 heavy chain CDR1

<400> 73

Asp Tyr Glu Met His

Sequence Listing

1

5

<210> 74
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of humanized Y035 heavy chain CDR2

<400> 74

Ala Ile His Pro Gly Ser Gly Asp Thr Ala Tyr Asn Gln Arg Phe Lys
1 5 10 15

Gly

<210> 75
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of humanized Y035 heavy chain CDR3

<400> 75

Phe Tyr Ser Tyr Ala Tyr
1 5

<210> 76
<211> 16
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of humanized Y035 light chain CDR1

<400> 76

Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Asn Thr Tyr Leu Gln
1 5 10 15

<210> 77
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE

Sequence Listing

<223> amino acid sequence of humanized Y035 light chain CDR2

<400> 77

Lys Val Ser Asn Arg Phe Ser
1 5

<210> 78

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<221> MISC_FEATURE

<223> amino acid sequence of humanized Y035 light chain CDR3

<400> 78

Ser Gln Ser Ile Tyr Val Pro Tyr Thr
1 5

<210> 79

<211> 429

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Nucleotide sequence of humanized antibody Y035 light chain

<400> 79

ggatcgatat ccacatgga catgatggtg ctggcccagt tcctggcctt cctgctgctg	60
tggttcccag gcgctagatg cgacatcgtg atgaccaga cccccctgag cctgcccgtg	120
acccccggcg agcccgccag catcagctgc cggagcagcc agagcctggt gcacagcaac	180
ggcaacacct acctgcagt gtacctgcag aagcccggcc agagcccca gctgctgata	240
tacaaggtga gcaaccggtt cagcggcgtg cccgaccggt tcagcggcag cggcagcggc	300
accgacttca ccctgaagat cagccgggtg gaggccgagg acgtgggcgt gtactactgc	360
agccagagca tctacgtgcc ctacaccttc ggccagggca ccaagctgga gatcaaactg	420
acggtggct	429

<210> 80

<211> 441

<212> DNA

<213> Artificial sequence

<220>

<221> misc_feature

<223> Nucleotide sequence of humanized antibody Y035 heavy chain

<400> 80

Sequence Listing

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ggatcgatat ctgcggccta tctagccacc atgcgggtgc tgatcctgct gtggctgttt      60
accgccttcc ccggcttcct gagcgaggtg cagctggtgc agagcggcgc cgaggtgaag      120
aagcccggcg ccagcgtgaa ggtgagctgc aaggccagcg gctacacctt cagcgactac      180
gagatgcact ggggtgcggca ggcccccggc cagggcctgg agtggatggg cgccatccac      240
cccggcagcg gcgacaccgc ctacaaccag cggttcaagg gccgggtgac catcaccgcc      300
gacaagagca ccagcaccgc ctacatggag ctgagcagcc tgcggagcga ggacaccgcc      360
gtgtactact gcgcccggtt ctacagctac gcctactggg gccagggcac cctggtgacc      420
gtgagcgccg ctagcaccaa a                                              441

```

```

<210> 81
<211> 115
<212> PRT
<213> Artificial sequence

```

```

<220>
<221> MISC_FEATURE
<223> amino acid sequence of 5A5 heavy chain
<400> 81

```

```

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

```

```

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

```

```

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

```

```

Gly Ala Ile His Pro Gly Ser Gly Asp Thr Ala Tyr Asn Gln Arg Phe
50          55          60

```

```

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

```

```

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

```

```

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

```

```

Val Ser Ala
115

```

```

<210> 82
<211> 113

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Sequence Listing

<212> PRT
<213> Artificial sequence

<220>
<221> MISC_FEATURE
<223> amino acid sequence of 5A5 light chain

<400> 82

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

Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30

Asn Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45

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

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

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95

Ile Tyr Val Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

Arg

<210> 83
<211> 68
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<220>
<221> misc_feature
<222> (42)..(43)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (46)..(46)
<223> n is a, c, g, or t

<220>

Sequence Listing

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<221> misc_feature
<222> (48)..(49)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (52)..(52)
<223> n is a, c, g, or t

<400> 83
gtttgggggc ttgcctggg tactgttggt accaggagac mnnahnmnna hnaccaacgt      60
cactgctg                                                                    68

<210> 84
<211> 59
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<220>
<221> misc_feature
<222> (33)..(34)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (36)..(37)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (39)..(40)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (42)..(43)
<223> n is a, c, g, or t

<400> 84
accaggcaa agccccaaa ctcctcatct atnnknnknn knkcggcc tcaggggtc      59

<210> 85
<211> 1398
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Nucleotide sequence of Y035-BBZ

<400> 85
gaggtgcagc tgggtgcagag cggcgccgag gtgaagaagc ccggcgccag cgtgaagggt      60
agctgcaagg ccagcggcta caccttcagc gactacgaga tgactgggt gcggcaggcc      120

```

Sequence Listing

```

cccgccagg gcctggagt gatgggcgcc atccaccccg gcagcggcga caccgcctac 180
aaccagcgg tcaagggccg ggtgaccatc accgccgaca agagcaccag caccgcctac 240
atggagctga gcagcctgcg gagcgaggac accgccgtgt actactgcgc ccggttctac 300
agctacgcct actggggcca gggcacctg gtgaccgtga gcgccggtgg aggcggttca 360
ggcggaggtg gttctggcgg tggcggatcg gacatcgtga tgaccagac cccctgagc 420
ctgcccgtga ccccgccga gcccgcagc atcagctgcc ggagcagcca gagcctggtg 480
cacagcaacg gcaacaccta cctgcagtgg tacctgcaga agcccgcca gagccccag 540
ctgctgatct acaaggtgag caaccggttc agcggcgtgc ccgaccggtt cagcggcagc 600
ggcagcggca ccgacttcac cctgaagatc agccgggtgg aggccgagga cgtgggcgtg 660
tactactgca gccagagcat ctacgtgcc tacaccttcg gccagggcac caagctggag 720
atcaaacgta ccacgacgcc agcggcgca ccaccaacac cggcgccac catcgcgtcg 780
cagcccctgt ccctgcgcc agaggcgtgc cggccagcgg cggggggcgc agtgcacacg 840
agggggctgg acttcgcctg tgatatctac atctgggcgc cttggccgg gacttggtgg 900
gtccttctcc tgtcactggt tatcacctt tactgcaaac ggggcagaaa gaaactcctg 960
tatatatca aacaaccatt tatgagacca gtacaaacta ctcaagagga agatggctgt 1020
agctgccgat ttccagaaga agaagaagga ggatgtgaac tgagagtga gttcagcagg 1080
agcgagacg ccccgcgta caagcagggc cagaaccagc tctataacga gctcaatcta 1140
ggacgaagag aggagtacga tgttttgac aagagacgtg gccgggacc tgagatgggg 1200
ggaaagccga gaaggaagaa ccctcaggaa ggcctgtaca atgaactgca gaaagataag 1260
atggcggagg cctacagtga gattgggatg aaaggcgagc gccggagggg caaggggcac 1320
gatggcctt accaggtct cagtacagc accaaggaca cctacgacgc cttcacatg 1380
caggccctgc cccctcgc 1398

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<210> 86
 <211> 466
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> amino acid sequence of Y035-BBZ

<400> 86

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ser Asp Tyr

Sequence Listing

20

25

30

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

Gly Ala Ile His Pro Gly Ser Gly Asp Thr Ala Tyr Asn Gln Arg Phe
50 55 60

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

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

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

Val Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
115 120 125

Gly Ser Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Thr
130 135 140

Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val
145 150 155 160

His Ser Asn Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly
165 170 175

Gln Ser Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly
180 185 190

Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu
195 200 205

Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser
210 215 220

Gln Ser Ile Tyr Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu
225 230 235 240

Ile Lys Arg Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro
245 250 255

Thr Ile Ala Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro
260 265 270

Sequence Listing

Ala Ala Gly Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp
275 280 285

Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu
290 295 300

Ser Leu Val Ile Thr Leu Tyr Cys Lys Arg Gly Arg Lys Lys Leu Leu
305 310 315 320

Tyr Ile Phe Lys Gln Pro Phe Met Arg Pro Val Gln Thr Thr Gln Glu
325 330 335

Glu Asp Gly Cys Ser Cys Arg Phe Pro Glu Glu Glu Glu Gly Gly Cys
340 345 350

Glu Leu Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Lys
355 360 365

Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu
370 375 380

Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly
385 390 395 400

Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu
405 410 415

Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly
420 425 430

Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser
435 440 445

Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro
450 455 460

Pro Arg
465

<210> 87
<211> 1407
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Nucleotide sequence of Y035-28Z

<400> 87

Sequence Listing

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gaggtgcagc tggtgcagag cggcgccgag gtgaagaagc ccggcgccag cgtgaaggtg      60
agctgcaagg ccagcggcta caccttcagc gactacgaga tgactgggt gcggcaggcc      120
cccggccagg gcctggagtg gatgggcgcc atccaccccg gcagcggcga caccgcctac      180
aaccagcggg tcaagggccg ggtgaccatc accgccgaca agagcaccag caccgcctac      240
atggagctga gcagcctgcg gagcgaggac accgccgtgt actactgcmc ccggttctac      300
agctacgcct actggggcca gggcaccttg gtgaccgtga gcgccggttg aggcggttca      360
ggcggaggtg gttctggcgg tggcggatcg gacatcgtga tgaccagac cccctgagc      420
ctgcccgtga ccccgccga gcccgccagc atcagctgcc ggagcagcca gagcctggtg      480
cacagcaacg gcaacaccta cctgcagtgg tacctgcaga agcccgcca gagccccag      540
ctgctgatct acaaggtgag caaccggttc agcggcgtgc ccgaccggtt cagcggcagc      600
ggcagcggca ccgacttcac cctgaagatc agccgggttg agccgagga cgtgggcgtg      660
tactactgca gccagagcat ctacgtgccc tacaccttcg gccagggcac caagctggag      720
atcaaacgta ccacgacgcc agcgcgcga ccaccaacac cggcgccac catcgcgtcg      780
cagcccctgt ccctgcgcc agaggcgtgc cggccagcgg cggggggcgc agtgcacacg      840
agggggctgg acttcgcctg tgatttttg gtgctggttg tggttggtg agtcctggct      900
tgctatagct tgctagtaac agtggccttt attattttct gggtgaggag taagaggagc      960
aggctcctgc acagtgacta catgaacatg actccccgcc gcccggggcc aaccgcaag     1020
cattaccagc cctatgcccc accacgcgac ttgcagcct atcgctccag agtgaagttc     1080
agcaggagcg cagacgcccc cgcgtaccag cagggccaga accagctcta taacgagctc     1140
aatctaggac gaagagagga gtacgatgtt ttggacaaga gacgtggccg ggaccctgag     1200
atgggggggaa agccgcagag aaggaagaac cctcaggaag gcctgtacaa tgaactgcag     1260
aaagataaga tggcggaggc ctacagtgag attgggatga aaggcgagcg ccggaggggc     1320
aaggggcacg atggccttta ccagggtctc agtacagcca ccaaggacac ctacgacgcc     1380
cttcacatgc aggcctgcc ccctcgc                                     1407

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<210> 88
 <211> 469
 <212> PRT
 <213> Artificial sequence

<220>
 <221> MISC_FEATURE
 <223> amino acid sequence of Y035-28Z

<400> 88

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

Sequence Listing

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

Sequence Listing

260

265

270

Ala Ala Gly Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp
275 280 285

Phe Trp Val Leu Val Val Val Gly Gly Val Leu Ala Cys Tyr Ser Leu
290 295 300

Leu Val Thr Val Ala Phe Ile Ile Phe Trp Val Arg Ser Lys Arg Ser
305 310 315 320

Arg Leu Leu His Ser Asp Tyr Met Asn Met Thr Pro Arg Arg Pro Gly
325 330 335

Pro Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro Pro Arg Asp Phe Ala
340 345 350

Ala Tyr Arg Ser Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala
355 360 365

Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg
370 375 380

Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu
385 390 395 400

Met Gly Gly Lys Pro Gln Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr
405 410 415

Asn Glu Leu Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly
420 425 430

Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln
435 440 445

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

Ala Leu Pro Pro Arg
465

<210> 89
<211> 1533
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature

Sequence Listing

<223> Nucleotide sequence of Y035-28BBZ

<400> 89

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gaggtgcagc tggtgcagag cggcgccgag gtgaagaagc ccggcgccag cgtgaagggtg      60
agctgcaagg ccagcggcta caccttcagc gactacgaga tgcactgggt gcggcaggcc      120
cccggccagg gcctggagt gatgggcgcc atccaccccg gcagcggcga caccgcctac      180
aaccagcggg tcaagggccg ggtgaccatc accgccgaca agagcaccag caccgcctac      240
atggagctga gcagcctgcg gagcgaggac accgccgtgt actactgcgc ccggttctac      300
agctacgcct actggggcca gggcacctg gtgaccgtga gcgccggtgg aggcggttca      360
ggcggagggtg gttctggcgg tggcggatcg gacatcgtga tgaccagac cccctgagc      420
ctgcccgtga ccccgccga gcccgccagc atcagctgcc ggagcagcca gagcctggtg      480
cacagcaacg gcaacaccta cctgcagtgg tacctgcaga agcccgcca gagccccag      540
ctgctgatct acaaggtag caaccggttc agcggcgtgc ccgaccggtt cagcggcagc      600
ggcagcggca ccgacttcac cctgaagatc agccgggtgg agccgagga cgtgggcgtg      660
tactactgca gccagagcat ctacgtgcc tacaccttcg gccagggcac caagctggag      720
atcaaacgta ccacgacgcc agcggcgca ccaccaacac cggcgccac catcgcgtcg      780
cagcccctgt ccctgcgcc agaggcgtgc cggccagcgg cggggggcgc agtgcacacg      840
agggggctgg acttcgcctg tgatttttgg gtgctggtgg tggttggtgg agtcctggct      900
tgctatagct tgctagtaac agtggccttt attattttct gggtgaggag taagaggagc      960
aggctcctgc acagtgacta catgaacatg actccccgcc gccccgggcc aaccgcgaag     1020
cattaccagc cctatgcccc accacgcgac ttgcagcct atcgctcaa acggggcaga     1080
aagaaactcc tgtatatatt caaacaacca tttatgagac cagtacaaac tactcaagag     1140
gaagatggct gtagctgccg atttcagaa gaagaagaag gaggatgtga actgagagtg     1200
aagttcagca ggagcgcaga cgccccgcg taccagcagg gccagaacca gctctataac     1260
gagctcaatc taggacgaag agaggagtac gatgttttgg acaagagacg tggccgggac     1320
cctgagatgg ggggaaagcc gcagagaagg aagaaccctc aggaaggcct gtacaatgaa     1380
ctgcagaaaag ataagatggc ggaggcctac agtgagattg ggatgaaagg cgagcgccgg     1440
aggggcaagg ggcacgatgg ctttaccag ggtctcagta cagccaccaa ggacacctac     1500
gacgcccttc acatgcaggc cctgccccct cgc                                     1533

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<210> 90

<211> 511

<212> PRT

<213> Artificial sequence

<400> 90

Sequence Listing

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

Sequence Listing

Thr Ile Ala Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro
 260 265 270
 Ala Ala Gly Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp
 275 280 285
 Phe Trp Val Leu Val Val Val Gly Gly Val Leu Ala Cys Tyr Ser Leu
 290 295 300
 Leu Val Thr Val Ala Phe Ile Ile Phe Trp Val Arg Ser Lys Arg Ser
 305 310 315 320
 Arg Leu Leu His Ser Asp Tyr Met Asn Met Thr Pro Arg Arg Pro Gly
 325 330 335
 Pro Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro Pro Arg Asp Phe Ala
 340 345 350
 Ala Tyr Arg Ser Lys Arg Gly Arg Lys Lys Leu Leu Tyr Ile Phe Lys
 355 360 365
 Gln Pro Phe Met Arg Pro Val Gln Thr Thr Gln Glu Glu Asp Gly Cys
 370 375 380
 Ser Cys Arg Phe Pro Glu Glu Glu Glu Gly Gly Cys Glu Leu Arg Val
 385 390 395 400
 Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn
 405 410 415
 Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val
 420 425 430
 Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Gln
 435 440 445
 Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp
 450 455 460
 Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg
 465 470 475 480
 Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr
 485 490 495
 Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
 500 505 510

Sequence Listing

<210> 91
 <211> 45
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 91
 tgctttggtt tccaggtgca agatgtgagg tgcagctggt gcaga 45

<210> 92
 <211> 41
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 92
 tatcggtacc accacctcca cgtttgatct ccagcttggt g 41

<210> 93
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 93
 gatataaac tgcagcagtc ag 22

<210> 94
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 94
 gagaggaggt actcacccca ac 22

<210> 95
 <211> 22
 <212> DNA
 <213> Artificial sequence

Sequence Listing

```

<220>
<221> misc_feature
<223> Primer

<400> 95
ggctaactag agaaccact gc                22

<210> 96
<211> 25
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> Primer

<400> 96
acatcttgca cctggaaacc aaagc            25

<210> 97
<211> 1473
<212> DNA
<213> Artificial sequence

<220>
<221> misc_feature
<223> encoding sequence of Y035/CD3 bispecific antibody

<400> 97
gaggtgcagc tggtgcagag cggcgccgag gtgaagaagc cggcgccag cgtgaagggtg    60
agctgcaagg ccagcggcta caccttcagc gactacgaga tgactgggt gcggcaggcc    120
cccggccagg gcctggagtg gatgggcgcc atccaccccg gcagcggcga caccgcctac    180
aaccagcggg tcaagggccg ggtgaccatc accgccgaca agagcaccag caccgcctac    240
atggagctga gcagcctgcg gagcaggac accgccgtgt actactgcgc ccggttctac    300
agctacgcct actggggcca gggcacctg gtgaccgtga gcgccggtg aggcggttca    360
ggcggagggtg gttctggcgg tggcggatcg gacatcgtga tgaccagac cccctgagc    420
ctgcccgtga ccccgccga gcccgccagc atcagctgcc ggagcagcca gagcctggtg    480
cacagcaacg gcaacaccta cctgcagtgg tacctgcaga agcccgcca gagccccag    540
ctgctgatct acaaggtgag caaccggttc agcggcgtgc ccgaccggtt cagcggcagc    600
ggcagcggca ccgacttcac cctgaagatc agccgggtgg aggccgagga cgtgggcgtg    660
tactactgca gccagagcat ctacgtgcc tacaccttcg gccagggcac caagctggag    720
atcaaacgtg gaggtggtgg atccgatatc aaactgcagc agtcaggggc tgaactggca    780
agacctgggg cctcagtga gatgtcctgc aagacttctg gctacacctt tactaggtac    840
acgatgcact gggtaaaaca gaggcctgga caggttctgg aatggattgg atacattaat    900

```

Sequence Listing

```
cctagccgtg gttataactaa ttacaatcag aagttcaagg acaaggccac attgactaca 960
gacaaatcct ccagcacagc ctacatgcaa ctgagcagcc tgacatctga ggactctgca 1020
gtctattact gtgcaagata ttatgatgat cattactgcc ttgactactg gggccaaggc 1080
accactctca cagtctcctc agtcgaaggt ggaagtggag gttctggtgg aagtggaggt 1140
tcaggtggag tcgacgacat tcagctgacc cagtctccag caatcatgtc tgcactctcca 1200
ggggagaagg tcacatgac ctgcagagcc agttcaagtg taagttacat gaactggtac 1260
cagcagaagt caggcacctc ccccaaaaga tggatttatg acacatccaa agtggcttct 1320
ggagtccctt atcgcttcag tggcagtggg tctgggacct catactctct cacaatcagc 1380
agcatggagg ctgaagatgc tgccacttat tactgccaac agtggagtag taacccgctc 1440
acgttcggtg ctgggaccaa gctggagctg aaa 1473
```

```
<210> 98
<211> 491
<212> PRT
<213> Artificial sequence
```

```
<220>
<221> MISC_FEATURE
<223> amino acid sequence of Y035/CD3 bispecific antibody
```

```
<400> 98
```

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

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

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

```
Gly Ala Ile His Pro Gly Ser Gly Asp Thr Ala Tyr Asn Gln Arg Phe
50 55 60
```

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

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

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

```
Val Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
```

Sequence Listing

115

120

125

Gly Ser Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Thr
130 135 140

Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val
145 150 155 160

His Ser Asn Gly Asn Thr Tyr Leu Gln Trp Tyr Leu Gln Lys Pro Gly
165 170 175

Gln Ser Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly
180 185 190

Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu
195 200 205

Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser
210 215 220

Gln Ser Ile Tyr Val Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu
225 230 235 240

Ile Lys Arg Gly Gly Gly Gly Ser Asp Ile Lys Leu Gln Gln Ser Gly
245 250 255

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

Ser Gly Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Lys Gln Arg
275 280 285

Pro Gly Gln Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser Arg Gly
290 295 300

Tyr Thr Asn Tyr Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Thr
305 310 315 320

Asp Lys Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser
325 330 335

Glu Asp Ser Ala Val Tyr Tyr Cys Ala Arg Tyr Tyr Asp Asp His Tyr
340 345 350

Cys Leu Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser Val
355 360 365

Sequence Listing

Glu Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Val
 370 375 380

Asp Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro
 385 390 395 400

Gly Glu Lys Val Thr Met Thr Cys Arg Ala Ser Ser Ser Val Ser Tyr
 405 410 415

Met Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile
 420 425 430

Tyr Asp Thr Ser Lys Val Ala Ser Gly Val Pro Tyr Arg Phe Ser Gly
 435 440 445

Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala
 450 455 460

Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Leu
 465 470 475 480

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
 485 490