

SEQUENCE LISTING

<110> Shanghai Junshi Biosciences Co., Ltd.
Suzhou Junmeng Biosciences Co., Ltd.

<120> ANTI-TIGIT ANTIBODIES AND APPLICATION THEREOF

<130> 204340 1PCWO

<150> CN 201910634309.9

<151> 2019-07-15

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<170> SIPOSequenceListing 1.0

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<211> 8

<212> PRT

<213> Mus musculus

<400> 1

Gly Tyr Ala Phe Thr Glu Tyr Thr
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<211> 8

<212> PRT

<213> Mus musculus

<400> 2

Ile Asn Pro Asn Thr Gly Gly Thr
1 5

<210> 3

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<400> 3

Ala Lys Leu Leu Arg Leu Met Tyr Tyr Phe Asp Tyr
1 5 10

<210> 4

<211> 119

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<213> Mus musculus

<400> 4

Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Ile Ser Cys Lys Thr Ser Gly Tyr Ala Phe Thr Glu Tyr
20 25 30
Thr Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile

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

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<400> 5																			
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tcctgcaaga	cttctggata	cgcattcact	gaatacacca	tgcactgggt	gaaacagagc													120	
catggaaaga	gccttgagtg	gattggaggt	attaatccta	acactgggtgg	tactacctac													180	
aaccagaagt	tcaagggcaa	ggccacattg	actgtagaca	agtcctccag	cacagcctac													240	
atggagtcc	gcagcctgac	atctgaggat	tctgcagtct	attactgtgc	aaaattacta													300	
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<210> 6
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<400> 6																			
Gln	Asp	Val	Arg	Thr	Ala														
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<210> 7
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<400> 7																			
Ser	Ala	Ser																	
1																			

<210> 8
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<400> 8																			
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1				5															

<210> 9
 <211> 107

<212> PRT
<213> Mus musculus

<400> 9
Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Val Gly
1 5 10 15
Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Arg Thr Ala
20 25 30
Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile
35 40 45
Tyr Ser Ala Ser Tyr Arg Tyr Thr Gly Val Pro Asp Arg Phe Thr Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Val Gln Ala
65 70 75 80
Glu Asp Leu Ala Leu Tyr Tyr Cys His Gln His Tyr Ile Thr Pro Trp
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 10
<211> 321
<212> DNA
<213> Mus musculus

<400> 10
gacattgtga tgaccagtc tcacaaattc atgtccacat cagtaggaga cagggtcagc 60
atcacctgca aggccagtca ggatgtgagg actgctgtag cctgggtatca acagaaacca 120
ggacaatctc ctaaaactact gatttactcg gcatcctacc ggtacactgg agtccctgat 180
cgcttcactg gcagtggatc tgggacggat ttcactttca ccatcagcag tgtgcaggct 240
gaagacctgg cactttatta ctgtcatcaa cattatatta ctccgtggac gttcggtgga 300
ggcaccaagc tggaaatcaa a 321

<210> 11
<211> 8
<212> PRT
<213> Mus musculus

<400> 11
Gly Tyr Thr Phe Thr Asn Tyr Trp
1 5

<210> 12
<211> 8
<212> PRT
<213> Mus musculus

<400> 12
Ile Tyr Pro Gly Gly His Tyr Thr
1 5

<210> 13
<211> 11
<212> PRT
<213> Mus musculus

<400> 13
 Thr Arg Tyr Tyr Gly Pro Tyr Ala Met Asp Tyr
 1 5 10

<210> 14
 <211> 118
 <212> PRT
 <213> Mus musculus

<400> 14
 Gln Val Gln Leu Gln Gln Ser Gly Asp Glu Leu Val Arg Pro Gly Thr
 1 5 10 15
 Ser Val Lys Val Ser Cys Gln Ala Ala Gly Tyr Thr Phe Thr Asn Tyr
 20 25 30
 Trp Ile Leu Trp Ile Lys Gln Arg Pro Arg His Gly Leu Glu Trp Ile
 35 40 45
 Gly Asp Ile Tyr Pro Gly Gly His Tyr Thr Asn Tyr Asn Glu Lys Phe
 50 55 60
 Lys Gly Lys Ala Thr Leu Thr Ala Asp Thr Ser Ser Ser Thr Ala Tyr
 65 70 75 80
 Met Gln Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Ile Tyr Tyr Cys
 85 90 95
 Thr Arg Tyr Tyr Gly Pro Tyr Ala Met Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Ser Val Thr Val Ser Ser
 115

<210> 15
 <211> 354
 <212> DNA
 <213> Mus musculus

<400> 15
 cagggtccagc tgcagcagtc tggagatgaa ctggttaaggc ctgggacttc agtgaaggtg 60
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 cctcgacatg gccttgagtg gattggagat atttaccctg gaggtcatta tactaattac 180
 aatgagaaat tcaagggcaa ggccacactg actgcagaca catcctccag tacagcctac 240
 atgcaactca acagcctgac atctgaggac tctgccatct attactgtac aagatactat 300
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<210> 16
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 <213> Mus musculus

<400> 16
 Gln Ser Leu Leu Tyr Asn Ser Asn Gln Lys Asn Tyr
 1 5 10

<210> 17
 <211> 3
 <212> PRT
 <213> Mus musculus

<400> 17
Trp Ala Ser
1

<210> 18
<211> 9
<212> PRT
<213> Mus musculus

<400> 18
Gln Gln Tyr Tyr Ser Tyr Pro Phe Thr
1 5

<210> 19
<211> 113
<212> PRT
<213> Mus musculus

<400> 19
Asp Ile Val Met Ser Gln Ser Pro Ser Ser Leu Pro Val Ser Val Gly
1 5 10 15
Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Asn
20 25 30
Ser Asn Gln Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Ile Pro Gly Gln
35 40 45
Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Gly Glu Ser Gly Val
50 55 60
Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80
Ile Ser Ser Val Lys Ala Glu Asp Leu Ala Val Tyr Tyr Cys Gln Gln
85 90 95
Tyr Tyr Ser Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile
100 105 110
Lys

<210> 20
<211> 339
<212> DNA
<213> Mus musculus

<400> 20
gacattgtga tgtcacagtc tccatcctcc ctacctgtgt cagttggaga gaaggttact 60
atgagctgca agtccagtc gagcctttta tataatagta atcaaaagaa ctacttggcc 120
tggtaccagc agataccagg gcagtctcct aaactgctga ttactgggc atccactggg 180
gaatctgggg tccctgatcg cttcacaggc agtggatctg ggacagattt cactctcacc 240
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ccattcacgt tcggctcggg gacaaagttg gaaataaaa 339

<210> 21
<211> 119
<212> PRT
<213> Artificial sequence

<220>

<223> Amino acid sequence of heavy chain variable region

<400> 21

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

<210> 22

<211> 107

<212> PRT

<213> Artificial sequence

<220>

<223> Amino acid sequence of light chain variable region

<400> 22

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

<210> 23

<211> 119

<212> PRT

<213> Artificial sequence

<220>

<223> Amino acid sequence of heavy chain variable region

<400> 23
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Thr Ser Gly Tyr Ala Phe Thr Glu Tyr
 20 25 30
 Thr Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Met
 35 40 45
 Gly Gly Ile Asn Pro Asn Thr Gly Gly Thr Thr Tyr Asn Gln Lys Phe
 50 55 60
 Gln Gly Arg Val Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Val Val Tyr Tyr Cys
 85 90 95
 Ala Lys Leu Leu Arg Leu Met Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ser
 115

<210> 24
 <211> 107
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of light chain variable region

<400> 24
 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 Val Arg Thr Ala
 20 25 30
 Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ser Ala Ser Tyr Arg Tyr 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 His Gln His Tyr Ile Thr Pro Trp
 85 90 95
 Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 25
 <211> 118
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of heavy chain variable region

<400> 25
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr

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

<210> 28
 <211> 113
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of light chain variable region

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

<210> 29
 <211> 118
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of heavy chain variable region

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

50		55		60
Gln Gly Arg Val Thr	Leu Thr Ala Asp Thr	Ser Ser Ser Thr	Ala Tyr	
65	70	75	80	
Met Glu Leu Arg Ser	Leu Arg Ser Asp Asp	Thr Ala Val Tyr	Tyr Cys	
	85	90	95	
Thr Arg Tyr Tyr Gly	Pro Tyr Ala Met Asp	Tyr Trp Gly Gln	Gly Thr	
	100	105	110	
Leu Val Thr Val Ser	Ser			
115				

<210> 30
 <211> 113
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of light chain variable region

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

<210> 31
 <211> 446
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Amino acid sequence of heavy chain

<400> 31
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Val Ser Cys Lys Thr Ser Gly Tyr Ala Phe Thr Glu Tyr
20 25 30
Thr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Gly Ile Asn Pro Asn Thr Gly Gly Thr Thr Tyr Asn Gln Lys Phe
50 55 60
Gln Gly Arg Val Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr

65					70					75					80
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Val	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Lys	Leu	Leu	Arg	Leu	Met	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly
			100					105					110		
Thr	Leu	Val	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	Ser	Leu	Gly	Thr	Lys	Thr	Tyr	Thr	Cys	Asn	Val	Asp	His	Lys	Pro
	195						200					205			
Ser	Asn	Thr	Lys	Val	Asp	Lys	Arg	Val	Glu	Ser	Lys	Tyr	Gly	Pro	Pro
	210					215					220				
Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Phe	Leu	Gly	Gly	Pro	Ser	Val	Phe
225					230					235					240
Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro
				245					250					255	
Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	Gln	Glu	Asp	Pro	Glu	Val
		260					265						270		
Gln	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr
	275						280					285			
Lys	Pro	Arg	Glu	Glu	Gln	Phe	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val
	290					295					300				
Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys
305					310					315					320
Lys	Val	Ser	Asn	Lys	Gly	Leu	Pro	Ser	Ser	Ile	Glu	Lys	Thr	Ile	Ser
				325					330					335	
Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro
			340					345					350		
Ser	Gln	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val
	355						360					365			
Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly
	370					375					380				
Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp
385					390					395					400
Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Arg	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp
				405					410					415	
Gln	Glu	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His
			420					425					430		
Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Leu	Gly	Lys		
	435						440					445			

<210> 32
 <211> 214
 <212> PRT
 <213> Artificial sequence

<220>

<223> Amino acid sequence of light chain

<400> 32

Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Asp	Ser	Leu	Ala	Val	Ser	Leu	Gly
1				5				10						15	
Glu	Arg	Ala	Thr	Ile	Asn	Cys	Lys	Ala	Ser	Gln	Asp	Val	Arg	Thr	Ala
			20					25					30		
Val	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Pro	Pro	Lys	Leu	Leu	Ile
		35					40					45			
Tyr	Ser	Ala	Ser	Tyr	Arg	Tyr	Thr	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly
	50					55					60				
Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Ala
65					70					75				80	
Glu	Asp	Val	Ala	Val	Tyr	Tyr	Cys	His	Gln	His	Tyr	Ile	Thr	Pro	Trp
				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> 33

<211> 446

<212> PRT

<213> Artificial sequence

<220>

<223> Amino acid sequence of heavy chain

<400> 33

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

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