

eolf-seql
SEQUENCE LISTING

<110> UCB Biopharma SPRL
<120> Antibody molecules which bind TNF-alpha
<130> PF0057_WO
<150> GB1522394.4
<151> 2015-12-18
<160> 37
<170> PatentIn version 3.5
<210> 1
<211> 10
<212> PRT
<213> Artificial Sequence
<220>
<223> CDR sequences of antibody 2109 - CDRH1
<400> 1

Gly	Tyr	Thr	Phe	Thr	Asp	Asn	Tyr	Ile	His
1				5					10

<210> 2
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> CDR sequences of antibody 2109 - CDRH2
<400> 2

Tyr	Ile	Asn	Pro	Ser	Ser	Ala	Tyr	Ala	His	Tyr	Asn	Glu	Lys	Phe	Lys
1				5					10					15	

Thr

<210> 3
<211> 10
<212> PRT
<213> Artificial Sequence

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<220>

<223> CDR sequences of antibody 2109 - CDRH3

<400> 3

Arg	Tyr	Tyr	Ser	Ala	Met	Pro	Phe	Ala	Tyr
1				5					10

<210> 4

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR sequences of antibody 2109 - CDRL1

<400> 4

Arg	Ala	Ser	Glu	Asp	Ile	Tyr	Ser	Gly	Leu	Ala
1				5					10	

<210> 5

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR sequences of antibody 2109 - CDRL1

<400> 5

Arg	Ala	Ser	Glu	Asp	Ile	Tyr	Asn	Gly	Leu	Ala
1				5					10	

<210> 6

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> CDR sequences of antibody 2109 - CDRL2

<400> 6

Asp	Ser	Ser	Thr	Leu	His	Thr
1				5		

<210> 7

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

<220>
<223> CDR sequences of antibody 2109 - CDRL2

<400> 7

Asn Ser Asn Thr Leu His Thr
1 5

<210> 8
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR sequences of antibody 2109 - CDRL2

<400> 8

Asn Ser Ser Thr Leu His Thr
1 5

<210> 9
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR sequences of antibody 2109 - CDRL2

<400> 9

Asp Ser Asn Thr Leu His Thr
1 5

<210> 10
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR sequences of antibody 2109 - CDRL3

<400> 10

Gln Gln Asn Tyr Asp Phe Pro Leu Thr

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1

5

<210> 11
 <211> 109
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light Chain variable region of antibody 2109 gL18

<400> 11

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 Glu Asp Ile Tyr Ser Gly
 20 25 30

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

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

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

Glu Asp Val Ala Thr Tyr Phe Cys Gln Gln Asn Tyr Asp Phe Pro Leu
 85 90 95

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

<210> 12
 <211> 119
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy Chain variable region of antibody 2109 gH2

<400> 12

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly

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

<210> 13
 <211> 327
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> DNA encoding Light Chain variable region of antibody 2109 gL18

<400> 13	
gatatacaga tgaccaatc accaagctct ctgagtgcctt ccgttggcga tcgcgttaca	60
attacctgcc gagctagcga ggatatatac tcaggactgg cctggtacca gcaaaagcct	120
ggcaaagtgc ctaagctcct gatctacgac tccagtaccc tgcacactgg tgtgccaagc	180
cgcttttagcg gaactggatc tggaaccgac tatacactga cgatttcctc actgcaaccg	240
gaagacgtgg caacctactt ctgtcagcaa aactacgact tccccttgac gtttgggcaa	300
gggacaaaagc tggagatcaa acgtacc	327

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<210> 14
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> DNA encoding Heavy Chain variable region of antibody 2109 gH2

<400> 14
 gaagttcaac tggtcgaaag cggaggtggg ctcgtgaaac ctggcggatc tctgcgattg 60
 tcatgtgctg caagcggcta cacgtttacc gataactata tccactgggt gcgacaagca 120
 ccagggaagg gactggaatg gattggatat attaaccga gctccgccta cgcacactac 180
 aacgagaaat tcaagaccg attcaccatc tccgtggaca aagccaagaa ctccgcttac 240
 ctgcaaatga actctctgcg ggccgaagac actgccgtgt attactgcac ccgccgatac 300
 tatagcgcta tgccctttgc ctactgggga caaggacac tggtcactgt ctcaagt 357

<210> 15
 <211> 109
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light Chain variable region of antibody 2109 gL18

<400> 15

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 Glu Asp Ile Tyr Ser Gly
 20 25 30

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

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

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

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Glu Asp Val Ala Thr Tyr Phe Cys Gln Gln Asn Tyr Asp Phe Pro Leu
85 90 95

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

<210> 16

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy Chain variable region of antibody 2109 gH2

<400> 16

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

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

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

Gly Tyr Ile Asn Pro Ser Ser Ala Tyr Ala His Tyr Asn Glu Lys Phe
50 55 60

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

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

Thr Arg Arg Tyr Tyr Ser Ala Met Pro Phe Ala Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 17

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<211> 327
 <212> DNA
 <213> Artificial Sequence

<220>

<223> DNA encoding Light Chain variable region of antibody 2109 gL18

<400> 17

gatatccaga tgacccagtc gccgtccagc ctctccgcct ccgtgggaga cagagtgacg	60
atcacttgca gagcatcaga ggacatctac tctggccttg cttggtatca gcagaagccg	120
ggaaaggtgc ccaaactgct catctatgac tcctcgaccc tccacacggg agtgccatcg	180
cgcttcagcg ggaccggatc tgggaccgac tacaccctga ccatttcacg gctccagccg	240
gaggatgttg ccacttactt ctgccaacag aattacgact tcccacttac ttttggatgt	300
ggcactaagc tcgaaatcaa gcgcacc	327

<210> 18
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>

<223> DNA encoding Heavy Chain variable region of antibody 2109 gH2

<400> 18

gaagtgcagt tggtggagtc ggggggaggg ttggtgaagc caggaggatc attgcggttg	60
tcatgtgcgg cttcgggcta cactttcact gacaattaca ttactgggt gcgacaagca	120
ccagggaagt gcctcgaatg gattggctac atcaaccgt caagcgcata cgcccattac	180
aacgaaaagt tcaagacccg gttcaccatc tccgtggata aggcgaaaaa cagcgcgtac	240
cttcagatga actccctgcg ggccgaggat accgccgttt actactgcac tagacggtac	300
tacagcgcca tgccgttcgc gtactgggga caaggcactc tggtcaccgt gtcgtcg	357

<210> 19
 <211> 248
 <212> PRT
 <213> Artificial Sequence

<220>

<223> scFv (VH-VL) of antibody 2109 gH2gL18

<400> 19

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

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

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

Gly Tyr Ile Asn Pro Ser Ser Ala Tyr Ala His Tyr Asn Glu Lys Phe
50 55 60

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

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

Thr Arg Arg Tyr Tyr Ser Ala Met Pro Phe Ala Tyr Trp Gly Gln 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 Gly Gly Gly Gly Ser Asp Ile Gln Met Thr
130 135 140

Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile
145 150 155 160

Thr Cys Arg Ala Ser Glu Asp Ile Tyr Ser Gly Leu Ala Trp Tyr Gln
165 170 175

Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Ile Tyr Asp Ser Ser Thr
180 185 190

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

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

Tyr Phe Cys Gln Gln Asn Tyr Asp Phe Pro Leu Thr Phe Gly Gln Gly
225 230 235 240

Thr Lys Leu Glu Ile Lys Arg Thr
245

<210> 20

<211> 744

<212> DNA

<213> Artificial Sequence

<220>

<223> DNA encoding scFv (VH-VL) of antibody 2109 gH2gL18

<400> 20

gaagttcaac	tggtcgaaag	cggaggtggg	ctcgtgaaac	ctggcggatc	tctgcgattg	60
tcatgtgctg	caagcggcta	cacgtttacc	gataactata	tccactgggt	gcgacaagca	120
ccaggggaagg	gactggaatg	gattggatat	attaacccga	gctccgccta	cgcacactac	180
aacgagaaat	tcaagacccg	attcaccatc	tccgtggaca	aagccaagaa	ctccgcttac	240
ctgcaaatga	actctctgcg	ggccgaagac	actgccgtgt	attactgcac	ccgccgatac	300
tatagcgcta	tgccctttgc	ctactgggga	caagggaacac	tggtcactgt	ctcaagtgga	360
gggtggcggtt	ctggcggttg	cggttccggt	ggcggtggat	cgggaggtgg	cggttctgat	420
atacagatga	cccaatcacc	aagctctctg	agtgttccg	ttggcgatcg	cgttacaatt	480
acctgccgag	ctagcgagga	tatatactca	ggactggcct	ggtaccagca	aaagcctggc	540
aaagtgccta	agctcctgat	ctacgactcc	agtaccctgc	acactggtgt	gccaaagccgc	600
tttagcggaa	ctggatctgg	aaccgactat	acactgacga	tttcctcact	gcaaccggaa	660
gacgtggcaa	cctacttctg	tcagcaaaac	tacgacttcc	ccttgacgtt	tgggcaaggg	720
acaaagctgg	agatcaaacg	tacc				744

<210> 21

<211> 248

<212> PRT

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<213> Artificial Sequence

<220>

<223> dsscFv (VH-VL) of antibody 2109 gH2gL18

<400> 21

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

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

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

Gly Tyr Ile Asn Pro Ser Ser Ala Tyr Ala His Tyr Asn Glu Lys Phe
50 55 60

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

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

Thr Arg Arg Tyr Tyr Ser Ala Met Pro Phe Ala Tyr Trp Gly Gln 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 Gly Gly Gly Gly Ser Asp Ile Gln Met Thr
130 135 140

Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile
145 150 155 160

Thr Cys Arg Ala Ser Glu Asp Ile Tyr Ser Gly Leu Ala Trp Tyr Gln
165 170 175

Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Ile Tyr Asp Ser Ser Thr

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180

185

190

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

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

Tyr Phe Cys Gln Gln Asn Tyr Asp Phe Pro Leu Thr Phe Gly Cys Gly
225 230 235 240

Thr Lys Leu Glu Ile Lys Arg Thr
245

<210> 22
<211> 744
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA encoding dsscFv (VH-VL) of antibody 2109 gH2gL18

<400> 22
gaagtgcagt tggtggagtc ggggggaggg ttggtgaagc caggaggatc attgcggttg 60
tcatgtgcgg cttcgggcta cactttcact gacaattaca ttcactgggt gcgacaagca 120
ccagggaagt gcctcgaatg gattggctac atcaaccgt caagcgcata cgcccattac 180
aacgaaaagt tcaagaccg gttcaccatc tccgtggata aggcgaaaaa cagcgcgtac 240
cttcagatga actccctgcg ggccgaggat accgccgttt actactgcac tagacgttac 300
tacagcgcca tgccgttcgc gtactgggga caaggcactc tggtcaccgt gtcgtcggga 360
ggaggaggct cgggtggagg cggatcgggt ggcggaggga gcggcggagg cggttcggat 420
atccagatga ccagtcgcc gtccagcctc tccgcctccg tgggagacag agtgacgac 480
acttgacag catcagagga catctactct ggccttgctt ggtatcagca gaagccggga 540
aaggtgcca aactgctcat ctatgactcc tcgaccctcc acacgggagt gccatcgcgc 600
ttcagcggga ccggatctgg gaccgactac accctgacca tttcatcgct ccagccggag 660
gatgttgcca cttacttctg ccaacagaat tacgacttcc cacttacttt tggatgtggc 720

actaagctcg aaatcaagcg cacc

<210> 23
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light Chain variable region of rat antibody 2109

<400> 23

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

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

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

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

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

Glu Asp Val Ala Thr Tyr Phe Cys Gln Gln Asn Tyr Asp Phe Pro Leu
 85 90 95

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

<210> 24
 <211> 119
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy Chain variable region of rat antibody 2109

<400> 24

Glu Val Gln Leu His Gln Ser Gly Ala Ala Leu Val Lys Pro Gly Ala

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

<210> 25
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Human VK1 2-1(U) A20 JK2 acceptor framework

<400> 25

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

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

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

Glu Asp Val Ala Thr Tyr Tyr Cys Gln Lys Tyr Asn Ser Ala Pro Tyr
85 90 95

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

<210> 26

<211> 113

<212> PRT

<213> Artificial Sequence

<220>

<223> Human VH3 1-3 3-21 JH4 acceptor framework

<400> 26

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

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

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

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

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

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

Ala Arg Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser

eolf-seql

100

105

110

Ser

<210> 27

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Light Chain variable region of antibody 2109 gL1

<400> 27

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 Glu Asp Ile Tyr Asn Gly
20 25 30

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

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

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

Glu Asp Val Ala Thr Tyr Phe Cys Gln Gln Asn Tyr Asp Phe Pro Leu
85 90 95

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

<210> 28

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy Chain variable region of antibody 2109 gH1

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<400> 28

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

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

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

Gly Tyr Ile Asn Pro Ser Ser Ala Tyr Ala His Tyr Asn Glu Lys Phe
50 55 60

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

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

Thr Arg Arg Tyr Tyr Ser Ala Met Pro Phe Ala Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser
115

<210> 29

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Light Chain variable region of antibody 2109 gL18

<400> 29

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 Glu Asp Ile Tyr Ser Gly
20 25 30

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

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

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

Glu Asp Val Ala Thr Tyr Phe Cys Gln Gln Asn Tyr Asp Phe Pro Leu
 85 90 95

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

<210> 30

<211> 324

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse heavy g1 constant region

<400> 30

Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Ala
 1 5 10 15

Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu Val Lys Gly Tyr
 20 25 30

Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly Ser Leu Ser Ser
 35 40 45

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

Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro Ser Glu Thr Val
 65 70 75 80

Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys

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85

90

95

Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile Cys Thr Val Pro
 100 105 110

Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro Lys Asp Val Leu
 115 120 125

Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val Val Asp Ile Ser
 130 135 140

Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val Asp Asp Val Glu
 145 150 155 160

Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln Phe Asn Ser Thr
 165 170 175

Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln Asp Trp Leu Asn
 180 185 190

Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala Phe Pro Ala Pro
 195 200 205

Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro Lys Ala Pro Gln
 210 215 220

Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala Lys Asp Lys Val
 225 230 235 240

Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu Asp Ile Thr Val
 245 250 255

Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr Lys Asn Thr Gln
 260 265 270

Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn
 275 280 285

Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe Thr Cys Ser Val

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 290 295 300

Leu His Glu Gly Leu His Asn His His Thr Glu Lys Ser Leu Ser His
 305 310 315 320

Ser Pro Gly Lys

<210> 31
 <211> 102
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Mouse heavy g1 Fab no hinge constant region

<400> 31

Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Ala
 1 5 10 15

Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu Val Lys Gly Tyr
 20 25 30

Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly Ser Leu Ser Ser
 35 40 45

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

Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro Ser Glu Thr Val
 65 70 75 80

Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys
 85 90 95

Ile Val Pro Arg Asp Cys
 100

<210> 32
 <211> 107
 <212> PRT

eolf-seql

<213> Artificial Sequence

<220>

<223> Mouse light chain constant region

<400> 32

Arg Thr Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu
1 5 10 15

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

Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg
35 40 45

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

Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu
65 70 75 80

Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser
85 90 95

Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys
100 105

<210> 33

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Light chain constant region

<400> 33

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
1 5 10 15

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

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

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

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

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

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 34
<211> 103
<212> PRT
<213> Artificial Sequence

<220>
<223> Heavy chain gamma 1 Fab CH1 no hinge constant region

<400> 34

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys

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90

85

95

Lys Val Glu Pro Lys Ser Cys
100

<210> 35

<211> 330

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain gamma 1 full length constant region

<400> 35

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

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

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
130 135 140

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Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
180 185 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu
225 230 235 240

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
325 330

<210> 36
<211> 327
<212> PRT

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<213> Artificial Sequence

<220>

<223> Heavy chain gamma 4 full length constant region

<400> 36

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr
65 70 75 80

Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro
100 105 110

Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
115 120 125

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
130 135 140

Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
145 150 155 160

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe
165 170 175

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp

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180

185

190

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu
195 200 205

Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
210 215 220

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys
225 230 235 240

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
245 250 255

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
260 265 270

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
275 280 285

Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser
290 295 300

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
305 310 315 320

Leu Ser Leu Ser Leu Gly Lys
325

<210> 37

<211> 327

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain gamma 4P full length constant region

<400> 37

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg
1 5 10 15

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr
65 70 75 80

Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro
100 105 110

Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
115 120 125

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
130 135 140

Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
145 150 155 160

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe
165 170 175

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
180 185 190

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu
195 200 205

Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
210 215 220

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Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys
225 230 235 240

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
245 250 255

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
260 265 270

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
275 280 285

Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser
290 295 300

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
305 310 315 320

Leu Ser Leu Ser Leu Gly Lys
325