

SEQUENCE LISTING

<110> Chia Tai Tianqing Pharmaceutical Group Co., Ltd.

<120> ST2 ANTIGEN BINDING PROTEIN

<130> 6291-2143480IB

<150> CN202010397572.3

<151> 2020-05-12

<160> 86

<170> SIPOSequenceListing 1.0

<210> 1

<211> 556

<212> PRT

<213> Homo sapiens

<220>

<221> UNSURE

<222> (78)

<223> X is E or A

<400> 1

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

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<212> PRT
 <213> Artificial Sequence

<220>
 <223> hST2-ECD-mFc

<400> 2

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

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cagaacgaga	tcaaggaggt	ggagatcggc	aagaacgcca	atctgacctg	ctccgcctgt	660
ttcggcaagg	gcacacagtt	tctggccgct	gtgctgtggc	agctgaatgg	caccaagatc	720
acagatttcg	gcgagcctag	gatccagcag	gaggagggcc	agaaccagtc	tttttccaat	780
ggactggcct	gcctggacat	ggtgctgagg	atcgctgacg	tgaaggagga	ggatctgctg	840
ctgcagtatg	attgtctggc	tctgaacctg	cacggcctga	ggcggcatac	cgtgaggctg	900
tctcgggaaga	atccaatcga	ccaccattcc	atcgagggaa	ggatggatga	gccaaggggc	960
ccaaccatca	agccatgccc	cccttgcaag	tgtcctgctc	caaacctgct	gggcggccct	1020
tccgtgttca	tctttccacc	caagatcaag	gacgtgctga	tgatctctct	gtccccctatc	1080
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gtgaacaatg	tggaggtgca	caccgcccag	accagacac	atagggagga	ttacaattcc	1200
acactgaggg	tgggtgtccgc	cctgccaatc	cagcatcagg	actggatgtc	cggcaaggag	1260
tttaagtgca	aggtgaacaa	taaggatctg	cccgcccta	tcgagaggac	catcagcaag	1320
cccaagggct	ctgtgcgggc	tcctcaggtg	tatgtgctgc	ctccaccga	ggaggagatg	1380
accaagaagc	aggtgaccct	gacatgtatg	gtgacagact	tcatgccaga	ggatatctac	1440
gtggagtgga	ccaacaatgg	caagacagag	ctgaactata	agaataccga	gcccgtgctg	1500
gactccgatg	gcagctactt	tatgtatagc	aagctgagag	tggagaagaa	gaactgggtg	1560
gagcgcaata	gctactcttg	ttccgtgggtg	cacgagggcc	tgcataacca	ccataccaca	1620
aagagctttt	ctcggacacc	tggcaagtga				1650

<210> 4
 <211> 565
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> hST2-ECD-hFc

<400> 4
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 Ser Lys Phe Ser Lys Gln Ser Trp Gly Leu Glu Asn Glu Ala Leu Ile
 20 25 30
 Val Arg Cys Pro Arg Gln Gly Lys Pro Ser Tyr Thr Val Asp Trp Tyr
 35 40 45
 Tyr Ser Gln Thr Asn Lys Ser Ile Pro Thr Gln Glu Arg Asn Arg Val
 50 55 60
 Phe Ala Ser Gly Gln Leu Leu Lys Phe Leu Pro Ala Ala Val Ala Asp
 65 70 75 80
 Ser Gly Ile Tyr Thr Cys Ile Val Arg Ser Pro Thr Phe Asn Arg Thr
 85 90 95
 Gly Tyr Ala Asn Val Thr Ile Tyr Lys Lys Gln Ser Asp Cys Asn Val
 100 105 110
 Pro Asp Tyr Leu Met Tyr Ser Thr Val Ser Gly Ser Glu Lys Asn Ser
 115 120 125
 Lys Ile Tyr Cys Pro Thr Ile Asp Leu Tyr Asn Trp Thr Ala Pro Leu
 130 135 140
 Glu Trp Phe Lys Asn Cys Gln Ala Leu Gln Gly Ser Arg Tyr Arg Ala
 145 150 155 160

His	Lys	Ser	Phe	Leu	Val	Ile	Asp	Asn	Val	Met	Thr	Glu	Asp	Ala	Gly	
				165					170					175		
Asp	Tyr	Thr	Cys	Lys	Phe	Ile	His	Asn	Glu	Asn	Gly	Ala	Asn	Tyr	Ser	
			180					185					190			
Val	Thr	Ala	Thr	Arg	Ser	Phe	Thr	Val	Lys	Asp	Glu	Gln	Gly	Phe	Ser	
		195					200					205				
Leu	Phe	Pro	Val	Ile	Gly	Ala	Pro	Ala	Gln	Asn	Glu	Ile	Lys	Glu	Val	
	210				215						220					
Glu	Ile	Gly	Lys	Asn	Ala	Asn	Leu	Thr	Cys	Ser	Ala	Cys	Phe	Gly	Lys	
225				230					235						240	
Gly	Thr	Gln	Phe	Leu	Ala	Ala	Val	Leu	Trp	Gln	Leu	Asn	Gly	Thr	Lys	
			245					250						255		
Ile	Thr	Asp	Phe	Gly	Glu	Pro	Arg	Ile	Gln	Gln	Glu	Glu	Gly	Gln	Asn	
			260				265						270			
Gln	Ser	Phe	Ser	Asn	Gly	Leu	Ala	Cys	Leu	Asp	Met	Val	Leu	Arg	Ile	
	275						280					285				
Ala	Asp	Val	Lys	Glu	Glu	Asp	Leu	Leu	Leu	Gln	Tyr	Asp	Cys	Leu	Ala	
	290					295					300					
Leu	Asn	Leu	His	Gly	Leu	Arg	Arg	His	Thr	Val	Arg	Leu	Ser	Arg	Lys	
305				310					315						320	
Asn	Pro	Ile	Asp	His	His	Ser	Ile	Glu	Gly	Arg	Met	Asp	Glu	Pro	Lys	
			325					330						335		
Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	
		340					345					350				
Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	
	355					360					365					
Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	
	370				375					380						
Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	
385				390					395						400	
Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	
			405					410						415		
Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	
		420					425						430			
Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	
	435					440						445				
Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	
	450				455						460					
Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	
465				470					475						480	
Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	
			485					490						495		
Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	
		500				505						510				
Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	
	515					520						525				
Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	
	530				535						540					
Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	
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Leu Ser Pro Gly Lys
565

<210> 5
<211> 1647
<212> DNA
<213> Artificial Sequence

<220>
<223> hST2-ECD-hFc

<400> 5
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acacaggaga gaaatcgcggt gttcgctctt ggccagctgc tgaagtttct gcccgccgct 180
gtggctgata gcggcatcta tacctgcatac gtgagatctc ctaccttcaa ccgcacaggc 240
tacgccaatg tgacaatcta taagaagcag tccgactgta acgtgcccga ttacctgatg 300
tattccaccg tgtccggcag cgagaagaat agcaagatct actgccctac catcgacctg 360
tataactgga cagccccact ggagtgggtt aagaattgtc aggccctgca gggctctagg 420
taccgggctc acaagtcctt cctggctatc gataacgtga tgaccgagga cgctggcgat 480
tacacatgca agttcatcca taacgagaat ggcgccaatt attccgtgac cgctacaagg 540
agctttacag tgaaggacga gcagggcttc tccctgtttc cagtgatcgg ccccccgct 600
cagaacgaga tcaaggaggt ggagatcggc aagaacgcca atctgacctg ctccgcctgt 660
ttcggcaagg gcacacagtt tctggccgct gtgctgtggc agctgaatgg caccaagatc 720
acagatttcg gcgagcctag gatccagcag gaggagggcc agaaccagtc tttttccaat 780
ggactggctt gcctggacat ggtgctgagg atcgctgacg tgaaggagga ggatctgctg 840
ctgcagtatg attgtctggc tctgaacctg cacggcctga ggcggcatac cgtgaggctg 900
tctcggaaga atccaatcga ccaccattcc atcgagggaa ggatggatga gccaaagtct 960
tgtgataaga cccatacatg ccccccttgt cctgctccag agctgctggg aggaccatcc 1020
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taccgcgtgg tgtctgtgct gaccgtgctg caccaggact ggctgaacgg caaggagtac 1260
aagtgcgaagg tgtctaataa ggccctgccc gctcctatcg agaagacaat ctccaaggcc 1320
aagggccagc ctagggagcc acaggtgtat accctgcctc catctcggga cgagctgaca 1380
aagaaccagg tgtccctgac ctgtctggtg aagggcttct accccagcga tatcgctgtg 1440
gagtgggagt ctaatggcca gcctgagaac aattataaga ccacaccccc tgtgctggac 1500
agcgatggct ctttctttct gtactctaag ctgacagtgg ataagtccag gtggcagcag 1560
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tccctgagcc tgtctcccgg caagtga 1647

<210> 6
<211> 174
<212> PRT
<213> Artificial Sequence

<220>
<223> hIL33 Avitag

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 35 40 45
 Leu Leu Ser Tyr Tyr Glu Ser Gln His Pro Ser Asn Glu Ser Gly Asp
 50 55 60
 Gly Val Asp Gly Lys Met Leu Met Val Thr Leu Ser Pro Thr Lys Asp
 65 70 75 80
 Phe Trp Leu His Ala Asn Asn Lys Glu His Ser Val Glu Leu His Lys
 85 90 95
 Cys Glu Lys Pro Leu Pro Asp Gln Ala Phe Phe Val Leu His Asn Met
 100 105 110
 His Ser Asn Cys Val Ser Phe Glu Cys Lys Thr Asp Pro Gly Val Phe
 115 120 125
 Ile Gly Val Lys Asp Asn His Leu Ala Leu Ile Lys Val Asp Ser Ser
 130 135 140
 Glu Asn Leu Cys Thr Glu Asn Ile Leu Phe Lys Leu Ser Glu Thr Gly
 145 150 155 160
 Leu Asn Asp Ile Phe Glu Ala Gln Lys Ile Glu Trp His Glu
 165 170

<210> 7
 <211> 525
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hIL33 Avitag

<400> 7
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 cagagcatta ccttcgcgct ggaggacgaa agctacgaga tctatgtgga agacctgaag 120
 aaagatgaaa agaaagacaa ggttctgctg agctactatg agagccaaca cccgagcaac 180
 gaaagcgggtg acggcgtgga tggcaaaatg ctgatgggta ccctgagccc gaccaaggac 240
 ttttggctgc acgcgaacaa caaagagcac agcgtggaac tgcacaagtg cgagaaaccg 300
 ctgccggatc aggcgttctt tgtgctgcac aacatgcaca gcaactgcgt tagcttcgaa 360
 tgcaagaccg atccgggtgt gtttattggc gttaaggaca accacctggc gctgatcaaa 420
 gttgatagca gcgagaacct gtgcaccgaa aacattctgt tcaagctgag cgagaccggt 480
 ctgaacgaca tttttgaagc gcaaaaaatc gagtggcacg aataa 525

<210> 8
 <211> 159
 <212> PRT
 <213> Artificial Sequence

<220>

<223> hIL33 protein

<400> 8

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20     25     30
Glu Ile Tyr Val Glu Asp Leu Lys Lys Asp Glu Lys Lys Asp Lys Val
35     40     45
Leu Leu Ser Tyr Tyr Glu Ser Gln His Pro Ser Asn Glu Ser Gly Asp
50     55     60
Gly Val Asp Gly Lys Met Leu Met Val Thr Leu Ser Pro Thr Lys Asp
65     70     75     80
Phe Trp Leu His Ala Asn Asn Lys Glu His Ser Val Glu Leu His Lys
85     90     95
Cys Glu Lys Pro Leu Pro Asp Gln Ala Phe Phe Val Leu His Asn Met
100    105    110
His Ser Asn Cys Val Ser Phe Glu Cys Lys Thr Asp Pro Gly Val Phe
115    120    125
Ile Gly Val Lys Asp Asn His Leu Ala Leu Ile Lys Val Asp Ser Ser
130    135    140
Glu Asn Leu Cys Thr Glu Asn Ile Leu Phe Lys Leu Ser Glu Thr
145    150    155
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<210> 9

<211> 477

<212> DNA

<213> Artificial Sequence

<220>

<223> hIL33 protein

<400> 9

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aaagatgaaa agaaagacaa ggttctgctg agctactatg agagccaaca cccgagcaac      180
gaaagcgggtg acggcgtgga tggcaaaatg ctgatgggta ccctgagccc gaccaaggac      240
ttttggctgc acgcgaacaa caaagagcac agcgtggaac tgcacaagtg cgagaaaccg      300
ctgccggatc aggcgttctt tgtgctgcac aacatgcaca gcaactgcgt tagcttcgaa      360
tgcaagaccg atccgggtgt gtttattggc gttaaggaca accacctggc gctgatcaaa      420
gttgatagca gcgagaacct gtgcaccgaa aacattctgt tcaagctgag cgagacc      477
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<210> 10

<211> 556

<212> PRT

<213> Cynomolgus monkey (Macaca fascicularis)

<400> 10

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

385					390					395					400
Val	His	Gln	Ile	Leu	Pro	Asp	Val	Leu	Glu	Asn	Lys	Cys	Gly	Tyr	Thr
				405					410					415	
Leu	Cys	Ile	Tyr	Gly	Arg	Asp	Met	Leu	Pro	Gly	Glu	Asp	Val	Val	Thr
			420					425					430		
Ala	Val	Glu	Thr	Asn	Ile	Arg	Lys	Ser	Arg	Arg	His	Ile	Phe	Ile	Leu
		435					440					445			
Thr	Pro	Gln	Ile	Thr	His	Ser	Glu	Glu	Phe	Ala	Tyr	Glu	Gln	Glu	Val
	450					455					460				
Ala	Leu	His	Ser	Ala	Leu	Ile	Gln	Asn	Asp	Ser	Lys	Val	Ile	Leu	Ile
465					470				475					480	
Glu	Met	Glu	Ala	Leu	Ser	Glu	Leu	Asp	Met	Leu	Gln	Ala	Glu	Ala	Leu
				485				490						495	
Gln	Asp	Ser	Leu	Arg	His	Leu	Met	Glu	Val	Gln	Gly	Thr	Ile	Lys	Trp
			500					505					510		
Arg	Glu	Asp	His	Val	Ala	Asn	Lys	Arg	Ser	Leu	Asn	Ser	Lys	Phe	Trp
		515					520					525			
Lys	His	Val	Arg	Tyr	Gln	Met	Pro	Val	Pro	Ser	Lys	Met	Pro	Arg	Lys
	530					535					540				
Ala	Ser	Ser	Leu	Thr	Ser	Leu	Ala	Ala	Gln	Lys	Gln				
545					550				555						

<210> 11
 <211> 5
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 11
 Asp Tyr Glu Met His
 1 5

<210> 12
 <211> 5
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 12
 Asp Ser Glu Met His
 1 5

<210> 13
 <211> 5
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 13
 Asp Ser Glu Ile His
 1 5

<210> 14

<211> 5
<212> PRT
<213> Mouse (Mus sp.)

<400> 14
Asp Tyr Glu Met Gln
1 5

<210> 15
<211> 17
<212> PRT
<213> Mouse (Mus sp.)

<400> 15
Thr Ile Asp Pro Glu Thr Gly Asp Thr Ala Tyr Asn Gln Lys Phe Lys
1 5 10 15
Gly

<210> 16
<211> 17
<212> PRT
<213> Mouse (Mus sp.)

<400> 16
Ala Ile Asp Pro Glu Thr Gly Asp Thr Ala Tyr Ser Gln Asn Phe Lys
1 5 10 15
Gly

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

<220>
<221> UNSURE
<222> (12)
<223> X is N or A

<220>
<221> UNSURE
<222> (13)
<223> X is Q or E or K

<220>
<221> UNSURE
<222> (16)

<223> X is K or Q

<220>

<223> HV-CDR2 of antibody 31C8

<400> 17

Ala Ile Asp Pro Glu Thr Gly Asp Thr Val Tyr Xaa Xaa Lys Phe Xaa
1 5 10 15
Gly

<210> 18

<211> 17

<212> PRT

<213> Mouse (Mus sp.)

<400> 18

Ala Ile Asp Pro Glu Thr Gly Asp Thr Ala Tyr Asn Gln Lys Phe Lys
1 5 10 15
Gly

<210> 19

<211> 17

<212> PRT

<213> Mouse (Mus sp.)

<400> 19

Ala Phe Asp Pro Glu Thr Gly Asp Thr Ala Tyr Asn Gln Lys Phe Lys
1 5 10 15
Gly

<210> 20

<211> 12

<212> PRT

<213> Mouse (Mus sp.)

<400> 20

Tyr Ser Tyr Thr Asn Ser Pro Tyr Gly Met Asp Tyr
1 5 10

<210> 21

<211> 9

<212> PRT

<213> Mouse (Mus sp.)

<400> 21

Ser Ala Thr Asp Tyr Tyr Phe Ala Ser
1 5

<210> 22
<211> 9
<212> PRT
<213> Mouse (Mus sp.)

<400> 22
Ser Thr Thr Asp Tyr Tyr Phe Ala Tyr
1 5

<210> 23
<211> 9
<212> PRT
<213> Mouse (Mus sp.)

<400> 23
Ser Thr Thr Asp Cys Tyr Phe Ala Tyr
1 5

<210> 24
<211> 10
<212> PRT
<213> Mouse (Mus sp.)

<400> 24
Val Asp Ser Asn Tyr Asp Tyr Phe Asp Tyr
1 5 10

<210> 25
<211> 11
<212> PRT
<213> Mouse (Mus sp.)

<400> 25
Lys Ala Ser Gln Ser Val Ser Asn Asp Val Ala
1 5 10

<210> 26
<211> 16
<212> PRT
<213> Mouse (Mus sp.)

<400> 26
Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Leu Tyr
1 5 10 15

<210> 27
<211> 16

<212> PRT
 <213> Mouse (Mus sp.)

<400> 27
 Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Ile Tyr Leu Tyr
 1 5 10 15

<210> 28
 <211> 10
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 28
 Arg Ala Ser Ser Ser Val Ser Tyr Met His
 1 5 10

<210> 29
 <211> 7
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 29
 Tyr Ala Ser Asn Arg Tyr Thr
 1 5

<210> 30
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> UNSURE
 <222> (2)
 <223> X is M or L

<220>
 <223> LV-CDR2s of antibodies 3C6, 31C8, 26A1 and 8F4

<400> 30
 Gln Xaa Ser Asn Leu Ala Ser
 1 5

<210> 31
 <211> 7
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 31

Asp Thr Ser Asn Leu Ala Ser
1 5

<210> 32
<211> 9
<212> PRT
<213> Mouse (Mus sp.)

<400> 32
Gln Gln Asp Tyr Ser Ser Pro Tyr Thr
1 5

<210> 33
<211> 9
<212> PRT
<213> Mouse (Mus sp.)

<400> 33
Gln Gln Trp Ser Ser Asn Pro Leu Thr
1 5

<210> 34
<211> 9
<212> PRT
<213> Mouse (Mus sp.)

<400> 34
Ala Gln Asn Leu Glu Leu Pro Phe Thr
1 5

<210> 35
<211> 121
<212> PRT
<213> Mouse (Mus sp.)

<400> 35
Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Arg Pro Gly Ala
1 5 10 15
Ser Val Thr Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30
Glu Met His Trp Val Lys Gln Thr Pro Val His Gly Leu Asp Trp Ile
35 40 45
Gly Thr Ile Asp Pro Glu Thr Gly Asp Thr Ala Tyr Asn Gln Lys Phe
50 55 60
Lys Gly Arg Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
85 90 95
Thr Arg Tyr Ser Tyr Thr Asn Ser Pro Tyr Gly Met Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Ser Val Thr Val Ser Ser
 115 120

<210> 36
 <211> 107
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 36
 Asp Val Val Met Thr Gln Thr Pro Lys Phe Leu Leu Val Ser Ala Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Ser Val Ser Asn Asp
 20 25 30
 Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile
 35 40 45
 Tyr Tyr Ala Ser Asn Arg Tyr Thr Gly Val Pro Asp Arg Phe Thr Gly
 50 55 60
 Ser Gly Tyr Gly Thr Asp Phe Thr Phe Thr Ile Asn Thr Val Gln Ala
 65 70 75 80
 Glu Asp Leu Ala Val Tyr Phe Cys Gln Gln Asp Tyr Ser Ser Pro Tyr
 85 90 95
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 37
 <211> 118
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 37
 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Val Val Arg Pro Gly Ala
 1 5 10 15
 Ser Val Thr Leu Ser Cys Lys Ala Ser Asp Tyr Thr Ile 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 Asp Pro Glu Thr Gly Asp Thr Ala Tyr Ser Gln Asn Phe
 50 55 60
 Lys Gly Lys Ala Thr Leu Thr Ala Asp Glu Ser Ser Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95
 Ser Arg Ser Ala Thr Asp Tyr Tyr Phe Ala Ser Trp Gly Gln Gly Thr
 100 105 110
 Thr Leu Thr Val Ser Ser
 115

<210> 38
 <211> 112
 <212> PRT

<213> Mouse (Mus sp.)

<400> 38

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

<210> 39

<211> 118

<212> PRT

<213> Mouse (Mus sp.)

<400> 39

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

<210> 40

<211> 112

<212> PRT

<213> Mouse (Mus sp.)

<400> 40

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

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

<210> 41
 <211> 118
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 41																	
Gln	Val	Gln	Leu	Gln	Gln	Ser	Gly	Ala	Glu	Leu	Val	Arg	Pro	Gly	Ala		
1				5					10					15			
Ser	Val	Thr	Leu	Ser	Cys	Lys	Ala	Ser	Asp	Tyr	Ile	Phe	Thr	Asp	Ser		
			20					25					30				
Glu	Ile	His	Trp	Val	Lys	Gln	Thr	Leu	Val	His	Gly	Leu	Glu	Trp	Ile		
		35				40					45						
Gly	Ala	Ile	Asp	Pro	Glu	Thr	Gly	Asp	Thr	Ala	Tyr	Asn	Gln	Lys	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	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Gly	Ser	Ala	Val	Tyr	Tyr	Cys		
			85					90					95				
Ser	Gly	Ser	Thr	Thr	Asp	Cys	Tyr	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr		
			100					105					110				
Thr	Leu	Thr	Val	Ser	Ser												
			115														

<210> 42
 <211> 112
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 42																	
Asp	Ile	Val	Met	Thr	Gln	Ala	Ala	Phe	Ser	Asn	Pro	Val	Thr	Leu	Gly		
1				5					10					15			
Thr	Ser	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Lys	Ser	Leu	Leu	His	Ser		
		20						25					30				
Asn	Gly	Ile	Ile	Tyr	Leu	Tyr	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Ser		
	35					40						45					
Pro	Gln	Leu	Leu	Ile	Tyr	Gln	Met	Ser	Asn	Leu	Ala	Ser	Gly	Val	Pro		
	50					55					60						
Asp	Arg	Phe	Ser	Ser	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Arg	Ile		

65					70					75				80	
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Ala	Gln	Asn
				85					90					95	
Leu	Glu	Leu	Pro	Phe	Thr	Phe	Gly	Ser	Gly	Thr	Lys	Leu	Glu	Ile	Lys
			100					105					110		

<210> 43
 <211> 118
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 43															
Gln	Val	Gln	Leu	Gln	Gln	Ser	Gly	Ala	Glu	Leu	Val	Arg	Pro	Gly	Ala
1				5					10					15	
Ser	Val	Thr	Leu	Ser	Cys	Lys	Ala	Ser	Gly	His	Ile	Phe	Thr	Asp	Tyr
			20					25					30		
Glu	Met	Gln	Trp	Val	Lys	Gln	Thr	Pro	Val	His	Gly	Leu	Glu	Trp	Ile
		35					40					45			
Gly	Ala	Phe	Asp	Pro	Glu	Thr	Gly	Asp	Thr	Ala	Tyr	Asn	Gln	Lys	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	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Asp	Ser	Ala	Val	Tyr	Tyr	Cys
			85					90						95	
Ser	Gly	Ser	Thr	Thr	Asp	Tyr	Tyr	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		
Ser	Leu	Thr	Val	Ser	Ser										
			115												

<210> 44
 <211> 112
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 44															
Asp	Val	Val	Met	Thr	Gln	Thr	Ala	Phe	Ser	Asn	Pro	Val	Thr	Leu	Gly
1				5					10					15	
Thr	Ser	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Lys	Ser	Leu	Leu	His	Ser
			20					25					30		
Asn	Gly	Ile	Ile	Tyr	Leu	Tyr	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Ser
		35					40					45			
Pro	Gln	Leu	Leu	Ile	Tyr	Gln	Met	Ser	Asn	Leu	Ala	Ser	Gly	Val	Pro
	50					55					60				
Asp	Arg	Phe	Ser	Ser	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Arg	Ile
65					70				75						80
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Ala	Gln	Asn
				85				90						95	
Leu	Glu	Leu	Pro	Phe	Thr	Phe	Gly	Ser	Gly	Thr	Lys	Leu	Glu	Ile	Lys
			100					105					110		

<210> 45
 <211> 119
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 45
 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Arg Pro Gly Ala
 1 5 10 15
 Ser Val Thr Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
 20 25 30
 Glu Met His Trp Val Lys Gln Thr Pro Val Leu Gly Leu Glu Trp Ile
 35 40 45
 Gly Ala Ile Asp Pro Glu Thr Gly Asp Thr Ala Tyr Asn Gln Lys 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 Leu Ser Ser Leu Ala Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95
 Ile Arg Val Asp Ser Asn Tyr Asp Tyr Phe Asp Tyr Trp Gly Gln Asp
 100 105 110
 Thr Thr Leu Thr Val Ser Ser
 115

<210> 46
 <211> 106
 <212> PRT
 <213> Mouse (Mus sp.)

<400> 46
 Asp Ile Val Leu Thr Gln Ser Pro Pro Ile Leu Ser Ala Ser Pro Gly
 1 5 10 15
 Glu Lys Val Thr Met Thr Cys Arg Ala Ser Ser Ser Val Ser Tyr Met
 20 25 30
 His Trp Tyr Gln Gln Lys Pro Gly Ser Ser Pro Lys Pro Trp Ile Tyr
 35 40 45
 Asp Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
 50 55 60
 Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Val Glu Ala Glu
 65 70 75 80
 Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Leu Thr
 85 90 95
 Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
 100 105

<210> 47
 <211> 447
 <212> PRT
 <213> Artificial Sequence

<220>

<400> 47

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Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ser	Val	Glu	Trp	Glu	Ser	Asn
370						375					380				
Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Met	Leu	Asp	Ser
385					390					395					400
Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg
			405					410					415		
Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu
			420					425					430		
His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys	
		435					440					445			

<210> 48
 <211> 1344
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Heavy chain of chimeric antibody 7D1

<400> 48

caggtgcagc	tgcagcagtc	tggagctgag	ctggtgaggc	caggagcttc	cgtgaccctg	60
agctgcaagg	cctctggcta	caccttcaca	gactatgaga	tgcactgggt	gaagcagacc	120
cccgtgcatg	gcctggattg	gatcggcaca	atcgaccctg	agaccggcga	tacagcttac	180
aaccagaagt	ttaagggcag	ggccaccctg	acagctgaca	agtccagctc	taccgcctat	240
atggagctgt	ccagcctgac	aagcgaggat	tccgccgtgt	actattgtac	ccggtactcc	300
tatacaaata	gcccctacgg	catggactat	tggggccagg	gcacctccgt	gacagtgtct	360
tccgctagca	caaagggccc	tagcgtgttc	ccactggctc	cctgctccag	aagcacatct	420
gagtcaccg	ccgctctggg	ctgtctggtg	aaggactact	tccctgagcc	agtgacagtg	480
tcctggaaca	gcggcgccct	gacatccgga	gtgcacacct	ttccagctgt	gctgcagtcc	540
agcggcctgt	acagcctgtc	ttccgtggtg	accgtgcccc	gctctaattt	tggcacccag	600
acataatact	gcaacgtgga	ccataagcct	tctaatacaa	aggtggataa	gaccgtggag	660
aggaagtgtg	gcgtggagtg	cccaccttgt	ccagctccac	cagtggctgg	cccttccgtg	720
ttcctgtttc	ctccaaagcc	aaaggacaca	ctgatgatct	ctcggacacc	cgaggtgacc	780
tgcgtggtgg	tggacgtgtc	ccacgaggat	ccagaggtgc	agttcaactg	gtacgtggat	840
ggcgtggagg	tgcataatgc	caagaccaag	cccagggagg	agcagttcaa	ctctacattt	900
cgggtggtgt	ccgtgctgac	cgtggtgcac	caggattggc	tgaacggcaa	ggagtataag	960
tgcaaggtga	gcaataaggg	cctgcccgtc	cctatcgaga	agacaatctc	taagaccaag	1020
ggccagccta	gagagccaca	ggtgtacacc	ctgccccctt	cccgcgagga	gatgacaaag	1080
aaccaggtga	gcctgacctg	tctggtgaag	ggcttctatc	cttctgacat	ctccgtggag	1140
tgggagagca	atggccagcc	agagaacaat	tacaagacca	caccacccat	gctggacagc	1200
gatggctctt	tctttctgta	tagcaagctg	acagtggata	agtctcgctg	gcagcagggc	1260
aacgtgttta	gctgctctgt	gatgcatgag	gccctgcaca	atcattatac	ccagaagtcc	1320
ctgagcctgt	ctcccgga	gtga				1344

<210> 49
 <211> 214
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Light chain of chimeric antibody 7D1

<400> 49

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

<210> 50

<211> 645

<212> DNA

<213> Artificial Sequence

<220>

<223> Light chain of chimeric antibody 7D1

<400> 50

gacgtggtca	tgaccagac	acccaagttc	ctgctggtga	gcgccggcga	cagggtgacc	60
atcacatgca	aggcctctca	gtccgtgagc	aacgatgtgg	cttggtacca	gcagaagccc	120
ggccagtctc	ctaagctgct	gatctactat	gcttccaata	ggtacaccgg	cgtgccagac	180
cggtttaccg	gctctggcta	tggcacagat	ttcaccttta	caatcaacac	agtcaggccc	240
gaggacctgg	ccgtgtactt	ctgtcagcag	gattactcca	gcccctatac	ctttggcggc	300
ggcacaaagc	tggagatcaa	gcgtacggtg	gccgctccca	gcgtgttcat	ctttccccct	360

tctgacgagc agctgaagtc tggcaccgct tccgtggtgt gcctgctgaa caatttctac	420
cccagagagg ccaaggtgca gtggaagggtg gataacgctc tgcagtcagg caatagccag	480
gagtctgtga ccgagcagga ctccaaggat agcacatatt ctctgtcttc caccctgaca	540
ctgtctaagg ccgactacga gaagcacaag gtgtatgctt gcgaggtgac ccatcagggc	600
ctgagctctc ctgtgacaaa gtcctttaat cgcggcgagt gttga	645

<210> 51
 <211> 444
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of chimeric antibody 3C6

<400> 51

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

Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro
	275						280					285			
Arg	Glu	Glu	Gln	Phe	Asn	Ser	Thr	Phe	Arg	Val	Val	Ser	Val	Leu	Thr
	290					295					300				
Val	Val	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val
305					310					315					320
Ser	Asn	Lys	Gly	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Thr
			325						330					335	
Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg
			340					345						350	
Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly
		355					360					365			
Phe	Tyr	Pro	Ser	Asp	Ile	Ser	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro
	370					375					380				
Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Met	Leu	Asp	Ser	Asp	Gly	Ser
385						390				395					400
Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln
			405						410					415	
Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His
		420						425					430		
Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys				
	435						440								

<210> 52

<211> 1344

<212> DNA

<213> Artificial Sequence

<220>

<223> Heavy chain of chimeric antibody 3C6

<400> 52

cagggtgcagc	tgcagcagtc	tggagctgag	ctggtgaggc	caggagcttc	cgtgaccctg	60
agctgcaagg	cctctggcta	caccttcaca	gactatgaga	tgcactgggt	gaagcagacc	120
cccgtgcatg	gcctggattg	gatcggcaca	atcgaccctg	agaccggcga	tacagcttac	180
aaccagaagt	ttaagggcag	ggccaccctg	acagctgaca	agtccagctc	taccgcctat	240
atggagctgt	ccagcctgac	aagcgaggat	tccgccgtgt	actattgtac	ccggtactcc	300
tatacaaata	gcccctacgg	catggactat	tggggccagg	gcacctccgt	gacagtgtct	360
tccgctagca	caaagggccc	tagcgtgttc	ccactggctc	cctgctccag	aagcacatct	420
gagtccaccg	ccgctctggg	ctgtctggtg	aaggactact	tccctgagcc	agtgacagtg	480
tcctggaaca	gcggcgccct	gacatccgga	gtgcacacct	ttccagctgt	gctgcagtcc	540
agcggcctgt	acagcctgtc	ttccgtggtg	accgtgccc	gctctaattt	tggcaccagg	600
acataatact	gcaacgtgga	ccataagcct	tctaatacaa	aggtggataa	gaccgtggag	660
aggaagtgtc	gcgtggagt	cccaccttgt	ccagctccac	cagtggctgg	cccttccgtg	720
ttcctgtttc	ctccaaagcc	aaaggacaca	ctgatgatct	ctcgacacc	cgaggtgacc	780
tgcgtggtgg	tggacgtgtc	ccacgaggat	ccagaggtgc	agttcaactg	gtacgtggat	840
ggcgtggagg	tgcataatgc	caagaccaag	cccagggagg	agcagttcaa	ctctacattt	900
cgggtggtgt	ccgtgctgac	cgtggtgcac	caggattggc	tgaacggcaa	ggagtataag	960
tgcaagtgta	gcaataaggg	cctgcccgtc	cctatcgaga	agacaatctc	taagaccaag	1020

ggccagccta	gagagccaca	ggtgtacacc	ctgccccctt	cccgcgagga	gatgacaaag	1080
aaccaggtga	gcctgacctg	tctggtgaag	ggctttctatc	cttctgacat	ctccgtggag	1140
tgggagagca	atggccagcc	agagaacaat	tacaagacca	caccacccat	gctggacagc	1200
gatggctctt	tctttctgta	tagcaagctg	acagtggata	agtctcgctg	gcagcagggc	1260
aacgtgttta	gctgctctgt	gatgcatgag	gccctgcaca	atcattatac	ccagaagtcc	1320
ctgagcctgt	ctcccggcaa	gtga				1344

<210> 53
 <211> 219
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light chain of chimeric antibody 3C6

<400> 53

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

<210> 54
 <211> 660
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Light chain of chimeric antibody 3C6

<400> 54

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gacatcgtga tgaccaggc cgctatctct aaccccgta ccctgggcac atctgcctcc      60
atgagctgca ggtccagcaa gtctctgctg cactccaatg gcatcacata cctgtattgg      120
tacctgcaga agcccgcca ttcccctcag ctgctgatct atcagatgag caacctggct      180
tctggcgtgc cagacaggtt ctcttcagc ggctccggca ccgacttcac cctgaagatc      240
agcaggggtg aggctgagga tgtgggcgtg tactattgtg ctcaaatct ggagctgccc      300
ttcacctttg gtcccggcac aaagctggag atcaagcgta cgggtggccgc tcccagcgtg      360
ttcatctttc ccccttctga cgagcagctg aagtctggca ccgcttccgt ggtgtgcctg      420
ctgaacaatt tctacccag agaggccaag gtgcagtgga aggtggataa cgctctgcag      480
tccggcaata gccaggagtc tgtgaccgag caggactcca aggatagcac atattctctg      540
tcttccaccc tgacactgtc taaggccgac tacgagaagc acaaggtgta tgcttgcgag      600
gtgacccatc agggcctgag ctctcctgtg acaaagtcct ttaatcgcgg cgagtgttga      660
```

<210> 55

<211> 444

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain of chimeric antibody 26A1

<400> 55

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

Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
 180 185 190
 Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser
 195 200 205
 Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys Cys Val Glu Cys
 210 215 220
 Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe
 225 230 235 240
 Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 245 250 255
 Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln Phe
 260 265 270
 Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 275 280 285
 Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr
 290 295 300
 Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 305 310 315 320
 Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr
 325 330 335
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 340 345 350
 Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 355 360 365
 Phe Tyr Pro Ser Asp Ile Ser Val Glu Trp Glu Ser Asn Gly Gln Pro
 370 375 380
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
 385 390 395 400
 Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 405 410 415
 Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 420 425 430
 Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 435 440

<210> 56
 <211> 1335
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Heavy chain of chimeric antibody 26A1

<400> 56	
caggtgcagc tgcagcagtc tggagctgag ctggtgaggc caggagcttc tgtgaccctg	60
tcctgcaagg ccagcgacta catcttcacc gattccgaga tccactgggt gaagcagaca	120
ctggtgcatg gcctggagtg gatcggagct atcgaccctg agaccggcga tacagcttac	180
aaccagaagt ttaagggcaa ggccaccctg acagctgaca agtccagctc taccgcctat	240
atggagctgt ccagcctgac atccgagggc tccgccgtgt actattgcag cggctctacc	300

acagattgtt	acttcgctta	ttggggccag	ggcaccacac	tgacagtgtc	ttccgctagc	360
acaaagggcc	ctagcgtgtt	cccactggct	ccctgctcca	gaagcacatc	tgagtccacc	420
gccgctctgg	gctgtctggt	gaaggactac	ttccctgagc	cagtgcagct	gtcctggaac	480
agcggcgccc	tgacatccgg	agtgcacacc	tttccagctg	tgctgcagtc	cagcggcctg	540
tacagcctgt	cttccgtggt	gaccgtgccc	agctctaatt	ttggcaccca	gacatatacc	600
tgcaacgtgg	accataagcc	ttctaataca	aaggtggata	agaccgtgga	gaggaagtgc	660
tgcgtggagt	gcccaccttg	tccagctcca	ccagtggctg	gcccttccgt	gttcctgttt	720
cctccaaagc	caaaggacac	actgatgatc	tctcggacac	ccgaggtgac	ctgcgtggtg	780
gtggacgtgt	cccacgagga	tccagaggtg	cagttcaact	ggtacgtgga	tggcgtggag	840
gtgcataatg	ccaagaccaa	gcccagggag	gagcagttca	actctacatt	tcgggtggtg	900
tccgtgctga	ccgtggtgca	ccaggattgg	ctgaacggca	aggagtataa	gtgcaagggtg	960
agcaataagg	gcctgcccgc	tcctatcgag	aagacaatct	ctaagaccaa	gggccagcct	1020
agagagccac	aggtgtacac	cctgccccct	tcccgcgagg	agatgacaaa	gaaccaggtg	1080
agcctgacct	gtctggtgaa	gggcttctat	ccttctgaca	tctccgtgga	gtgggagagc	1140
aatggccagc	cagagaacaa	ttacaagacc	acaccaccca	tgctggacag	cgatggctct	1200
ttcttttctgt	atagcaagct	gacagtggat	aagtctcgct	ggcagcaggg	caacgtgttt	1260
agctgctctg	tgatgcatga	ggccctgcac	aatcattata	cccagaagtc	cctgagcctg	1320
tctcccgga	agtga					1335

<210> 57

<211> 219

<212> PRT

<213> Artificial Sequence

<220>

<223> Light chain of chimeric antibody 26A1

<400> 57

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

				165					170					175			
Thr	Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu		
			180					185					190				
Lys	His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser	Ser		
		195					200					205					
Pro	Val	Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	Cys							
	210					215											

<210> 58
 <211> 660
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Light chain of chimeric antibody 26A1

<400> 58
 gacatcgtga tgaccagcgc cgctttctct aaccccggtga ccctgggcac atctgcctcc 60
 atcagctgca gatccagcaa gtctctgctg cactccaatg gcatcatcta cctgtattgg 120
 tacctgcaga agcccggcca gtcccctcag ctgctgatct atcagatgag caacctggct 180
 tctggcgtgc cagaccgctt ctcttcagc ggctccggca ccgacttcac cctgaggatc 240
 agcaggggtgg aggctgagga tgtgggcgtg tactattgtg ctcagaatct ggagctgccc 300
 ttcacctttg gctccggcac aaagctggag atcaagcgta cgggtggccgc tcccagcgtg 360
 ttcacttttc ccccttctga cgagcagctg aagtctggca ccgcttccgt ggtgtgcctg 420
 ctgaacaatt tctacccag agaggccaag gtgcagtggga aggtggataa cgctctgcag 480
 tccggcaata gccaggagtc tgtgaccgag caggactcca aggatagcac atattctctg 540
 tcttccaccc tgacactgtc taaggccgac tacgagaagc acaaggtgta tgcttgcgag 600
 gtgacccatc agggcctgag ctctcctgtg acaaagtcct ttaatcgcgg cgagtgttga 660

<210> 59
 <211> 444
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of chimeric antibody 8F4

<400> 59
 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Arg Pro Gly Ala
 1 5 10 15
 Ser Val Thr Leu Ser Cys Lys Ala Ser Gly His Ile Phe Thr Asp Tyr
 20 25 30
 Glu Met Gln Trp Val Lys Gln Thr Pro Val His Gly Leu Glu Trp Ile
 35 40 45
 Gly Ala Phe Asp Pro Glu Thr Gly Asp Thr Ala Tyr Asn Gln Lys 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	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Asp	Ser	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ser	Gly	Ser	Thr	Thr	Asp	Tyr	Tyr	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr
			100					105					110		
Ser	Leu	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro
		115					120					125			
Leu	Ala	Pro	Cys	Ser	Arg	Ser	Thr	Ser	Glu	Ser	Thr	Ala	Ala	Leu	Gly
	130					135					140				
Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn
145				150					155						160
Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln
				165					170					175	
Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser
		180					185						190		
Asn	Phe	Gly	Thr	Gln	Thr	Tyr	Thr	Cys	Asn	Val	Asp	His	Lys	Pro	Ser
	195						200					205			
Asn	Thr	Lys	Val	Asp	Lys	Thr	Val	Glu	Arg	Lys	Cys	Cys	Val	Glu	Cys
	210					215					220				
Pro	Pro	Cys	Pro	Ala	Pro	Pro	Val	Ala	Gly	Pro	Ser	Val	Phe	Leu	Phe
225				230						235					240
Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val
				245					250					255	
Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Gln	Phe
		260					265						270		
Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro
	275						280					285			
Arg	Glu	Glu	Gln	Phe	Asn	Ser	Thr	Phe	Arg	Val	Val	Ser	Val	Leu	Thr
	290					295					300				
Val	Val	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val
305				310						315					320
Ser	Asn	Lys	Gly	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Thr
				325					330					335	
Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg
			340					345					350		
Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly
		355				360						365			
Phe	Tyr	Pro	Ser	Asp	Ile	Ser	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro
	370					375					380				
Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Met	Leu	Asp	Ser	Asp	Gly	Ser
385				390						395					400
Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln
				405					410					415	
Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His
			420					425					430		
Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys				
		435					440								

<210> 60
 <211> 1335
 <212> DNA

<213> Artificial Sequence

<220>

<223> Heavy chain of chimeric antibody 8F4

<400> 60

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caggtgcagc tgcagcagtc tggagctgag ctggtgaggc caggagcttc tgtgaccctg      60
tcctgcaagg ccagcggcca catcttcacc gactacgaga tgcagtgggt gaagcagaca      120
ccagtgcatt gactggagtg gatcggagcc ttcgaccctg agaccggcga tacagcttac      180
aaccagaagt ttaagggcaa ggccaccctg acagctgata agtccagctc taccgcctat      240
atggagctgt ccagcctgac atccgaggac tccgccgtgt actattgtag cggctctacc      300
acagattact attttgctta ttggggccag ggcacctccc tgacagtgtc ttccgctagc      360
acaaagggcc ctagcgtgtt cccactggct ccctgtctca gaagcacatc tgagtccacc      420
gccgctcttg gctgtctggt gaaggactac ttccctgagc cagtgcagtc gtcctggaac      480
agcggcgccc tgacatccgg agtgcacacc tttccagctg tgctgcagtc cagcggcctg      540
tacagcctgt cttccgtggt gaccgtgccc agctctaatt ttggcaccca gacatatacc      600
tgcaacgtgg accataagcc ttctaataca aaggtggata agaccgtgga gaggaagtgc      660
tgctgtggag gcccaccttg tccagctcca ccagtggctg gcccttccgt gttcctgttt      720
cctccaaagc caaaggacac actgatgatc tctcggacac ccgaggtgac ctgcgtgggtg      780
gtggacgtgt cccacgagga tccagaggtg cagttcaact ggtacgtgga tggcgtggag      840
gtgcataatg ccaagaccaa gccaggggag gacagttca actctacatt tcgggtgggtg      900
tccgtgctga ccgtggtgca ccaggattgg ctgaacggca aggagtataa gtgcaagggtg      960
agcaataagg gcctgcccgc tcctatcgag aagacaatct ctaagaccaa gggccagcct      1020
agagagccac aggtgtacac cctgccccct tcccgcgagg agatgacaaa gaaccaggtg      1080
agcctgacct gtctggtgaa gggcttctat ctttctgaca tctccgtgga gtgggagagc      1140
aatggccagc cagagaacaa ttacaagacc acaccacca tgctggacag cgatggctct      1200
ttctttctgt atagcaagct gacagtggat aagtctcgct ggcagcaggg caacgtgttt      1260
agctgctctg tgatgcatga ggccctgcac aatcattata cccagaagtc cctgagcctg      1320
tctccgggca agtga      1335
```

<210> 61

<211> 219

<212> PRT

<213> Artificial Sequence

<220>

<223> Light chain of chimeric antibody 8F4

<400> 61

```
Asp Val Val Met Thr Gln Thr Ala Phe Ser Asn Pro Val Thr Leu Gly
1           5           10          15
Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
20          25          30
Asn Gly Ile Ile Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35          40          45
Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro
50          55          60
Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
```

65					70					75					80
Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Ala	Gln	Asn
				85					90					95	
Leu	Glu	Leu	Pro	Phe	Thr	Phe	Gly	Ser	Gly	Thr	Lys	Leu	Glu	Ile	Lys
			100					105					110		
Arg	Thr	Val	Ala	Ala	Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu
		115					120					125			
Gln	Leu	Lys	Ser	Gly	Thr	Ala	Ser	Val	Val	Cys	Leu	Leu	Asn	Asn	Phe
	130					135					140				
Tyr	Pro	Arg	Glu	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln
145					150					155					160
Ser	Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp	Ser
			165						170					175	
Thr	Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu
		180					185						190		
Lys	His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser	Ser
	195						200					205			
Pro	Val	Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	Cys					
	210					215									

<210> 62
 <211> 660
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Light chain of chimeric antibody 8F4

<400> 62	
gacgtggtca	tgaccagac agccttctct aaccccgtag ccctgggcac atctgcttcc 60
atcagctgca	gatccagcaa gtctctgctg cactccaatg gcatcatcta cctgtattgg 120
tacctgcaga	agcccgccca gtcccctcag ctgctgatct atcagatgag caacctggcc 180
tctggcgtgc	cagaccgctt ctcttcagc ggctccggca ccgacttcac cctgaggatc 240
agcaggggtg	aggctgagga tgtgggcgtg tactattgtg ctcagaatct ggagctgccc 300
ttcacctttg	gctccggcac aaagctggag atcaagcgta cgggtggccgc tcccagcgtg 360
ttcatctttc	ccccttctga cgagcagctg aagtctggca ccgcttccgt ggtgtgcctg 420
ctgaacaatt	tctacccag agaggccaag gtgcagtgga aggtggataa cgctctgcag 480
tccggcaata	gccaggagtc tgtgaccgag caggactcca aggatagcac atattctctg 540
tcttccaccc	tgacactgtc taaggccgac tacgagaagc acaaggtgta tgcttgcgag 600
gtgacccatc	agggcctgag ctctcctgtg acaaagtcct ttaatcgcgg cgagtgttga 660

<210> 63
 <211> 445
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of chimeric antibody 17E2

<400> 63

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

Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Met	Leu	Asp	Ser	Asp	Gly
385					390					395					400
Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln
				405					410					415	
Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn
			420					425					430		
His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys			
		435					440					445			

<210> 64
 <211> 1338
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Heavy chain of chimeric antibody 17E2

<400> 64

cagggtgcagc	tgcagcagtc	cggagctgag	ctggtgaggc	caggagcttc	cgtgaccctg	60
agctgcaagg	cctctggcta	caccttcaca	gactatgaga	tgcactgggt	gaagcagaca	120
cccgtgctgg	gactggagtg	gacgagagct	atcgaccctg	agaccggcga	tacagcttac	180
aaccagaagt	ttaaaggcaa	ggccaccctg	acagctgaca	agtccagctc	taccgcttat	240
atggagctgt	ccagcctggc	cagcgaggac	tccgccgtgt	actattgtat	ccgggtggat	300
agcaattacg	actatttcga	ttactggggc	caggatacca	cactgacagt	gtcttccgct	360
agcaciaaagg	gccctagcgt	gttcccactg	gctccctgct	ccagaagcac	atctgagtcc	420
accgccgctc	tgggctgtct	ggtgaaggac	tacttccctg	agccagtgac	agtgtcctgg	480
aacagcggcg	ccctgacatc	cggagtgcac	acctttccag	ctgtgctgca	gtccagcggc	540
ctgtacagcc	tgtcttccgt	ggtgaccgtg	cccagctcta	atcttggcac	ccagacatat	600
acctgcaacg	tggaccataa	gccttcta	acaaagggtg	ataagaccgt	ggagaggaag	660
tgctgcgtgg	agtgccacc	ttgtccagct	ccaccagtgg	ctggcccttc	cgtgttcctg	720
tttcttccaa	agccaaagga	cacactgatg	atctctcgga	cacccgaggt	gacctgcgtg	780
gtggtggacg	tgtccacga	ggatccagag	gtgcagttca	actggtacgt	ggatggcgtg	840
gaggtgcata	atgccaagac	caagcccagg	gaggagcagt	tcaactctac	atttcgggtg	900
gtgtccgtgc	tgaccgtggt	gcaccaggat	tggctgaacg	gcaaggagta	taagtgaag	960
gtgagcaata	agggcctgcc	cgctcctatc	gagaagacaa	tctctaagac	caagggccag	1020
cctagagagc	cacaggtgta	cacctgccc	ccttcccgcg	aggagatgac	aaagaaccag	1080
gtgagcctga	cctgtctggt	gaagggttc	tatccttctg	acatctccgt	ggagtgggag	1140
agcaatggcc	agccagagaa	caattacaag	accacaccac	ccatgctgga	cagcgatggc	1200
tctttctttc	tgtatagcaa	gctgacagtg	gataagtctc	gctggcagca	gggcaacgtg	1260
tttagctgct	ctgtgatgca	tgaggccctg	cacaatcatt	ataccagaa	gtccctgagc	1320
ctgtctcccc	gcaagtga					1338

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

<220>
 <223> Light chain of chimeric antibody 17E2

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

<210> 66

<211> 642

<212> DNA

<213> Artificial Sequence

<220>

<223> Light chain of chimeric antibody 17E2

<400> 66
 gacatcgtgc tgaccagag cccacctatc ctgagcgcct ctccaggaga gaaggtgacc 60
 atgacatgca gggcttccag ctccgtgtcc tacatgcact ggtatcagca gaagcctggc 120
 tccagcccaa agccctggat ctacgacacc tctaacctgg cttccggagt gccagctagg 180
 ttctccggca gcggtcttgg cacctcctat agcctgacaa tctccagggt ggaggctgag 240
 gatgctgcta catactattg tcagcagtgg tcttccaatc ctctgacctt tggcgctggc 300
 acaaagctgg agctgaagcg tacggtggcc gctcccagcg tgttcattct tcccccttct 360
 gacgagcagc tgaagtctgg caccgcttcc gtggtgtgcc tgctgaacaa tttctacccc 420
 agagaggcca aggtgcagtg gaaggtggat aacgctctgc agtccggcaa tagccaggag 480

tctgtgaccg agcaggactc caaggatagc acatattctc tgtcttccac cctgacactg	540
tctaaggccg actacgagaa gcacaaggtg tatgcttgcg aggtgaccca tcagggcctg	600
agctctcctg tgacaaagtc cttaatcgc ggcgagtgtt ga	642

<210> 67
 <211> 444
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of chimeric antibody 31C8

<400> 67

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

Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr
 290 295 300
 Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 305 310 315 320
 Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr
 325 330 335
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 340 345 350
 Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 355 360 365
 Phe Tyr Pro Ser Asp Ile Ser Val Glu Trp Glu Ser Asn Gly Gln Pro
 370 375 380
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
 385 390 395 400
 Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 405 410 415
 Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 420 425 430
 Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 435 440

<210> 68
 <211> 1335
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Heavy chain of chimeric antibody 31C8

<400> 68
 cagggtgcagc tgcagcagtc tggaccagag ctggtgaggc ctggagcctc cgtgaccctg 60
 agctgcaagg cttctggcta catcttcata gactccgaga tgcactgggt gaagcagaca 120
 ccagtgcatt gactggagtg gatcggagct atcgaccag agaccggcga tacagtgtat 180
 aaccagaagt ttaagggcaa ggccaccctg acagctgata agtccagctc taccgcctcc 240
 atggagctgt ccagcctgac aagcgaggac tccgccgtgt actattgtac cggcagcacc 300
 acagattact atttcgctta ctggggccag ggcaccacac tgacagtgtc ttccgctagc 360
 acaaagggcc ctacgtgttt cccactggct ccctgctcca gaagcacatc tgagtccacc 420
 gccgctctgg gctgtctggt gaaggactac ttccctgagc cagtgcagtc gtcctggaac 480
 agcggcgccc tgacatccgg agtgcacacc tttccagctg tgctgcagtc cagcggcctg 540
 tacagcctgt cttccgtggt gaccgtgccc agctctaatt ttggcaccca gacatatacc 600
 tgcaacgtgg accataagcc ttctaataca aaggtggata agaccgtgga gaggaagtgc 660
 tgcgtggagt gcccaccttg tccagctcca ccagtggctg gcccttccgt gttcctgttt 720
 cctccaaagc caaaggacac actgatgatc tctcggacac ccgaggtgac ctgcgtgggtg 780
 gtggacgtgt cccacgagga tccagaggtg cagttcaact ggtacgtgga tggcgtggag 840
 gtgcataatg ccaagaccaa gcccagggag gagcagttca actctacatt tcgggtgggtg 900
 tccgtgctga ccgtgggtgca ccaggattgg ctgaacggca aggagtataa gtgcaagggtg 960
 agcaataagg gcctgcccgc tcctatcgag aagacaatct ctaagaccaa gggccagcct 1020
 agagagccac aggtgtacac cctgccccct tcccgcgagg agatgacaaa gaaccagggtg 1080
 agcctgacct gtctgggtgaa gggcttctat cttcttgaca tctccgtgga gtgggagagc 1140

<223> Light chain of chimeric antibody 31C8

<400> 70

```
gacatcgtga tgaccagcgc cgctttctct aaccccgtga ccctgggcac atctgcctcc      60
atcagctgca gatccagcaa gtctctgctg cactccaatg gcatcatcta cctgtattgg      120
tacctgcaga agcccggcca gtcccctcag ctgctgatct atcagatgag caacctggct      180
tctggcgtgc cagaccgctt ctcttcacgc ggctccggca ccgacttcac cctgaggatc      240
agcagggtgg aggtgagga tgtgggcgtg tactattgtg ctcagaatct ggagctgccc      300
ttcacctttg gctccggcac aaagctggag atcaagcgta cgggtggccgc tcccagcgtg      360
ttcatctttc ccccttctga cgagcagctg aagtctggca ccgcttccgt ggtgtgcctg      420
ctgaacaatt tctacccag agaggccaag gtgcagtggga aggtggataa cgctctgcag      480
tccggcaata gccaggagtc tgtgaccgag caggactcca aggatagcac atattctctg      540
tcttccaccc tgacactgtc taaggccgac tacgagaagc acaaggtgta tgcttgcgag      600
gtgacccatc agggcctgag ctctcctgtg acaaagtcct ttaatcgcgg cgagtgttga      660
```

<210> 71

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> HV of humanized antibody 31C8-1.1

<400> 71

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

<210> 72

<211> 354

<212> DNA

<213> Artificial Sequence

<220>

<223> HV of humanized antibody 31C8-1.1

```

<400> 72
gaggtgcagc tggtgcagtc tggcgccgag gtgaagaagc caggcgctac cgtgaagatc      60
agctgcaagg cctctggcta catcttcata gactccgaga tgcactgggt gcagcaggct      120
ccaggcaagg gactggagtg gatgggcgct atcgaccctg agaccggcga tacagtgtac      180
gctgagaagt ttcagggcag ggtgaccatc acagccgata agtccagctc tacagcttat      240
atggagctgt ccagcctgcg gtccgaggac accgccgtgt actattgtac aggcagcacc      300
acagattact atttcgctta ttggggccag ggcaccctgg tgacagtgtc ttcc          354

```

```

<210> 73
<211> 118
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> HV of humanized antibody 31C8-1.2

```

```

<400> 73
Gln Val Gln Leu Val Gln Ser Gly Ala Lys Val Lys Lys Pro Gly Ala
1      5      10      15
Thr Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ile Phe Ile Asp Ser
20     25     30
Glu Met His Trp Val Gln Gln Ala Pro Gly Lys Gly Leu Glu Trp Met
35     40     45
Gly Ala Ile Asp Pro Glu Thr Gly Asp Thr Val Tyr Ala Lys Lys Phe
50     55     60
Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Ser 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
Thr Gly Ser Thr Thr Asp Tyr Tyr Phe Ala Tyr Trp Gly Gln Gly Thr
100    105    110
Leu Val Thr Val Ser Ser
115

```

```

<210> 74
<211> 354
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> HV of humanized antibody 31C8-1.2

```

```

<400> 74
caggtgcagc tggtgcagtc tggcgccaag gtgaagaagc caggcgctac cgtgaagatc      60
agctgcaagg cctctggcta catcttcata gactccgaga tgcactgggt gcagcaggct      120
ccaggcaagg gactggagtg gatgggcgct atcgaccctg agaccggcga tacagtgtac      180

```

gctaagaagt ttaagggcag ggtgaccatc acagccgata agtccagctc tacagcttat	240
atggagctgt ccagcctgcg gtccgaggac accgccgtgt actattgtac aggcagcacc	300
acagattact atttcgctta ttggggccag ggcaccctgg tgacagtgtc ttcc	354

<210> 75
 <211> 444
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of humanized antibody 31C8-1.1

<400> 75

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala	
1 5 10 15	
Thr Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ile Phe Ile Asp Ser	
20 25 30	
Glu Met His Trp Val Gln Gln Ala Pro Gly Lys Gly Leu Glu Trp Met	
35 40 45	
Gly Ala Ile Asp Pro Glu Thr Gly Asp Thr Val Tyr Ala Glu Lys Phe	
50 55 60	
Gln Gly Arg Val Thr Ile Thr Ala Asp Lys Ser 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	
Thr Gly Ser Thr Thr Asp Tyr Tyr Phe Ala Tyr Trp Gly Gln Gly Thr	
100 105 110	
Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro	
115 120 125	
Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly	
130 135 140	
Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn	
145 150 155 160	
Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln	
165 170 175	
Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser	
180 185 190	
Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser	
195 200 205	
Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys Cys Val Glu Cys	
210 215 220	
Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe	
225 230 235 240	
Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val	
245 250 255	
Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln Phe	
260 265 270	
Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro	
275 280 285	

Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr
 290 295 300
 Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 305 310 315 320
 Ser Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr
 325 330 335
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 340 345 350
 Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 355 360 365
 Phe Tyr Pro Ser Asp Ile Ser Val Glu Trp Glu Ser Asn Gly Gln Pro
 370 375 380
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser
 385 390 395 400
 Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 405 410 415
 Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 420 425 430
 Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 435 440

<210> 76
 <211> 1335
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Heavy chain of humanized antibody 31C8-1.1

<400> 76
 gaggtgcagc tgggtgcagtc tggcgccgag gtgaagaagc caggcgctac cgtgaagatc 60
 agctgcaagg cctctggcta catcttcata gactccgaga tgcaactgggt gcagcaggct 120
 ccaggcaagg gactggagtg gatgggcgct atcgaccctg agaccggcga tacagtgtac 180
 gctgagaagt ttcagggcag ggtgaccatc acagccgata agtccagctc tacagcttat 240
 atggagctgt ccagcctgcg gtccgaggac accgccgtgt actattgtac aggcagcacc 300
 acagattact atttcgctta ttggggccag ggcaccctgg tgacagtgtc ttccgcctcc 360
 accaagggcc ctacgtgtgt cccactggct ccctgctcca gaagcacatc tgagtccacc 420
 gccgctctgg gctgtctggt gaaggactac ttccctgagc cagtgcagtg gtcctggaac 480
 agcggcgccc tgacatccgg agtgacacac tttccagctg tgctgcagtc cagcggcctg 540
 tacagcctgt cttccgtggt gaccgtgccc agctctaatt ttggcaccca gacatatacc 600
 tgcaacgtgg accataagcc ttctaataca aaggtggata agaccgtgga gaggaagtgc 660
 tgcgtggagt gcccaccttg tccagctcca ccagtggctg gcccttccgt gttcctgttt 720
 cctccaaagc caaaggacac actgatgatc tctcggacac ccgaggtgac ctgcgtgggtg 780
 gtggacgtgt cccacgagga tccagaggtg cagttcaact ggtacgtgga tggcgtggag 840
 gtgcataatg ccaagaccaa gcccaggag gagcagttca actctacatt tcgggtgggtg 900
 tccgtgctga ccgtgggtgca ccaggattgg ctgaacggca aggagtataa gtgcaagggtg 960
 agcaataagg gcctgcccgc tcctatcgag aagacaatct ctaagaccaa gggccagcct 1020
 agagagccac aggtgtacac cctgccccct tcccgcgagg agatgacaaa gaaccagggtg 1080
 agcctgacct gtctgggtgaa gggcttctat cttcttgaca tctccgtgga gtgggagagc 1140

aatggccagc	cagagaacaa	ttacaagacc	acaccaccca	tgctggacag	cgatggctct	1200
ttcttttctgt	atagcaagct	gacagtggat	aagtctcgct	ggcagcaggg	caacgtgttt	1260
agctgctctg	tgatgcatga	ggccctgcac	aatcattata	cccagaagtc	cctgagcctg	1320
tctcccgga	agtga					1335

<210> 77
 <211> 444
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of humanized antibody 31C8-1.2

<400> 77

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

agcctgacct	gtctggtgaa	gggcttctat	ccttctgaca	tctccgtgga	gtgggagagc	1140
aatggccagc	cagagaacaa	ttacaagacc	acaccaccca	tgctggacag	cgatggctct	1200
ttcttttctgt	atagcaagct	gacagtggat	aagtctcgct	ggcagcaggg	caacgtgttt	1260
agctgctctg	tgatgcatga	ggccctgcac	aatcattata	cccagaagtc	cctgagcctg	1320
tctcccgga	agtga					1335

<210> 79
 <211> 112
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> LVs of humanized antibodies 31C8-1.1 and 31C8-1.2

<400> 79
 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 Ser Ser Lys Ser Leu Leu His Ser
 20 25 30
 Asn Gly Ile Ile Tyr Leu Tyr Trp Tyr Gln Gln Lys Pro Gly Lys Ala
 35 40 45
 Pro Lys Leu Leu Ile Tyr Gln Leu Ser Asn Leu Ala Ser Gly Val Pro
 50 55 60
 Ser Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
 65 70 75 80
 Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Ala Gln Asn
 85 90 95
 Leu Glu Leu Pro Phe Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105 110

<210> 80
 <211> 336
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> LVs of humanized antibodies 31C8-1.1 and 31C8-1.2

gacatccaga	tgacccagag	cccttccagc	ctgtccgcca	gcgtgggcga	tagggtgacc	60
atcacatgcc	ggtcttccaa	gtctctgctg	cactccaacg	gcatcatcta	cctgtattgg	120
taccagcaga	agcccggcaa	ggcccctaag	ctgctgatct	atcagctgag	caatctggct	180
tctggcgtgc	catccaggtt	cagctcttcc	ggctctggca	ccgactttac	cctgacaatc	240
agctctctgc	agccagagga	tttcgccaca	tactattgtg	ctcagaacct	ggagctgccc	300
ttcacctttg	gccagggcac	aaaggtggag	atcaag			336

<210> 81
 <211> 219

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Light chains of humanized antibodies 31C8-1.1 and 31C8-1.2

<400> 81
 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 Ser Ser Lys Ser Leu Leu His Ser
 20 25 30
 Asn Gly Ile Ile Tyr Leu Tyr Trp Tyr Gln Gln Lys Pro Gly Lys Ala
 35 40 45
 Pro Lys Leu Leu Ile Tyr Gln Leu Ser Asn Leu Ala Ser Gly Val Pro
 50 55 60
 Ser Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
 65 70 75 80
 Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Ala Gln Asn
 85 90 95
 Leu Glu Leu Pro Phe Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105 110
 Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 115 120 125
 Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
 130 135 140
 Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
 145 150 155 160
 Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
 165 170 175
 Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
 180 185 190
 Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
 195 200 205
 Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 210 215

<210> 82
 <211> 660
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Light chains of humanized antibodies 31C8-1.1 and 31C8-1.2

<400> 82
 gacatccaga tgaccagag cccttcagc ctgtccgcca gcgtgggcga tagggtgacc 60
 atcacatgcc ggtcttccaa gtctctgctg cactccaacg gcatcatcta cctgtattgg 120
 taccagcaga agcccggcaa ggcccctaag ctgctgatct atcagctgag caatctggct 180

tctggcgtgc	catccagggtt	cagctcttcc	ggctctggca	ccgactttac	cctgacaatc	240
agctctctgc	agccagagga	tttcgccaca	tactattgtg	ctcagaacct	ggagctgccc	300
ttcacctttg	gccagggcac	aaaggtggag	atcaagcgta	cgggtggccgc	tcccagcgtg	360
ttcatctttc	ccccttctga	cgagcagctg	aagtctggca	ccgcttccgt	ggtgtgcctg	420
ctgaacaatt	tctacccag	agaggccaag	gtgcagtggg	aggtggataa	cgctctgcag	480
tccggcaata	gccaggagtc	tgtgaccgag	caggactcca	aggatagcac	atattctctg	540
tcttccaccc	tgacactgtc	taaggccgac	tacgagaagc	acaaggtgta	tgcttgcgag	600
gtgacccatc	agggcctgag	ctctcctgtg	acaaagtcct	ttaatcgcgg	cgagtgttga	660

<210> 83

<211> 447

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain of RG6149

<400> 83

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

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

<210> 84

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Light chain of RG6149

<400> 84

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	Thr	Phe	Thr	Ile	Ser	Ser	Leu	Gln	Pro		
65				70				75						80			
Glu	Asp	Ile	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Asp	Asp	Asn	Phe	Pro	Leu		
			85					90					95				
Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg	Thr	Val	Ala	Ala		
		100					105						110				

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

<210> 85

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain of GSK3772847

<400> 85

Glu	Val	Gln	Leu	Leu	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	Ile	Tyr
			20					25					30		
Asp	Met	Ile	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
		35				40						45			
Ser	Ser	Ile	Arg	Gly	Glu	Gly	Gly	Gly	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	Arg	Asp	Pro	Trp	Ser	Thr	Glu	Gly	Ser	Phe	Phe	Val	Leu	Asp	Tyr
			100					105					110		
Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly
		115					120						125		
Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Cys	Ser	Arg	Ser	Thr	Ser	Glu	Ser
	130					135					140				
Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val
145					150					155					160
Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe
				165					170					175	
Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val
			180					185					190		
Thr	Val	Thr	Ser	Ser	Asn	Phe	Gly	Thr	Gln	Thr	Tyr	Thr	Cys	Asn	Val

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