

SEQUENCE LISTING

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<120> NOVEL CANCER IMMUNOTHERAPY ANTIBODY
COMPOSITIONS

<130> PI19033299

<140> PCT/CN 2019/101659

<141> 2019-08-20

<150> US 62/720,015

<151> 2018-08-20

<160> 108

<170> PatentIn version 3.5

<210> 1

<211> 357

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1A2 VH

<400> 1

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ctgggggcctc agtgaaggtc 60

tcctgcaagg cttctggata caccttcacc agttatgata
tcaactgggt gcgacaggcc 120

actggacaag ggcttgagtg gatgggatgg atcaacccta
acagtgggtg cacaaactat 180

gcacagaagt ttcagggcag ggtcaccatg accacagaca
cttctacggg cacagcctac 240

atggagctga ggagcctgag atctgacgac acggccgtgt
attactgtgc gagattttta 300

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<212> PRT
<213> Artificial Sequence

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<223> 4-1A2 VH

<400> 2

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

15

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

Asp Ile Asn Trp Val Arg Gln Ala Thr Gly Gln Gly
Leu Glu Trp Met
35 40
45

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

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

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

Ala Arg Phe Leu Trp Gly Ser Gly Ser Tyr Asp Tyr

Trp Gly Gln Gly

100

105

110

Thr Leu Val Thr Val Ser Ser

115

<210> 3

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1A2 VL

<400> 3

gacatccaga tgacccagtc tccatcctcc ctgtctgcat
ctgtaggaga cagagtcacc 60

atcacttgcc gggcaagtca gagcattagc agctatttaa
attggtatca gcagaaacca 120

gggaaagccc ctaagctcct gatctatgct gcatccagtt
tgcaaagtgg ggtcccatca 180

aggttcagtg gcagtggatc tgggacagat ttcactctca
ccatcagcag tctgcaacct 240

gaagatttcg caacttacta ctgtcaacag acttacacat
tcccgcacac ttttgcccag 300

gggaccaacc tggagatcaa a
321

<210> 4
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1A2 VL

<400> 4

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

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

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

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser

Arg Phe Ser Gly
50 55 60

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

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

Thr Phe Ala Gln Gly Thr Asn Leu Glu Ile Lys
100 105

<210> 5
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1A12 VH

<400> 5
caagtccagc tgggtacaatc tggagctgag gtgaagaagc
ctgggggcctc agtgaagggtc 60

tcctgcaagg cttctgggta cacctttacc agctatggta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggatgg atcagcgctt
acaatggtaa cacaactat 180

gcacagaagc tccagggcag agtcaccatg accacagaca
catccacgag cacagcctac 240

atggagctga ggagcctgag atctgacgac acggccgtgt
attactgtgc gagagattgg 300

atacagctat ggttaccctt tgactactgg ggccagggaa
ccctgggtcac cgtctcctca 360

<210> 6
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1A12 VH

<400> 6

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

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

Phe Thr Ser Tyr
20

25

30

Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly
Leu Glu Trp Met
35 40

45

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

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

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

Ala Arg Asp Trp Ile Gln Leu Trp Leu Pro Leu Asp
Tyr Trp Gly Gln
100 105
110

Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 7

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1A12 VL

<400> 7

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atcacttgcc gggcaagtca gagcattagc agctatttaa
attggtatca acagaaacca 120

gggaaagccc ctaagctcct gatctatggc gcatccagtt
tggaagtg ggtcccatca 180

aggttcagtg gcagtggatc tgggacagat ttcactctca
ccatcagcag tctgcaacct 240

gaagattttg caacttacta ctgtcaacag agtcacagtt
ccccctcac tttcggcgga 300

gggaccaagg tggacatcaa a
321

<210> 8
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1A12 VL

<400> 8

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

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

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

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

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

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

Thr Phe Gly Gly Gly Thr Lys Val Asp Ile Lys
 100 105

<210> 9
 <211> 387
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> 4-1B9 VH

<400> 9
 gaagtgcagc tgggtgcagtc tggggggaggc ttggtccagc
 ctgggaggct cctgagactc 60
 tcctgtgcag cctctggatt caccttcagt agctatggca
 tgcactgggt ccgccaggct 120

ccaggcaagg ggctggagtg ggtggcagtt atatcatatg
atggaagtaa taaatactat 180

gcagactccg tgaagggccg attcaccatc tccagagaca
attccaagaa cacgctgtat 240

ctgcaaataga acagcctgag agctgaggac acggctgtgt
attactgtgc gaaagatttg 300

atcccgttgc gagatagtag ggggggggtac tactacggta
tggacgtctg gggccaaggg 360

accacggtca ccgtctcctc agggagt
387

<210> 10
<211> 127
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1B9 VH

<400> 10

Glu Val Gln Leu Val Gln 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

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

45

Ala Val Ile Ser Tyr Asp Gly Ser Asn Lys 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 Leu Ile Pro Leu Arg Asp Ser Arg Gly
Gly Tyr Tyr Tyr
100 105
110

Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr
Val Ser Ser

115

120

125

<210> 11

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1B9 VL

<400> 11

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acatgccaag gagacagcct cagagactat tatgcaagct
ggtaccagca gaagccagga 120

caggcccctg tacttgtcat ctatggtaaa aacaaccggc
cctcaggaat cccagaccga 180

ttctctggct ccagctcagg aaacacagct tccttgacca
tcactgggac tcaggcggaa 240

gatgaggctg actattactg taactcccgt gacagcgggtg
cttaccatta tgtcttcgga 300

actgggacca aggtcaccgt ccta

<210> 12
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 4-1B9 VL

<400> 12

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

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

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

Gly	Lys	Asn	Asn	Arg	Pro	Ser	Gly	Ile	Pro	Asp	Arg
Phe	Ser	Gly	Ser								

50

55

60

Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly
Thr Gln Ala Glu
65 70 75

80

Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Arg Asp Ser
Gly Ala Tyr His
85 90

95

Tyr Val Phe Gly Thr Gly Thr Lys Val Thr Val Leu
100 105

<210> 13
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1B12 VH

<400> 13
caaatccagc tgggtgcagtc tggggggaggc gtggtccagc
ctgggaggtc cctgagactc 60

tcctgtgcag cctctggatt caccttcagt agctatggca

tgcactgggt ccgccaggct 120
 ccaggcaagg ggctggagtg ggtggcagtt atatcatatg
 atggaagtaa taaatactat 180
 gcagactccg tgaagggccg attcaccatc tccagagaca
 attccaagaa cacgctgtat 240
 ctgcaaataga acagcctgag agctgaggac acggctgtgt
 attactgtgc gaaaggaagt 300
 attatagggg atggtgcttt tgatatctgg ggccaaggga
 caatggtcac cgtctcttca 360

<210> 14
 <211> 120
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 4-1B12 VH

<400> 14

Gln Ile Gln Leu Val Gln Ser Gly Gly Gly Val 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

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

Ala Val Ile Ser Tyr Asp Gly Ser Asn Lys 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 Gly Ser Ile Ile Gly Asp Gly Ala Phe Asp
Ile Trp Gly Gln
100 105
110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 15
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1B12 VL

<400> 15
gatattgtga tgacccagtc tccactctcc ctgcccgtca
cccttggaga gccggcctcc 60

atctcctgca ggtctagtca gaccctcctg cataatggat
tcaacttttt ggattggtac 120

ctgcagaagc cagggcagtc tccacaactc ctgatgtatt
tggcctctag ccgggcctcc 180

ggggtccctg acaggttcag tggcagtgga tcggggcacag
atttcacact gaaaatcagc 240

agagtggagg ctgaggatgt tggggtttat tactgcatgc
aaggtacaca ctggccgtac 300

acttttggcc aggggaccaa gctggatatc aaa
333

<210> 16
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1B12 VL

<400> 16

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

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

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

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

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
Leu Lys Ile Ser

65

70

75

80

Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys
Met Gln Gly Thr

85

90

95

His Trp Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu
Asp Ile Lys

100

105

110

<210> 17

<211> 354

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1E8 VH

<400> 17

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ctgggggcctc agtgacgatt 60

tcctgcgagg cgtctggata caacttcatc agctactata
tacactgggt gcgacaggcc 120

cctggacaag gccttgagtg gatgggattc gtcgtcccta
gtggtggtgc cgcaggctac 180

acacagaagt tccagggcag actcaccgtg accagggaca
cgtccacgag cacagtctac 240

atggacctga acagcctgac atctgacgac acggccgtgt
attactgtgt gcgagaaatg 300

agtggtaggct ggtttgattt ctggggccag ggaaccctgg
tcaccgtctc ctcg 354

<210> 18
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1E8 VH

<400> 18

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

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

30

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

Gly Phe Val Val Pro Ser Gly Gly Ala Ala Gly Tyr
Thr Gln Lys Phe
50 55 60

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

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

Val Arg Glu Met Ser Gly Gly Trp Phe Asp Phe Trp
Gly Gln Gly Thr
100 105
110

Leu Val Thr Val Ser Ser

115

<210> 19

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1E8 VL

<400> 19

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ctgtaggaga cagagtcacc 60

atcacttgcc gggcaagtca gggcattaga aatgatttag
gctggtatca gcaaaaacca 120

gggaaagccc ctaagctcct gatctatgct gcatccactt
tgcaaagtgg ggtcccatca 180

aggttcagcg gcagtggatc tgggacagat ttcactctca
ccatcagcag cctgcaggct 240

gaagatgtgg cagtttatta ctgtcagcaa tattatagta
ctcctctcac tttcggccct 300

gggaccaaag tggatatcaa a
321

<210> 20

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

<220>
<223> 4-1E8 VL

<400> 20

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

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

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

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser
Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
Ser Leu Gln Ala
65 70 75

80

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

95

Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105

<210> 21
<211> 366
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1G7 VH

<400> 21
gaggtgcagc tgggtgcagtc tggggctgag gtgaagaagc
ctgggtcctc ggtgaaggtc 60

tcctgcaagg cttctgggtta cacctttacc agctatggta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggatgg atcagcgctt
acaatggtaa cacaaactat 180

gcacagaagc tccagggcag agtcaccatg accacagaca
catccacgag cacagcctac 240

atggagctga ggagcctgag atctgacgac acggccgtgt
attactgtgc gagagcctca 300

ccggtacagc agcccatatg gtgggcggag tactggggcc
agggaaccct ggtcaccgtc 360

tcctca
366

<210> 22
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1G7 VH

<400> 22

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

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

30

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

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

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

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

Ala Arg Ala Ser Pro Val Gln Gln Pro Ile Trp Trp
Ala Glu Tyr Trp
100 105
110

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

<210> 23
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1G7 VL

<400> 23
cagtctgccc tgactcagcc tgcctccgtg tctgggtctc
ctggacagtc gatcaccatc 60

tcctgcactg gaaccagcag tgacgttggt ggttataact
atgtctcctg gtaccaacag 120

caccagggca aagcccccaa actcatgatt tctgatgtca
gtaagcggcc ctcagggggtt 180

tctaatacgct tctctggctc caagtctggc aacacggcct
ccctgaccat ctctgggctc 240

caggctgagg acgaggctga ttattactgc agctcatata
caagcaacta cactttggta 300

ttcggcggag ggaccaagct gaccgtccta
330

<210> 24

<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1G7 VL

<400> 24

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

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

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

Met	Ile	Ser	Asp	Val	Ser	Lys	Arg	Pro	Ser	Gly	Val
Ser	Asn	Arg	Phe								
	50					55				60	

Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr
Ile Ser Gly Leu
65 70 75

80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser
Tyr Thr Ser Asn
85 90

95

Tyr Thr Leu Val Phe Gly Gly Gly Thr Lys Leu Thr
Val Leu
100 105

110

<210> 25
<211> 366
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1H10 VH

<400> 25
cagctgcagc tacagcagtc cggagctgag gtgaagaagc
ctgggtcctc ggtgaaggctc 60

tcctgcaagg ctctggagg caccttcagc agctatgcta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggaagg atcatcccta
tccttggtat agcaaactac 180

gcacagaagt tccagggcag agtcacgatt accgcggaca
aatccacgag cacagcctac 240

atggagctga gcagcctgag atctgaagac acggccgtgt
attactgtgc gagtcatggt 300

cgggcagcag ctggtaggta cgctatggac gtctggggcc
aagggaccac ggtcaccgtc 360

tcctca
366

<210> 26
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1H10 VH

<400> 26

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

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

Gln 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 Ser His Gly Arg Ala Ala Ala Gly Arg Tyr Ala
Met Asp Val Trp
100 105
110

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

<210> 27

<211> 330

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1H10 VL

<400> 27

aatttttatgc tgactcagcc ccactctgtg tcggattctc
cggggaagac ggtaaccatc 60

tcctgcaccc gcagcagtgg cagcattgcc agcaactatg
tgcagtggta ccagcagcgc 120

ccgggcagtg cccccaccac tgtgatctat gacgataagc
aaagaccctc tgggggtccct 180

gatcggttct cgggctccat cgacagctcc tccaactctg
cctccctcac catctctgga 240

ctgacgactg aggacgaggc tgactactac tgtcagtcct
ttgatggcag cagtgtcatc 300

ttcggcggag ggaccaagct gaccgtcctg
330

<210> 28
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1H10 VL

<400> 28

Asn	Phe	Met	Leu	Thr	Gln	Pro	His	Ser	Val	Ser	Asp
Ser	Pro	Gly	Lys								
1				5					10		
		15									

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

Tyr	Val	Gln	Trp	Tyr	Gln	Gln	Arg	Pro	Gly	Ser	Ala
Pro	Thr	Thr	Val								
		35					40				
45											

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

Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu
Thr Ile Ser Gly
65 70 75
80

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

Ser Ser Val Ile Phe Gly Gly Gly Thr Lys Leu Thr
Val Leu
100 105
110

<210> 29
<211> 375
<212> DNA
<213> Artificial Sequence

<220>
<223> 3-1H2 VH

<400> 29
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ctgggtcctc ggtgaaggtc 60

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  gagaaaggag          300

cgtttctatg  atagtagtgg  ttattacgat  gcttttgata
tctggggcca  agggaacaatg          360

gtcaccgtct  cttca

                                     375

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<210>  30
<211>  125
<212>  PRT
<213>  Artificial Sequence

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<220>
<223>  3-1H2  VH

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```

<400>  30

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

100

105

110

Asp Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser
Ser

115

120

125

<210> 31

<211> 330

<212> DNA

<213> Artificial Sequence

<220>

<223> 3-1H2 VL

<400> 31

cagtctgccc tgactcagcc tcgctcagtg tccgggtctc
ctgggcagtc agtcaccatc 60

tcctgcactg gaaccagcaa tgatgttggt ggttataact
atgtctcctg gtaccaacag 120

cacccaggca aagcccccaa actcatgatt tatgatgtca
ctaagcggcc ctcaggggtc 180

cctgatcgct tctctggctc caagtctggc aacacggcct
ccctgaccgt ctctggcctc 240

cagcctgagg atgaggctga ctattattgc gcctcttatg
gaggcaggaa caatttgctt 300

tttggcggag ggactcaact gaccgtctta
330

<210> 32
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> 3-1H2 VL

<400> 32

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

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

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

Met Ile Tyr Asp Val Thr Lys Arg Pro Ser Gly Val
Pro Asp Arg Phe
50 55 60

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

Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ser
Tyr Gly Gly Arg
85 90
95

Asn Asn Leu Leu Phe Gly Gly Gly Thr Gln Leu Thr
Val Leu
100 105
110

<210> 33
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> 3-1E4 VH

<400> 33

caaatccagc tgggtacaatc tggggctgag gtgaagaagc
ctgggtcctc ggtgaaggtc 60

tcctgcaagg cttctggagg caccttcagc agctatgcta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggaggg atcatcccta
tctttggtac agcaaactac 180

gcacagaagt tccagggcag agtcacgatt accgcggaca
aatccacgag cacagcctac 240

atggagctga gcagcctgag atctgaggac acggccgtgt
attactgtgc cggaggggga 300

gcagtggcgg acaatagtta ctggggccag ggaaccctgg
tcaccgtctc ctca 354

<210> 34
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> 3-1E4 VH

<400> 34

Gln Ile Gln Leu Val Gln Ser Gly Ala Glu Val Lys
Lys Pro Gly Ser
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 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 Gly Gly Gly Ala Val Ala Asp Asn Ser Tyr Trp

Gly Gln Gly Thr
100
110

105

Leu Val Thr Val Ser Ser
115

<210> 35
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> 3-1E4 VL

<400> 35
gacatccgga tgacccagtc tccatcctcc ctgtctgcat
ctgtaggaga cagagtcacc 60

atcacttgcc gggcaagtca gggcattaga aatgatttag
gctggtatca gcagaaacca 120

gggaaagccc ctaagctcct gatctatgct gcatccagtt
tacaaagtgg ggtcccatca 180

aggttcagcg gcagtggatc tggcacagat ttcactctca
ccatcagcag cctgcagcct 240

gaagattttg caacttatta ctgtctacaa gattacaatt
accctcgaac gttcggccaa 300

gggaccaagg tggaaatcaa a
321

<210> 36
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 3-1E4 VL

<400> 36

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

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

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

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser

Arg Phe Ser Gly
50

55

60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
Ser Leu Gln Pro

65

70

75

80

Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Asp Tyr
Asn Tyr Pro Arg

85

90

95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys

100

105

<210> 37

<211> 366

<212> DNA

<213> Artificial Sequence

<220>

<223> 3-1A8 VH

<400> 37

caaatccagc tgggtacaatc tggggctgag gtgaagaagc
ctgggtcctc ggtgaaggctc 60

tcctgcaagg cttctggagg caccttcagc agctatgcta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggaggg atcatcccta
tctttgttac agcaaactac 180

gcacagaagt tccagggcag agtcacgatt accgcggacg
aatccacgag cacggcctac 240

atggagctga gcagcctgag atctgaggac acggccgtgt
attactgtgc gagagacggt 300

tcgtatagca gcagctggta ctcgtttgac tactggggcc
aggaaccct ggtcaccgtc 360

tcctca

366

<210> 38
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> 3-1A8 VH

<400> 38

Gln Ile Gln Leu Val Gln Ser Gly Ala Glu Val Lys
Lys Pro Gly Ser
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	Arg	Asp	Gly	Ser	Tyr	Ser	Ser	Ser	Trp	Tyr	Ser
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Phe Asp Tyr Trp
100 105
110

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

<210> 39
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> 3-1A8 VL

<400> 39
cagtctgccc tgactcagcc tgcctccgtg tctgggtctc
ctggacagtc gatcaccatc 60

tcctgcactg gaaccagcag tgacgtcggg gggtataact
atgtctcctg gtaccaacag 120

caccagggca aagcccccaa actcatgatt tatgatgtca
gtaatcggcc ctcagggggtt 180

tctaatacgct tctctgggctc caagtctggc aacacggcct
ccctgaccat ctctgggctc 240

caggctgagg acgaggctga ttattactgc tcctcatatg
caggtgatat tagttatgta 300

ctgttcggcg gcgggaccaa gctgaccgtc cta
333

<210> 40
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> 3-1A8 VL

<400> 40

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

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

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

Met Ile Tyr Asp Val Ser Asn Arg Pro Ser Gly Val

Ser Asn Arg Phe
50

55

60

Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr
Ile Ser Gly Leu
65 70 75

80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser
Tyr Ala Gly Asp
85 90
95

Ile Ser Tyr Val Leu Phe Gly Gly Gly Thr Lys Leu
Thr Val Leu
100 105
110

<210> 41
<211> 351
<212> DNA
<213> Artificial Sequence

<220>
<223> 3-1B11 VH

<400> 41
gaagtgcagc tgggtggagtc tggggggaggc ttggtacagc

```

ctggagggtc cctgagactc          60

tcctgtgcag cctctggatt cacttttagt gactatgaca
tgatctgggt ccgccaggct          120

ccaggcaagg ggctggagtg ggtggcagtt atatcatatg
atggaagtaa taaatactat          180

gcagactccg tgaagggccg attcaccatc tccagagaca
attccaagaa cacgctgtat          240

ctgcaaataga acagcctgag agctgaggac acggctgtgt
attactgtgc gaaagagttc          300

tttggtgctt ttgatatctg gggccaaggg acaatgggtca
ccgtctcttc a                    351

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<210>  42
<211>  117
<212>  PRT
<213>  Artificial Sequence

```

```

<220>
<223>  3-1B11 VH

```

```

<400>  42

```

```

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

```

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

30

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

45

Ala Val Ile Ser Tyr Asp Gly Ser Asn Lys 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 Glu Phe Phe Gly Ala Phe Asp Ile Trp Gly
Gln Gly Thr Met

100

105

110

Val Thr Val Ser Ser
115

<210> 43
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> 3-1B11 VL

<400> 43
tcttctgagc tgactcagga ccctgctgtg tcggtggcct
tgggacagac agtcacgatc 60

acatgccaag gagacagcct caattactat tatgcaaact
ggttccagct gaagccaggg 120

caggcccctg tacttgtcct ctttggtaaa aacaaccggc
cctcagggat cccagaccga 180

ttctctggct cctactcggg aagcacagct tccttgacca
tcactggggc tcaggcggaa 240

gatgacgctg actattactg taattcgcgg gacagcgggtg
gtaatccttg ggtgttcggc 300

ggagggacca agctgaccgt ccta

<210> 44
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 3-1B11 VL

<400> 44

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

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

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

Gly	Lys	Asn	Asn	Arg	Pro	Ser	Gly	Ile	Pro	Asp	Arg
Phe	Ser	Gly	Ser								

50

55

60

Tyr Ser Gly Ser Thr Ala Ser Leu Thr Ile Thr Gly
Ala Gln Ala Glu
65 70 75

80

Asp Asp Ala Asp Tyr Tyr Cys Asn Ser Arg Asp Ser
Gly Gly Asn Pro
85 90

95

Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105

<210> 45
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1F3 VH

<400> 45
caaatccagc tgggtacaatc tggggctgag gtgaagaagc
ctgggtcctc ggtgaaggtc 60

tcctgcaagg cttctggagg caccttcagc agctatgcta

```

tcagctgggt gcgacaggcc          120

cctggacaag ggcttgagtg gatgggaagg atcatcccta
tccttggtat agcagactac          180

gcacagaagt tccagggcag agtcacgatt accgcggaca
aatccacgag cacagcctac          240

atggaactga gtagcctggg atctgaggac acggccgtgt
atTTTTgtgc gagagagggg          300

ggatccttta ggcactttga cttctggggc cagggaaccc
tggtcaccgt ctcctca              357

```

```

<210>  46
<211>  119
<212>  PRT
<213>  Artificial Sequence

```

```

<220>
<223>  4-1F3 VH

```

```

<400>  46

```

```

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

```

```

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

```

30 20 25

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly
Leu Glu Trp Met
35 40

45

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

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

Ala Arg Glu Gly Gly Ser Phe Arg His Phe Asp Phe
Trp Gly Gln Gly
100 105
110

Thr Leu Val Thr Val Ser Ser
115

<210> 47
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1F3 VL

<400> 47
cagcctgtgc tgactcagcc accctcagtc tctggggccc
cagggcagag ggtcaccatc 60

tcctgcgctg ggagcgaccc caacatcggg acaggtcatg
atgtgcactg gtaccagcaa 120

cttccaggaa cagcccccaa actcgtcatc tatggtaaca
ccaatcggcc ctcaggggtc 180

cctgagcgat tctactgcctc caagtctggc acctcagcct
ccctggccat cactgggctc 240

caggctgagg atgaggctga ttattactgc caggcctacg
acaggagcct gcgtgggttat 300

gtcttcggga ctgggaccaa ggtcaccgtc ctg
333

<210> 48
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1F3 VL

<400> 48

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

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

His Asp Val His Trp Tyr Gln Gln Leu Pro Gly Thr
Ala Pro Lys Leu
35 40
45

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

Thr Ala Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala
Ile Thr Gly Leu
65 70 75

80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ala
Tyr Asp Arg Ser
85 90
95

Leu Arg Gly Tyr Val Phe Gly Thr Gly Thr Lys Val
Thr Val Leu
100 105
110

<210> 49
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1G5 VH

<400> 49
caaatccagc tgggtacagtc tgggtgctgaa gtgaagaagc
ctgggggcctc agtgaaggctc 60

tcctgcaaga cttctgggtta cacctttacc agctatggta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggatgg atcagcgctt
acaatggtaa cacaaactat 180

gcacagaagc tccagggcag agtcaccatg accacagaca
catccacgag cacagcctac 240

atggagctga ggagcctgag atctgacgac acggccgtgt
attactgtgc gagaactaca 300

ggtgacgagt ggctacgatt ggctataaat gactactggg
gccagggaac cctgggtcacc 360

gtctcctca
369

<210> 50
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1G5 VH

<400> 50

Gln Ile 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	Thr	Ser	Gly	Tyr	Thr
Phe	Thr	Ser	Tyr								
			20					25			
30											

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

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

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

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

Ala	Arg	Thr	Thr	Gly	Asp	Glu	Trp	Leu	Arg	Leu	Ala
Ile	Asn	Asp	Tyr								
			100					105			

110

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

<210> 51
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1G5 VL

<400> 51
gatattgtga tgacacagtc tcccctctcc ctgcccgtca
cccctggaga gccggcctcc 60

atctcctgca ggtctagtct gcgcctcatg catcctaata
gactcaacta tttggattgg 120

tacctgcaga agccagggca gtctccacag ctcctaatact
ttttgggttc tcagcgggcc 180

tccgggggtcc ctgacagggt cagtggcagt ggatcaggca
cagattttac actgaaaatc 240

agcagagtgg aggctgagga tgttggcatt tattactgca
tgcaagctct agaacctccg 300

tacacttttg gccagggggac caagctggag atcaaaa
336

<210> 52
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1G5 VL

<400> 52

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

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

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

Pro Gln Leu Leu Ile Phe Leu Gly Ser Gln Arg Ala
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	Ile	Tyr	Tyr
Cys	Met	Gln	Ala								
				85					90		
	95										

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

<210> 53
 <211> 372
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> 4-1C9 VH

<400> 53
 caggtccagc tgggtgcagtc tggggctgag gtgaagaagc
 ctgggtcctc ggtgaaggctc 60

tcctgcaagg cttctggagg caccttcagc agctatgcta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggaggg atcatcccta
tctttgttac agcaaactac 180

gcacagaagt tccagggcag agtcacgatt accgcggacg
aatccacgag cacagcctac 240

atggagctga gcagcctgag atctgaggac acggccgtgt
attactgtgc gagagatccc 300

gggtatagca gtggctggaa agatgatgct tttgatatct
ggggccaagg gacaatggtc 360

accgtctctt ca

372

<210> 54
<211> 124
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1C9 VH

<400> 54

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys
Lys Pro Gly Ser
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 Arg Asp Pro Gly Tyr Ser Ser Gly Trp Lys Asp

Asp Ala Phe Asp
100 105
110

Ile Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 55
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-1C9 VL

<400> 55
gaaattgtga tgacacagtc tccaggcacc ctgtctttgt
ctccagggga tacagcctcc 60

ctctcctgca gggccagtca gactgttagc agcaactact
tagcctggta ccaacagaaa 120

cctggccagg ctcccaggct cctcatctat gatacatcca
acagggccgc tggcatcccg 180

gccaggttca gtggcagtgg gtctgggaca gacttcactc
tcaccatcag tagcctagag 240

cctgaagatt ttgcagtgta ttactgtcag cagtacggta
gctcactctg gacgttcggc 300

caagggacca aggtggaaat caaa
324

<210> 56
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1C9 VL

<400> 56

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

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

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

Ile Tyr Asp Thr Ser Asn Arg Ala Ala Gly Ile Pro

Ala Arg Phe Ser
50 55 60

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

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

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

<210> 57
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> 11-A4 VH

<400> 57
caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc
ctgggtcctc ggtgaaggctc 60

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 gagagcgggg 300

cagcagctgg tagccctttg gtactactgg ggccagggaa
ccctgggtcac cgtctcctca 360

<210> 58
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> 11-A4 VH

<400> 58

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys
Lys Pro Gly Ser
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 Arg Ala Gly Gln Gln Leu Val Ala Leu Trp Tyr
Tyr Trp Gly Gln
100 105
110

Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 59
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> 11-A4 VL

<400> 59
cagtctgccc tgactcagcc tccctccgcg tccgggtctc
gtggacagtc agtctccatc 60

tcctgcagtg gaagtcgcag tgacattgga tattataact
atgtctcctg gtatcaacaa 120

cacccaggca aagcccccaa actcatcatt tttgacgtca
ataagcggcc ctcaggggtc 180

cctgatcgct tctctggctc caagtctggc aacacggcct
ccctgaccgt ctctggcctc 240

cagcctgagg atgaggctga ctattattgc gcctcttatg
gaggcaggaa caatttgctt 300

tttggcggag ggactcaact gaccgtctta
330

<210> 60
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> 11-A4 VL

<400> 60

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

Ser	Val	Ser	Ile	Ser	Cys	Ser	Gly	Ser	Arg	Ser	Asp
Ile	Gly	Tyr	Tyr								
			20					25			
	30										

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

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

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

Gln Pro Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ser
Tyr Gly Gly Arg
85 90
95

Asn Asn Leu Leu Phe Gly Gly Gly Thr Gln Leu Thr
Val Leu
100 105
110

<210> 61
<211> 363
<212> DNA
<213> Artificial Sequence

<220>
<223> 21-A1 VH

<400> 61
caggtgcaac tgcaggagtc gggcccagga ctggtggagc
cttcggagac cctgtccctc 60

acctgcactg tctctggtgg ctccatcagt agtttctact

```

ggagctggat ccggcagccc          120

ccaggggaagg gactggagtg gattggctat atcaattaca
gtgggagcac caactacaac          180

ccctccctca agagtcgagt caccatatca gtagacacgt
ccaagaacca gttctccctg          240

aagctgagct ctgtgaccgc cgcagacacg gctgtgtatt
actgtgcgag acagatatta          300

tggttcgggg agttaagggt gtctgacccc tggggccagg
gaaccctggt caccgtctcc          360

tca

                                363

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<210> 62
<211> 121
<212> PRT
<213> Artificial Sequence

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```

<220>
<223> 21-A1 VH

```

```

<400> 62

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```

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

```

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

30

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

45

Gly Tyr Ile Asn Tyr Ser Gly Ser Thr Asn Tyr Asn
Pro Ser Leu Lys
50 55 60

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

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val
Tyr Tyr Cys Ala
85 90
95

Arg Gln Ile Leu Trp Phe Gly Glu Leu Arg Trp Phe
Asp Pro Trp Gly

100

105

110

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 63
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> 21-A1 VL

<400> 63
cagtctgccc tgactcagcc tccctccgcg tccgggtctc
ctggacagtc agtcaccatc 60

tcctgcactg gaaccagcag tgacattggt ggttataact
atgtctcctg gtaccaactg 120

cgcccaggca aagcccccaa actcatgatt tatgacgtca
ccaagcggcc ctcaggggtc 180

cctgatcgct tctctggctc caagtctggc aacacggcct
ccctgaccgt ctctgggctc 240

caggctgagg atgaggctga ttattactgc agctcatatg
caggcagcaa caatgtggta 300

ttcggcggag ggaccaagct gaccgtccta

<210> 64
 <211> 110
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 21-A1 VL

<400> 64

Gln	Ser	Ala	Leu	Thr	Gln	Pro	Pro	Ser	Ala	Ser	Gly
Ser	Pro	Gly	Gln								
1				5						10	
		15									

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

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

Met	Ile	Tyr	Asp	Val	Thr	Lys	Arg	Pro	Ser	Gly	Val
Pro	Asp	Arg	Phe								

50

55

60

Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr
 Val Ser Gly Leu
 65 70 75

80

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser
 Tyr Ala Gly Ser
 85 90

95

Asn Asn Val Val Phe Gly Gly Gly Thr Lys Leu Thr
 Val Leu
 100 105

110

<210> 65
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> 21-H12 VH

<400> 65
 caagtccagc tgggtacagtc tggggcctgag gtgaagaagc
 ctggggcctc ggtgaaggctc 60

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 gagaaatccc 300

tacggtttca actggttcga cccctggggc cagggaaccc
tggtcaccgt ctcctca 357

<210> 66
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> 21-H12 VH

<400> 66

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

Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	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	Arg	Asn	Pro	Tyr	Gly	Phe	Asn	Trp	Phe	Asp	Pro
Trp	Gly	Gln	Gly								
			100					105			

110

Thr Leu Val Thr Val Ser Ser
115

<210> 67

<211> 330

<212> DNA

<213> Artificial Sequence

<220>

<223> 21-H12 VL

<400> 67

aatttttatgc tgactcagcc ccactctgtg tcggagtctc
cggggaagac ggtaaccatc 60

tcctgcaccc gcagcagtgg cagcattgcc agcaactatg
tgcaagtggta ccagcagcgc 120

ccgggcagtg cccccaccac tgtgatctat gaggataacc
aaagaccctc tgggggtccct 180

gatcggttct ctggctccat cgacagctcc tccaactctg
cctccctcac catctccgga 240

ctgaagactg aggacgaggc tgactactac tgtcagtctt
atgatggctt caatcaggtg 300

ttcggcggag ggaccaagct gaccgtccta
330

<210> 68
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> 21-H12 VL

<400> 68

Asn	Phe	Met	Leu	Thr	Gln	Pro	His	Ser	Val	Ser	Glu
Ser	Pro	Gly	Lys								
1				5					10		
	15										

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

Tyr	Val	Gln	Trp	Tyr	Gln	Gln	Arg	Pro	Gly	Ser	Ala
Pro	Thr	Thr	Val								
		35				40					
45											

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

Gly Ser Ile Asp Ser Ser Ser Asn Ser Ala Ser Leu
Thr Ile Ser Gly
65 70 75
80

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

Phe Asn Gln Val Phe Gly Gly Gly Thr Lys Leu Thr
Val Leu
100 105
110

<210> 69
<211> 372
<212> DNA
<213> Artificial Sequence

<220>
<223> 7-D12 VH

<400> 69
caaatgcagc tgggtacagtc tggggctgag gtgaagaagc
ctgggtcctc ggtgaaggctc 60

tcctgcaagg cttctggagg caccttcagc agctatgcta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggaggg atcatcccta
tctttgttac agcaaactac 180

gcacagaagt tccagggcag agtcacgatt accgcggaca
aatccacgag cacagcctac 240

atggagctga gcagcctgag atctgaggac acggccgtgt
attactgtgc gagaaccggt 300

agtagtggtt atgtacgttg gagcaactgg ttcgaccctt
ggggccaggg aaccctgggtc 360

accgtctcct ca

372

<210> 70
<211> 124
<212> PRT
<213> Artificial Sequence

<220>
<223> 7-D12 VH

<400> 70

Gln Met Gln Leu Val Gln Ser Gly Ala Glu Val Lys
Lys Pro Gly Ser
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 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 Thr Gly Ser Ser Gly Tyr Val Arg Trp Ser

Asn Trp Phe Asp

100

105

110

Pro Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser

115

120

<210> 71

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> 7-D12 VL

<400> 71

gacatccaga tgacccagtc tccctccacc ctgtctgcat
ttgtaggaga cagagtcacc 60

atcacttgcc gggccagtga gagtattagt aggtgggttg
cctggtatca gcagaaacca 120

gggaaagccc ctaaactcct aatctctaag acgtctaatt
tagaaagcgg ggtcccgtca 180

aggttcagtg gcgctggatc tgggacagat ttcactctca
ccattagcag tctgcaacct 240

gaggattttg caacttactt ctgtcaacag gggtccaaaa
tgcctccgac tttcggcgga 300

gggaccaagg tggagatcaa g
321

<210> 72
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 7-D12 VL

<400> 72

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

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

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

Ser Lys Thr Ser Asn Leu Glu Ser Gly Val Pro Ser

Arg Phe Ser Gly
50 55 60

Ala 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 Phe Cys Gln Gln Gly Ser
Lys Met Pro Pro
85 90
95

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

<210> 73
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> 9-E3 VH

<400> 73
caggtgcagc tgggtgcagtc tggggctgag gtgaagaagc
ctgggtcctc ggtgaaggctc 60

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 gagagggggcc 300

tacggtggta actccgcttt tgactactgg ggccagggaa
ccctgggtcac cgtctcctca 360

<210> 74
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> 9-E3 VH

<400> 74

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys
Lys Pro Gly Ser
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 Arg Gly Ala Tyr Gly Gly Asn Ser Ala Phe Asp
Tyr Trp Gly Gln
100 105
110

Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 75

<211> 333

<212> DNA

<213> Artificial Sequence

<220>

<223> 9-E3 VL

<400> 75

cagtctgtgc tgacgcagcc gccctcagtg tctggggccc
cagggcagag ggtcaccatc 60

tcctgcactg ggagcagctc caacatcggg gcaggttatg
atgtacactg gtaccagcag 120

cttccaggaa cagcccccaa actcctcatg tacagtaatg
atcagcggcc ctcaggggtc 180

actgagcgat tctctggctc caagtctggc acctcagcct
ccctggccat cagtgggctc 240

cagtctgaag atgagggtga ttactactgc cagtcctatg
acagaagcct gagagggttcg 300

gtcttcggcg gagggaccaa gctgaccgtc ctc
333

<210> 76
<211> 111
<212> PRT
<213> Artificial Sequence

<220>
<223> 9-E3 VL

<400> 76

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

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

Tyr	Asp	Val	His	Trp	Tyr	Gln	Gln	Leu	Pro	Gly	Thr
Ala	Pro	Lys	Leu								
		35				40					
45											

Leu	Met	Tyr	Ser	Asn	Asp	Gln	Arg	Pro	Ser	Gly	Val
Thr	Glu	Arg	Phe								
	50					55					60

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

Gln Ser Glu Asp Glu Gly Asp Tyr Tyr Cys Gln Ser
Tyr Asp Arg Ser
85 90
95

Leu Arg Gly Ser Val Phe Gly Gly Gly Thr Lys Leu
Thr Val Leu
100 105
110

<210> 77
<211> 363
<212> DNA
<213> Artificial Sequence

<220>
<223> 10-A6 VH

<400> 77
gaggtgcagc tggtgcagtc tggggctgag gtgaagaagc
ctggggcctc agtgaagggtt 60

tcctgcaagg cttctgggtta cacctttacc agctatggta

```

tcagctgggt gcgacaggcc          120

cctggacaag ggcttgagtg gatgggatgg atcagcgctt
acaatggtaa cacaaactat          180

gcacagaagc tccagggcag agtcaccatg accacagaca
catccacgag cacagcctac          240

atggagctga ggagcctgag atctgacgac acggccgtgt
attactgtgc gagagattcc          300

atagcagcag ctggtactcc gttcgactac tggggccagg
gaaccctggc caccgtctcc          360

tca

                                363

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<210>  78
<211>  121
<212>  PRT
<213>  Artificial Sequence

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<220>
<223>  10-A6 VH

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```

<400>  78

```

```

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 Thr Ser Tyr
20 25

30

Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly
Leu Glu Trp Met
35 40

45

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

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

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

Ala Arg Asp Ser Ile Ala Ala Ala Gly Thr Pro Phe
Asp Tyr Trp Gly

100

105

110

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 79

<211> 330

<212> DNA

<213> Artificial Sequence

<220>

<223> 10-A6 VL

<400> 79

aatttttatgc tgactcagcc ccactctgtg tcggagtctc
cggggaagac ggtcaccatc 60

tcctgcaccc gcagcagtgg catcattgcc agcaaatatg
tgactggta ccagcagcgc 120

ccgggcagtg cccccaccac tgtgatctat gaggataacc
aaagaccgtc tgggggtccct 180

gatcgattct ctggctccat cgacaactcc tccaactctg
cctccctcac catctctgga 240

ctgcagactg aggacgaggc tgactactac tgtcagtctc
atgacggcat caatcagggt 300

ttcggcggag ggaccaaggt caccgtccta

330

<210> 80
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> 10-A6 VL

<400> 80

Asn	Phe	Met	Leu	Thr	Gln	Pro	His	Ser	Val	Ser	Glu
Ser	Pro	Gly	Lys								
1				5					10		
	15										

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

Tyr	Val	His	Trp	Tyr	Gln	Gln	Arg	Pro	Gly	Ser	Ala
Pro	Thr	Thr	Val								
		35					40				
45											

Ile	Tyr	Glu	Asp	Asn	Gln	Arg	Pro	Ser	Gly	Val	Pro
Asp	Arg	Phe	Ser								

50

55

60

Gly Ser Ile Asp Asn Ser Ser Asn Ser Ala Ser Leu
Thr Ile Ser Gly
65 70 75

80

Leu Gln Thr Glu Asp Glu Ala Asp Tyr Tyr Cys Gln
Ser His Asp Gly
85 90

95

Ile Asn Gln Val Phe Gly Gly Gly Thr Lys Val Thr
Val Leu
100 105

110

<210> 81
<211> 372
<212> DNA
<213> Artificial Sequence

<220>
<223> 12-A4 VH

<400> 81
gaggtgcagc tggtggagtc ccggggaggc ttggtacagc
cggggggggtc cctgagactc 60

tcctgtgtaa cttctggatt cagctttaac aactatgcca
tgaactgggt ccgccaggct 120

ccggggaagg ggctggagtg ggtctcagct gttagtggta
gtggtggtac cacatactac 180

gcagactccg tgaagggccg gttcaccatc tccagagaca
attccaagaa cacgctgttt 240

gtgcagatgg acagcctgag agctgaggac acggctgtgt
attactgtgc gaaaggactt 300

ttccctacga tttttggagt aggagcaatg tttgactact
ggggccaggg aaccctggtc 360

accgtctcct ca

372

<210> 82
<211> 124
<212> PRT
<213> Artificial Sequence

<220>
<223> 12-A4 VH

<400> 82

Glu Val Gln Leu Val Glu Ser Arg Gly Gly Leu Val
Gln Pro Gly Gly

1

5

10

15

Ser Leu Arg Leu Ser Cys Val Thr Ser Gly Phe Ser
Phe Asn Asn 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 Val Ser Gly Ser Gly Gly Thr 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 Phe
65 70 75
80

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

Ala Lys Gly Leu Phe Pro Thr Ile Phe Gly Val Gly
Ala Met Phe Asp
100 105

110

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

<210> 83
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> 12-A4 VL

<400> 83
tcttctgagc tgactcagcc accctcagcg tctgggaccc
ccgggcagag ggtcaccatc 60

tcttgttctg gaagcagctc caacatcgga agtaatgctg
ttaactggta tcagcagctc 120

ccaggaacgg cccccaact cctcatctat gataataatc
accggccctc aggggtccct 180

gaccgattct ctggctccaa gtctggcacc tcagcctccc
tggccatcag tgggctccag 240

tctgaggatg aggctgatta ttattgtgca gcatgggatg
acaccattcc tggtgtgcta 300

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

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile
Ser Gly Leu Gln
65 70 75
80

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

Pro Gly Val Leu Phe Ala Gly Gly Thr Lys Leu Thr
Val Leu
100 105
110

<210> 85
<211> 357
<212> DNA
<213> Artificial Sequence

<220>
<223> 14-G10 VH

<400> 85

gaagtgcagc tggtggagtc tggggctgag gtgaagaagc
ctgggtcctc ggtgaaggtc 60

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 gagagggtgtt 300

tcttactact acggtatgga cgtctggggc caagggacca
cggtcaccgt ctcctca 357

<210> 86
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> 14-G10 VH

<400> 86

Glu Val Gln Leu Val Glu Ser Gly Ala Glu Val Lys
Lys Pro Gly Ser
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 Arg Gly Val Ser Tyr Tyr Tyr Gly Met Asp Val

Trp Gly Gln Gly
100 105
110

Thr Thr Val Thr Val Ser Ser
115

<210> 87
<211> 318
<212> DNA
<213> Artificial Sequence

<220>
<223> 14-G10 VL

<400> 87
caggctgtgc tgactcagcc accctcgggtg tccgtgtccc
caggacagac agccatcatc 60

tcctgttctg gacataaatt ggggtgataag tatgtttcct
ggtatcaaca gcagccaggc 120

cagtcccctg tgctgggtcct ctttcaggat accaagcggc
cctcagggat ccctgagcga 180

ttctctggct ccaactctgg gaacacagcc actctgacca
tcagcgcgac ccaggctgcg 240

gatgaggctg actattactg tcaggcgggg gacaccaagt
ctgtgatctt cggcggcggg 300

accaagctga ccgtccta

318

<210> 88

<211> 106

<212> PRT

<213> Artificial Sequence

<220>

<223> 14-G10 VL

<400> 88

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

1 5 10
15

Thr Ala Ile Ile Ser Cys Ser Gly His Lys Leu Gly
Asp Lys Tyr Val

20 25
30

Ser Trp Tyr Gln Gln Gln Pro Gly Gln Ser Pro Val
Leu Val Leu Phe

35 40
45

Gln Asp Thr Lys Arg Pro Ser Gly Ile Pro Glu Arg

Phe Ser Gly Ser
50

55

60

Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Ala
Thr Gln Ala Ala
65 70 75

80

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

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

<210> 89
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> 22-A6 VH

<400> 89
caggttcagg tgggtgcagtc tggggctgag gtgaagaagc
ctgggtcctc ggtgaaggctc 60

tcctgcaagg cttctggagg caccttcagc agctatgcta
tcagctgggt gcggcaggcc 120

cctggacaag ggcttgagtg gatgggaggg atcatcccta
tctttggtac agcaaactac 180

gcacagaagt tccagggcag agtcacgatt accgcggacg
aatccacgag cacagcctac 240

atggagctga gcagcctgag atctgaggac acggccgtgt
attactgtgc gagaggatac 300

agctatgggt caggacacct tgactactgg ggccagggaa
ccctgggtcac cgtctcctca 360

<210> 90
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> 22-A6 VH

<400> 90

Gln Val Gln Val Val Gln Ser Gly Ala Glu Val Lys
Lys Pro Gly Ser
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 Arg Gly Tyr Ser Tyr Gly Ser Gly His Leu Asp
Tyr Trp Gly Gln
100 105
110

Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 91
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> 22-A6 VL

<400> 91
gacatccaga tgacccagtc tccatcctcc ctgtctgcat
ctgtaggaga cagagtcacc 60

atcacttgcc aggcgagtca ggacattagc aactatttaa
attggtatca gcagaaacca 120

gggaaagccc ctaagctcct gatctacgat gcatccaatt
tggaacagg ggtcccatca 180

aggttcagtg gcagtggatc tgggacagat ttcgctctca
ccatcagcag tctccaacct 240

gaagattttg caacttatta ctgtctacag cataatagtt
accctcggac ttttggccag 300

gggaccaagc tggagatcaa a
321

<210> 92
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 22-A6 VL

<400> 92

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	Gln	Asp
Ile	Ser	Asn	Tyr								
			20					25			
	30										

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

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

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

Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn
Ser Tyr Pro Arg
85 90
95

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

<210> 93
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> 35-B1 VH

<400> 93
gaggtgcagc tgggtgcagtc tggggctgag gtgaagaagc
ctggggcctc agtgaaggctc 60
tcctgcaagg cttctggata caccttcacc ggctactata
tgcaactgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggatgg atgaacccta
acagtgggtga cacagcctat 180

acacagaact tccagggcag agtcaccatg accaggaacc
cctccataag cacagcctac 240

atggagctga gcaacctgag atctgaggac acggccgtgt
attactgtgc gagaggccgg 300

gggttcgcgg agaagcccct tgggtactgg ggccagggaa
ccctgggtcac cgtctcctca 360

<210> 94

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<223> 35-B1 VH

<400> 94

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 Thr Gly Tyr
20 25
30

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

Gly Trp Met Asn Pro Asn Ser Gly Asp Thr Ala Tyr
Thr Gln Asn Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asn Pro Ser Ile
Ser Thr Ala Tyr
65 70 75
80

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

Ala Arg Gly Arg Gly Phe Ala Glu Lys Pro Leu Gly
Tyr Trp Gly Gln
100 105
110

Gly Thr Leu Val Thr Val Ser Ser

115

120

<210> 95
<211> 339
<212> DNA
<213> Artificial Sequence

<220>
<223> 35-B1 VL

<400> 95
gatattgtga tgactcagtc tccagactcc ctggctgtgt
ctctggggcgg gagggccacc 60

atcaactgca agtccagcca gagtatttta tccagctcca
ataataagaa ctatttagct 120

tggtaccagc agaaaccagg tcagcctcct aagctgctca
tttactgggc atctacccgg 180

gaatccgggg tccctgaccg gttcagcggc agcgggtctg
ggacagattt cactctcacc 240

atcagcagcc tgcaggctga agatgtggca gtttattact
gtcagcaata ttatagtact 300

cctccgacat tcggccaagg gaccaagggtg gaaatcaaa
339

<210> 96
<211> 113

<212> PRT
<213> Artificial Sequence

<220>
<223> 35-B1 VL

<400> 96

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

Gly	Arg	Ala	Thr	Ile	Asn	Cys	Lys	Ser	Ser	Gln	Ser
Ile	Leu	Ser	Ser								
			20					25			
30											

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

Pro	Pro	Lys	Leu	Leu	Ile	Tyr	Trp	Ala	Ser	Thr	Arg
Glu	Ser	Gly	Val								
	50					55					60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp

Phe Thr Leu Thr

65

70

75

80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr

Tyr Cys Gln Gln

85

90

95

Tyr Tyr Ser Thr Pro Pro Thr Phe Gly Gln Gly Thr

Lys Val Glu Ile

100

105

110

Lys

<210> 97

<211> 366

<212> DNA

<213> Artificial Sequence

<220>

<223> 3-1F4 VH

<400> 97

gaggtgcagc tgggtgcagtc tggggctgag gtgaagaagc

ctgggtcctc ggtgaaggctc 60

tcctgcaagg cttctggagg caccttcagc agctatgcta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggaggg atcatcccta
tctttgttac agcaaactac 180

gcacagaagt tccagggcag agtcacgatt accgcggacg
aatccacgag cacagcctac 240

atggagctga gcagcctgag atctgaggac acggccgtgt
attactgtgc gagggcccct 300

cgagggcagt ggctggttca ctactttgac tactggggcc
aggaaccct ggtcacccgtc 360

tcctca
366

<210> 98
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> 3-1F4 VH

<400> 98

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys
Lys Pro Gly Ser
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 Arg Ala Pro Arg Gly Gln Trp Leu Val His Tyr

Phe Asp Tyr Trp
100 105
110

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

<210> 99
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> 3-1F4 VL

<400> 99
gaaattgtgt tgacgcagtc tccagccacc ctctctctgt
ctccagggga aagagccacc 60

ctctcctgct gggccagtca ggatgttagc aactacttag
cctggtacca acagaagcct 120

ggccaggctc ccaggctcct catctatgat gcatccaaca
gggccactgg catcccagcc 180

aggttcagcg gcagtgggtc tgggacagac ttcactctca
ccatcagcag cctagagcct 240

gaagattttg cagtgtatta ctgtcagcaa cgtagcaact
ggcctctcac tttcggcggc 300

gggaccaagg tggagctcaa a
321

<210> 100
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 3-1F4 VL

<400> 100

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

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

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

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala

Arg Phe Ser Gly
50

55

60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
Ser Leu Glu Pro

65

70

75

80

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Arg Ser
Asn Trp Pro Leu

85

90

95

Thr Phe Gly Gly Gly Thr Lys Val Glu Leu Lys

100

105

<210> 101

<211> 357

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1B3 VH

<400> 101

caggttcagc tgggtgcagtc tggagctgag gtgaagaagc
ctggggcctc agtgaaggctc 60

tcctgcaagg cttctgggta cacctttacc agctatggta
tcagctgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggatgg atcagcgctt
acaatggtaa cacaactat 180

gcacagaagc tccagggcag agtcaccatg accacagaca
catccacgag cacagcctac 240

atggagctga ggagcctgag atctgacgac acggccgtgt
attactgtgc gagagagtcc 300

tactcgtccg caggtattga ctactggggc cagggaaccc
tggtcaccgt ctcctca 357

<210> 102
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1B3 VH

<400> 102

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

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

Phe Thr Ser Tyr
20

25

30

Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly
Leu Glu Trp Met
35 40

45

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

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

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

Ala Arg Glu Ser Tyr Ser Ser Ala Gly Ile Asp Tyr
Trp Gly Gln Gly
100 105
110

Thr Leu Val Thr Val Ser Ser
115

<210> 103

<211> 336

<212> DNA

<213> Artificial Sequence

<220>

<223> 4-1B3 VL

<400> 103

gatattgtga tgactcagtc tccactctcc ctgcccgtca
cccctggaga gccggcctcc 60

atctcctgca ggtctagtca gaccctcctg catagtaatg
gattcaacta tttggattgg 120

tacctgcaga agccagggca gtctccacaa ctcctgatgt
atttgggctc tagccggggcc 180

tccgggggtcc ctgacagggt cagtggcagt ggatcgggca
cagatttcac actgaaaatc 240

agcagagtgg aggctgagga tgttgggggtt tattactgca
tgcaaactct acaaactcct 300

ccggcttttcg gcggagggac caaggtggag atcaaa
336

<210> 104
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> 4-1B3 VL

<400> 104

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

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

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

Pro Gln Leu Leu Met Tyr Leu Gly Ser Ser Arg Ala
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 Met Gln Thr
 85 90
 95

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

<210> 105
 <211> 354
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> 21-G1 VH

<400> 105
 caggtccagc tgggtgcagtc tggggctgag gtgaagaagc
 ctggggcctc agtgacgatt 60

tcctgcgagg cgtctggata caacttcatc agctactata

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tacactgggt gcgacaggcc          120

cctggacaag gccttgagtg gatgggattc gtcgtcccta
gtggtggtgc cgcaggctac          180

acacagaagt tccagggcag actcaccgtg accagggaca
cgtccacgag cacagtctac          240

atggacctga acagcctgac atctgacgac acggccgtgt
attactgtgt gcgagaaatg          300

agtgggtggct ggtttgattt ctggggccag ggaaccctgg
tcaccgtctc ctcg                354

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<210>  106
<211>  118
<212>  PRT
<213>  Artificial Sequence

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<220>
<223>  21-G1 VH

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<400>  106

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```

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

```

```

Ser Val Thr Ile Ser Cys Glu Ala Ser Gly Tyr Asn
Phe Ile Ser Tyr

```

30 20 25

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

45

Gly Phe Val Val Pro Ser Gly Gly Ala Ala Gly Tyr
Thr Gln Lys Phe
50 55 60

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

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

Val Arg Glu Met Ser Gly Gly Trp Phe Asp Phe Trp
Gly Gln Gly Thr
100 105
110

Leu Val Thr Val Ser Ser
115

<210> 107
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> 21-G1 VL

<400> 107
gacatccaga tgacccagtc tccatcctcc ctgtctgcat
ctgtaggaga cagagtcacc 60

atcacttgcc gggcaagtca gagcattagc agctatttaa
attggtatca gcagaaacca 120

gggaaagccc ctaagctcct gatctatgct gcatccagtt
tgcaaagtgg ggtcccatca 180

aggttcagtg gcagtggatc tgggacagat ttcactctca
ccatcagcag tctgcaacct 240

gaagattttg caacttacta ctgtcaacag agttacagta
ccccgatcac cttcggccaa 300

gggacacgac tggagattaa a
321

<210> 108
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 21-G1 VL

<400> 108

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

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

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

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser
Arg Phe Ser Gly
50 55 60

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

80

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

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