

SEQUENCE LISTING

<110> Ganymed Pharmaceuticals AG
Johannes Gutenberg-Universität Mainz
<120> MONOCLONAL ANTIBODIES AGAINST CLAUDIN-18 FOR TREATMENT OF CANCER
<130> SG1437A
<150> EP 07 010 622.4
<151> 2007-05-29
<150> US 60/932,099
<151> 2007-05-29
<160> 157
<170> PatentIn version 3.3
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<211> 786
<212> DNA
<213> Homo sapiens
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<213> Homo sapiens
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20 25 30

Gln Asp Leu Tyr Asn Asn Pro Val Thr Ala Val Phe Asn Tyr Gln Gly
35 40 45

Leu Trp Arg Ser Cys Val Arg Glu Ser Ser Gly Phe Thr Glu Cys Arg
50 55 60

Gly Tyr Phe Thr Leu Leu Gly Leu Pro Ala Met Leu Gln Ala Val Arg
65 70 75 80

Ala Leu Met Ile Val Gly Ile Val Leu Gly Ala Ile Gly Leu Leu Val
85 90 95

Ser Ile Phe Ala Leu Lys Cys Ile Arg Ile Gly Ser Met Glu Asp Ser
100 105 110

Ala Lys Ala Asn Met Thr Leu Thr Ser Gly Ile Met Phe Ile Val Ser
115 120 125

Gly Leu Cys Ala Ile Ala Gly Val Ser Val Phe Ala Asn Met Leu Val
130 135 140

Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Thr Gly Met Gly Gly
145 150 155 160

Met Val Gln Thr Val Gln Thr Arg Tyr Thr Phe Gly Ala Ala Leu Phe
165 170 175

Val Gly Trp Val Ala Gly Gly Leu Thr Leu Ile Gly Gly Val Met Met
180 185 190

Cys Ile Ala Cys Arg Gly Leu Ala Pro Glu Glu Thr Asn Tyr Lys Ala
195 200 205

Val Ser Tyr His Ala Ser Gly His Ser Val Ala Tyr Lys Pro Gly Gly
210 215 220

Phe Lys Ala Ser Thr Gly Phe Gly Ser Asn Thr Lys Asn Lys Lys Ile
225 230 235 240

Tyr Asp Gly Gly Ala Arg Thr Glu Asp Glu Val Gln Ser Tyr Pro Ser
245 250 255

Lys His Asp Tyr Val
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<212> DNA
<213> Homo sapiens

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<210> 4
 <211> 271
 <212> PRT
 <213> Homo sapiens

<400> 4

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			20					25					30		

Gln	Asp	Leu	Tyr	Asn	Asn	Pro	Val	Thr	Ala	Val	Phe	Asn	Tyr	Gln	Gly
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Leu	Trp	Arg	Ser	Cys	Val	Arg	Glu	Ser	Ser	Gly	Phe	Thr	Glu	Cys	Arg
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Gly	Tyr	Phe	Thr	Leu	Leu	Gly	Leu	Pro	Ala	Met	Leu	Gln	Ala	Val	Arg
65					70					75					80

Ala	Leu	Met	Ile	Val	Gly	Ile	Val	Leu	Gly	Ala	Ile	Gly	Leu	Leu	Val
				85					90					95	

Ser	Ile	Phe	Ala	Leu	Lys	Cys	Ile	Arg	Ile	Gly	Ser	Met	Glu	Asp	Ser
			100					105					110		

Ala	Lys	Ala	Asn	Met	Thr	Leu	Thr	Ser	Gly	Ile	Met	Phe	Ile	Val	Ser
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Gly	Leu	Cys	Ala	Ile	Ala	Gly	Val	Ser	Val	Phe	Ala	Asn	Met	Leu	Val
	130					135					140				

Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Thr Gly Met Gly Glu
145 150 155 160

Gln Lys Leu Ile Ser Glu Glu Asp Leu Gly Met Val Gln Thr Val Gln
165 170 175

Thr Arg Tyr Thr Phe Gly Ala Ala Leu Phe Val Gly Trp Val Ala Gly
180 185 190

Gly Leu Thr Leu Ile Gly Gly Val Met Met Cys Ile Ala Cys Arg Gly
195 200 205

Leu Ala Pro Glu Glu Thr Asn Tyr Lys Ala Val Ser Tyr His Ala Ser
210 215 220

Gly His Ser Val Ala Tyr Lys Pro Gly Gly Phe Lys Ala Ser Thr Gly
225 230 235 240

Phe Gly Ser Asn Thr Lys Asn Lys Lys Ile Tyr Asp Gly Gly Ala Arg
245 250 255

Thr Glu Asp Glu Val Gln Ser Tyr Pro Ser Lys His Asp Tyr Val
260 265 270

<210> 5
<211> 813
<212> DNA
<213> Homo sapiens

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<210> 6
 <211> 270
 <212> PRT
 <213> Homo sapiens

<400> 6

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

Gln Asp Leu Tyr Asn Asn Pro Val Thr Ala Val Phe Asn Tyr Gln Gly
35          40          45

Leu Trp Arg Ser Cys Val Arg Glu Ser Ser Gly Phe Thr Glu Cys Arg
50          55          60

Gly Tyr Phe Thr Leu Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Leu Gly
65          70          75          80

Leu Pro Ala Met Leu Gln Ala Val Arg Ala Leu Met Ile Val Gly Ile
85          90          95

Val Leu Gly Ala Ile Gly Leu Leu Val Ser Ile Phe Ala Leu Lys Cys
100         105         110

Ile Arg Ile Gly Ser Met Glu Asp Ser Ala Lys Ala Asn Met Thr Leu
115         120         125

Thr Ser Gly Ile Met Phe Ile Val Ser Gly Leu Cys Ala Ile Ala Gly
130        135        140

Val Ser Val Phe Ala Asn Met Leu Val Thr Asn Phe Trp Met Ser Thr
145        150        155        160

Ala Asn Met Tyr Thr Gly Met Gly Gly Met Val Gln Thr Val Gln Thr
165        170        175

Arg Tyr Thr Phe Gly Ala Ala Leu Phe Val Gly Trp Val Ala Gly Gly
180        185        190

Leu Thr Leu Ile Gly Gly Val Met Met Cys Ile Ala Cys Arg Gly Leu
195        200        205

Ala Pro Glu Glu Thr Asn Tyr Lys Ala Val Ser Tyr His Ala Ser Gly
210        215        220

His Ser Val Ala Tyr Lys Pro Gly Gly Phe Lys Ala Ser Thr Gly Phe
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Glu Asp Glu Val Gln Ser Tyr Pro Ser Lys His Asp Tyr Val
 260 265 270

<210> 7
 <211> 786
 <212> DNA
 <213> Homo sapiens

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<210> 8
 <211> 261
 <212> PRT
 <213> Homo sapiens

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 Gln Asp Leu Tyr Asp Asn Pro Val Thr Ser Val Phe Gln Tyr Glu Gly
 35 40 45
 Leu Trp Arg Ser Cys Val Arg Gln Ser Ser Gly Phe Thr Glu Cys Arg
 50 55 60
 Pro Tyr Phe Thr Ile Leu Gly Leu Pro Ala Met Leu Gln Ala Val Arg
 65 70 75 80

Ala Leu Met Ile Val Gly Ile Val Leu Gly Ala Ile Gly Leu Leu Val
85 90 95

Ser Ile Phe Ala Leu Lys Cys Ile Arg Ile Gly Ser Met Glu Asp Ser
100 105 110

Ala Lys Ala Asn Met Thr Leu Thr Ser Gly Ile Met Phe Ile Val Ser
115 120 125

Gly Leu Cys Ala Ile Ala Gly Val Ser Val Phe Ala Asn Met Leu Val
130 135 140

Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Thr Gly Met Gly Gly
145 150 155 160

Met Val Gln Thr Val Gln Thr Arg Tyr Thr Phe Gly Ala Ala Leu Phe
165 170 175

Val Gly Trp Val Ala Gly Gly Leu Thr Leu Ile Gly Gly Val Met Met
180 185 190

Cys Ile Ala Cys Arg Gly Leu Ala Pro Glu Glu Thr Asn Tyr Lys Ala
195 200 205

Val Ser Tyr His Ala Ser Gly His Ser Val Ala Tyr Lys Pro Gly Gly
210 215 220

Phe Lys Ala Ser Thr Gly Phe Gly Ser Asn Thr Lys Asn Lys Lys Ile
225 230 235 240

Tyr Asp Gly Gly Ala Arg Thr Glu Asp Glu Val Gln Ser Tyr Pro Ser
245 250 255

Lys His Asp Tyr Val
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<210> 9
<211> 795
<212> DNA
<213> Mus musculus

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<210> 10
 <211> 795
 <212> DNA
 <213> Mus musculus

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 <213> Artificial

<220>
 <223> Description of artificial sequence: Oligonucleotide

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<210> 12
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 <212> DNA
 <213> Artificial

<220>
<223> Description of artificial sequence: oligonucleotide

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<210> 13
<211> 55
<212> PRT
<213> Homo sapiens

<400> 13

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Val Phe Gln Tyr Glu Gly Leu Trp Arg Ser Cys Val Arg Gln Ser Ser
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Gly Phe Thr Glu Cys Arg Pro Tyr Phe Thr Ile Leu Gly Leu Pro Ala
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Met Leu Gln Ala Val Arg Ala
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<210> 14
<211> 153
<212> PRT
<213> Homo sapiens

<400> 14

Met Asp Met Trp Ser Thr Gln Asp Leu Tyr Asp Asn Pro Val Thr Ser
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Val Phe Gln Tyr Glu Gly Leu Trp Arg Ser Cys Val Arg Gln Ser Ser
20 25 30

Gly Phe Thr Glu Cys Arg Pro Tyr Phe Thr Ile Leu Gly Leu Pro Ala
35 40 45

Met Leu Gln Ala Val Arg Ala Leu Met Ile Val Gly Ile Val Leu Gly
50 55 60

Ala Ile Gly Leu Leu Val Ser Ile Phe Ala Leu Lys Cys Ile Arg Ile
65 70 75 80

Gly Ser Met Glu Asp Ser Ala Lys Ala Asn Met Thr Leu Thr Ser Gly
85 90 95

Ile Met Phe Ile Val Ser Gly Leu Cys Ala Ile Ala Gly Val Ser Val
100 105 110

Phe Ala Asn Met Leu Val Thr Asn Phe Trp Met Ser Thr Ala Asn Met
115 120 125

Tyr Thr Gly Met Gly Gly Met Val Gln Thr Val Gln Thr Arg Tyr Thr
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Phe Gly Ala Ala Leu Phe Val Gly Trp
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<210> 15
 <211> 390
 <212> DNA
 <213> Homo sapiens

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 tacaacaacc ccgtaacagc tgttttcaac taccaggggc tgtggcgctc ctgtgtccga 240
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<210> 16
 <211> 129
 <212> PRT
 <213> Homo sapiens

<400> 16

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 20 25 30

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

Asp Gly Arg Met Asp Gln Trp Ser Thr Gln Asp Leu Tyr Asn Asn Pro
 50 55 60

Val Thr Ala Val Phe Asn Tyr Gln Gly Leu Trp Arg Ser Cys Val Arg
 65 70 75 80

Glu Ser Ser Gly Phe Thr Glu Cys Arg Gly Tyr Phe Thr Leu Leu Gly
 85 90 95

Leu Pro Ala Met Leu Gln Ala Val Arg Ala Ala Ile Gln His Ser Gly
 100 105 110

Gly Arg Ser Arg Arg Ala Arg Thr Lys Thr His Leu Arg Arg Gly Ser
 115 120 125

Glu

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<211> 411
<212> DNA
<213> Homo sapiens

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<212> PRT
<213> Homo sapiens

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20 25 30

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

Asp Gly Arg Ala Leu Met Ile Val Gly Ile Val Leu Gly Ala Ile Gly
50 55 60

Leu Leu Val Ser Ile Phe Ala Leu Lys Cys Ile Arg Ile Gly Ser Met
65 70 75 80

Glu Asp Ser Ala Lys Ala Asn Met Thr Leu Thr Ser Gly Ile Met Phe
85 90 95

Ile Val Ser Gly Leu Cys Ala Ile Ala Gly Val Ser Val Phe Ala Asn
100 105 110

Ala Ala Ile Gln His Ser Gly Gly Arg Ser Arg Arg Ala Arg Thr Lys
115 120 125

Thr His Leu Arg Arg Gly Ser Glu
130 135

<210> 19
 <211> 531
 <212> DNA
 <213> Homo sapiens

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 <211> 176
 <212> PRT
 <213> Homo sapiens

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 Trp Ser Thr Gln Asp Leu Tyr Asn Asn Pro Val Thr Ala Val Phe Asn
 35 40 45
 Tyr Gln Gly Leu Trp Arg Ser Cys Val Arg Glu Ser Ser Gly Phe Thr
 50 55 60
 Glu Cys Arg Gly Tyr Phe Thr Leu Leu Gly Leu Pro Ala Met Leu Gln
 65 70 75 80
 Ala Val Arg Ala Leu Met Ile Val Gly Ile Val Leu Gly Ala Ile Gly
 85 90 95
 Leu Leu Val Ser Ile Phe Ala Leu Lys Cys Ile Arg Ile Gly Ser Met
 100 105 110
 Glu Asp Ser Ala Lys Ala Asn Met Thr Leu Thr Ser Gly Ile Met Phe
 115 120 125
 Ile Val Ser Gly Leu Cys Ala Ile Ala Gly Val Ser Val Phe Ala Asn
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Met Leu Val Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Thr Gly
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Met Gly Gly Met Val Gln Thr Val Gln Thr Arg Tyr Thr Phe Gly Ala
165 170 175

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<212> PRT
<213> Homo sapiens

<400> 21

Asp Gln Trp Ser Thr Gln Asp Leu Tyr Asn
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<210> 22
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<212> PRT
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<400> 22

Asn Asn Pro Val Thr Ala Val Phe Asn Tyr Gln
1 5 10

<210> 23
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<400> 23

Ser Thr Gln Asp Leu Tyr Asn Asn Pro Val Thr Ala Val Phe
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<210> 24
<211> 12
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<400> 24

Asp Met Trp Ser Thr Gln Asp Leu Tyr Asp Asn Pro
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<210> 25
<211> 12
<212> PRT
<213> Homo sapiens

<400> 25

Cys Arg Pro Tyr Phe Thr Ile Leu Gly Leu Pro Ala
1 5 10

<210> 26
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<212> PRT

<213> Homo sapiens

<400> 26

Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Thr Gly
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<210> 27

<211> 13

<212> PRT

<213> Homo sapiens

<400> 27

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<213> Homo sapiens

<400> 28

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Met Leu Gln Ala Val Arg Ala Leu Met Ile Val Gly Ile Val Leu Gly
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Ala Ile Gly Leu Leu Val Ser Ile Phe Ala Leu Lys Cys Ile Arg Ile
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Gly Ser Met Glu Asp Ser Ala Lys Ala Asn Met Thr Leu Thr Ser Gly
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<400> 35

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 tttttccgcc attgctgtct tgttttctgt gttattaacc tccatgtttt gtacgttaaa 2760
 tattaaca ctgttaacat ccattc 2786

<210> 37
 <211> 264
 <212> PRT
 <213> Mus musculus

<400> 37

Met Ala Thr Thr Thr Cys Gln Val Val Gly Leu Leu Leu Ser Leu Leu
1 5 10 15

Gly Leu Ala Gly Cys Ile Ala Ala Thr Gly Met Asp Met Trp Ser Thr
20 25 30

Gln Asp Leu Tyr Asp Asn Pro Val Thr Ala Val Phe Gln Tyr Glu Gly
35 40 45

Leu Trp Arg Ser Cys Val Gln Gln Ser Ser Gly Phe Thr Glu Cys Arg
50 55 60

Pro Tyr Phe Thr Ile Leu Gly Leu Pro Ala Met Leu Gln Ala Val Arg
65 70 75 80

Ala Leu Met Ile Val Gly Ile Val Leu Gly Val Ile Gly Ile Leu Val
85 90 95

Ser Ile Phe Ala Leu Lys Cys Ile Arg Ile Gly Ser Met Asp Asp Ser
100 105 110

Ala Lys Ala Lys Met Thr Leu Thr Ser Gly Ile Leu Phe Ile Ile Ser
115 120 125

Gly Ile Cys Ala Ile Ile Gly Val Ser Val Phe Ala Asn Met Leu Val
 130 135 140
 Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Ser Gly Met Gly Gly
 145 150 155 160
 Met Gly Gly Met Val Gln Thr Val Gln Thr Arg Tyr Thr Phe Gly Ala
 165 170 175
 Ala Leu Phe Val Gly Trp Val Ala Gly Gly Leu Thr Leu Ile Gly Gly
 180 185 190
 Val Met Met Cys Ile Ala Cys Arg Gly Leu Thr Pro Asp Asp Ser Asn
 195 200 205
 Phe Lys Ala Val Ser Tyr His Ala Ser Gly Gln Asn Val Ala Tyr Arg
 210 215 220
 Pro Gly Gly Phe Lys Ala Ser Thr Gly Phe Gly Ser Asn Thr Arg Asn
 225 230 235 240
 Lys Lys Ile Tyr Asp Gly Gly Ala Arg Thr Glu Asp Asp Glu Gln Ser
 245 250 255
 His Pro Thr Lys Tyr Asp Tyr Val
 260

<210> 38
 <211> 40
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: Oligonucleotide

<400> 38
 gagaggatccc cgtacggtgg ctgcaccatc tgtcttcac

40

<210> 39
 <211> 37
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: oligonucleotide

<400> 39
 gagagcggcc gcctaacact ctcccctgtt gaagctc

37

<210> 40
 <211> 324
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 40
 cgtacggtgg ctgcaccatc tgtcttcatc ttcccgccat ctgatgagca gttgaaatct 60
 ggaactgcct ctgttgtgtg cctgctgaat aacttctatc ccagagaggc caaagtacag 120
 tggaaggtgg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac 180
 agcaaggaca gcacctacag cctcagcagc accctgacgc tgagcaaagc agactacgag 240
 aaacacaaaag tctacgcctg cgaagtcacc catcagggcc tgagctcgcc cgtcacaaaag 300
 agcttcaaca ggggagagtg ttag 324

<210> 41
 <211> 107
 <212> PRT
 <213> Artificial

<220>
 <223> Description of artificial sequence: Translation of PCR product

<400> 41
 Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 1 5 10 15
 Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
 20 25 30
 Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
 35 40 45
 Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
 50 55 60
 Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
 65 70 75 80
 Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
 85 90 95
 Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 100 105

<210> 42
 <211> 34
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: Oligonucleotide

<400> 42
 gagaaagctt tccaccaagg gcccatcggt cttc 34

<210> 43
 <211> 36
 <212> DNA

<213> Artificial

<220>

<223> Description of artificial sequence: Oligonucleotide

<400> 43

gagagcggcc gctcatttac ccggagacag ggagag

36

<210> 44

<211> 21

<212> DNA

<213> Artificial

<220>

<223> Description of artificial sequence: Oligonucleotide

<400> 44

taccagttga acttgacctc a

21

<210> 45

<211> 981

<212> DNA

<213> Artificial

<220>

<223> Description of artificial sequence: PCR product

<400> 45

ggcccatcgg tcttccccct ggcaccctcc tccaagagca cctctggggg cacagcggcc 60

ctgggctgcc tgggtcaagga ctacttcccc gaaccggtga cgggtgctgtg gaactcaggc 120

gccctgacca gcggcgtgca caccttcccc gctgtcctac agtcctcagg actctactcc 180

ctcagcagcg tgggtgaccgt gccctccagc agcttgggca cccagacctc catctgcaac 240

gtgaatcaca agcccagcaa caccaagggtg gacaagaaaag ttgagcccaa atcttgtgac 300

aaaactcaca catgcccacc gtgcccagca cctgaactcc tgggggggacc gtcagtcttc 360

ctcttcccc caaaacccaa ggacaccctc atgatctccc ggaccctga ggtcacatgc 420

gtgggtggtg acgtgagcca cgaagaccct gaggtcaagt tcaactggta cgtggacggc 480

gtggaggtgc ataatgccaa gacaaagccg cgggaggagc agtacaacag cacgtaccgt 540

gtggtcagcg tcctcaccgt cctgcaccag gactggctga atggcaagga gtacaagtgc 600

aagggtctcca acaaagccct cccagcccc atcgagaaaa ccatctccaa agccaaaggg 660

cagccccgag aaccacaggt gtacaccctg ccccatccc gggatgagct gaccaagaac 720

caggtcagcc tgacctgcct ggtcaaaggc ttctatccca gcgacatcgc cgtggagtgg 780

gagagcaatg ggcagccgga gaacaactac aagaccacgc ctcccgtgct ggactccgac 840

ggctccttct tcctctatag caagctcacc gtggacaaga gcagggtggc gcaggggaac 900

gtcttctcat gctccgtgat gcatgaggct ctgcacaacc actacacgca gaagagcctc 960

tccctgtctc cgggtaaatg a 981

<210> 46

<211> 326

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 46

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

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

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
35 40 45

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

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
65 70 75 80

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro
85 90 95

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

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

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

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

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

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

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

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

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

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

<213> Artificial
 <220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 50
 gggacagtca ctgagctgct cagag 25

<210> 51
 <211> 25
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 51
 acaggggcca gtggatagac cgatg 25

<210> 52
 <211> 27
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 52
 agccagggac caagggatag acagatg 27

<210> 53
 <211> 45
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 53
 gtaatacgac tcactatagg gcaagcagtg gtatcaacgc agagt 45

<210> 54
 <211> 22
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 54
 gtaatacgac tcactatagg gc 22

<210> 55
 <211> 351
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: PCR product
 <400> 55
 cagggttcagc tgcagcagtc tggagctgag ctgatgaagc ctggggcctc agtgaagata 60

tcctgcaagg ctactggcta cacattcagt agctactgga tagagtgggt aaagcagagg	120
cctggacatg gccttgagtg gattggagag attttacctg gaagtggtag tactaactac	180
aatgagaagt tcaagggcaa ggccacattc actgcagata catcctccaa cacagcctac	240
atgcaactca gcagcctgac atctgaggac tctgccgtct attactgtgc aagatatgat	300
tacccttggg ttgcttactg gggccaaggg actctgggtca ctgtctctgc a	351

<210> 56
 <211> 354
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 56	
cagatccagt tgggtgcagtc tggacctgag ctgaagaagc ctggagagac agtcaagatc	60
tcctgcaagg cttctgggta taccttcaca aactatggaa tgaactgggt gaagcaggct	120
ccaggaaagg gtttaaagtg gatgggctgg ataaacacca aactggaga gccaacatat	180
gctgaagagt tcaagggacg gtttgccttc tctttgaaa cctctgccag cactgcctat	240
ttgcagatca acaacctcaa aaatgaggac acggctacat atttctgtgc aagactgggt	300
tttggtaatg ctatggacta ctgggggtcaa ggaacctcag tcaccgtctc ctca	354

<210> 57
 <211> 348
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 57	
caggttcagc tgcagcagtc tggagctgag ctggcgaggc ccggggcttc agtgaagctg	60
tcctgcaagg cttctggcta caccttcact gactactata taaactgggt gaagcagagg	120
actggacagg gccttgagtg gattggagag atttatcctg gaagtggtaa tacttactac	180
aatgagaagt tcaagggcaa ggccacactg actgcagaca aatcctccag cacagcctac	240
atgcagctca gcagcctgac atctgaggac tctgcagtct atttctgtgc aagatcgat	300
gggtgcctttg actactgggg ccaaggcacc actctcacag tctcctca	348

<210> 58
 <211> 354
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 58	
caggtccaac tgcagcagcc tggggctgag ctggtgaggc ctggggcttc agtgaagctg	60
tcctgcaagg cttctggcta caccttcacc agctactgga taaactgggt gaagcagagg	120

cctggacaag gccttgagtg gatcggaaat atttatcctt ctgatagtta tactaactac	180
aatcaaaagt tcaaggacaa ggccacattg actgtagaca aatcctccag cacagcctac	240
atgcagctca gcagcccgcac atctgaggac tctgcggtct attactgtac aagatcgtgg	300
aggggtaact cctttgacta ctggggccaa ggcaccactc tcacagtctc ctca	354

<210> 59
 <211> 354
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 59	
caggttcagc tgcagcagtc tggacctgag ctggtgaagc ctggggcttc agtgaagatg	60
tcctgcaagg cttctggata cacattcact gactatgtta taagctgggt gaagcagaga	120
actggacagg gccttgagtg gattggagag atttatcctg gaagtggtag tacttactac	180
aatgagaagt tcaagggcaa ggccacactg actgcagaca aatcctccaa cacagcctac	240
atgcagctca gcagcctgac atctgaggac tctgcggtct atttctgtgc aagaggggta	300
ttactacggg ctatggacta ctgggggtcaa ggaacctcag tcaccgtctc ctca	354

<210> 60
 <211> 360
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 60	
caggttcacc tacaacagtc tggttctgaa ctgaggagtc ctgggtcttc agtaaagctt	60
tcatgcaagg attttgattc agaagtcttc ctttttgctt atatgagttg gattaggcag	120
aagcctgggc atggatttga atggattgga gacatactcc caagtattgg tagaacaatc	180
tatggagaga agtttgagga caaagccaca ctggatgcag acacagtgtc caacacagcc	240
tacttgagc tcaacagtct gacatctgag gactctgcta tctactactg tgcaaggggg	300
gagggctacg gtgcctgggt tgcttactgg ggccaaggga ctctgggtcac tgtctctgca	360

<210> 61
 <211> 339
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 61	
gacattgtga tgacacagtc tccatcctcc ctgactgtga cagcaggaga gaaggctact	60
atgagctgca agtccagtca gagtctgtta aacagtggaa atcaaaagaa ctacttgacc	120
tggtaccagc agaaaccagg gcagcctcct aaactgttga tctactgggc atccactagg	180

gaatctgggg	tccctgatcg	cttcacaggc	agtggatctg	gaacagattt	cactctcacc	240
atcagcagtg	tgcaggctga	agacctggca	gtttattact	gtcagaatga	ttatagttat	300
ccgctcacgt	tcggtgctgg	gaccaagctg	gagctgaaa			339

<210> 62
 <211> 318
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 62		
caaattgttc	tcacccagtc	tccagcaatc atgtctgcat ctccagggga gaaggtcacc 60
ataacctgca	gtgccagctc	aagtgttaagt tacatgcact gggtccagca gaagccaggc 120
acttctccca	aactctggat	ttatagcaca tccaacctgg cttctggagt ccctgctcgc 180
ttcagtggca	gtggatctgg	gacctcttac tctctcacia tcagccgaat ggaggctgaa 240
gatgctgcca	cttattactg	ccagcaaagg agtagttacc caccacggt cggagggggg 300
accaagctgg	aaataaaa	318

<210> 63
 <211> 321
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 63		
gacattgtga	tgacccagtc	tcaaaaattc atgtccacat cagtaggaga cagggtcagc 60
atcacctgca	agggcagtc	gaatgttcgt actgctgtag cctgggtatca acagaaacca 120
gggcagtctc	ctaaagcact	gatttacttg gcatccaacc ggcacactgg agtccctgat 180
cgcttcacag	gcagtggatc	tgggacagat ttcactctca ccattagcaa tgtgcaatct 240
gaagacctgg	cagattatct	ctgtctgcaa cattggaatt atcctctgac gttcggtgga 300
ggcaccaagc	tggaaatcaa	a 321

<210> 64
 <211> 339
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 64		
gacattgtga	tgacacagtc	tccatcctcc ctagctgtgt cagttggaga gaaggttact 60
atgagctgca	agtcacagtc	gagcctttta tatagtagca atcaaaagaa ctacttggcc 120
tggtaccagc	agaaaccagg	gcagtctcct aaactgctga tttactgggc atccactagg 180
gaatctgggg	tccctgatcg	cttcacaggc agtggatctg ggacagattt cactctcacc 240

atcagcagtg tgaaggctga agacctggca gtttattact gtcagcaata ttatagctat	300
ccgctcacgt tcggtgctgg gaccaagctg gagctgaaa	339

<210> 65
 <211> 339
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 65	
gacattgtga tgacacagtc tccatcctcc ctgactgtga cagcaggaga gaaggctact	60
atgagctgca agtccagtc gagtctgtta aacagtggaa atcaaaagaa ctacttgacc	120
tggtaccagc agaaaccagg gcagcctcct aaactgttga tctactgggc atccactagg	180
gaatctgggg tccctgatcg cttcacaggc agtggatctg gaacagattt cactctcacc	240
atcagcagtg tgcaggctga agacctggca gtttattact gtcagaatga ttatagttat	300
ccattcacgt tcggctcggg gacaaagttg gaaataaaa	339

<210> 66
 <211> 336
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 66	
gacattgtga tgacacagtc tccatcctcc ctggctgtgt cagcaggaga gaaggctact	60
atgagctgca aatccagtc gagtctgtc aacagtagaa cccgaaagaa ctacttggct	120
tggtaccagc agaaaccagg gcagtctcct aaactgctga tctactgggc atccactagg	180
gaatctgggg tccctgatcg cttcacaggc agtggatctg ggacagattt cactctcacc	240
atcagcagtg tgcaggctga agacctggca gtttattact gcaagcaatc ttataatctg	300
tacacgttcg gaggggggac caagctggaa ataaaa	336

<210> 67
 <211> 339
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 67	
gacatcgtga tgacacagtc tccatcctcc ctagctgtgt cagttggaga gaaggttact	60
atgagctgca agtccagtc gagcctttta tatagtagca atcaaaagaa ctacttggcc	120
tggtaccagc agaaaccagg gcagtctcct aaactgctga tttactgggc atccactagg	180
gaatctgggg tccctgatcg cttcacaggc agtggatctg caacagattt cactctgacc	240
atcagcagtg tgcaggctga agaccttgca gattatcact gtggacaggg ttacagctat	300

ccgtacacgt tcggaggggg gaccaagctg gaaataaaa 339

<210> 68
 <211> 339
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 68
 gacattgtga tgtcacagtc tccatcctcc ctagctgtgt cagttggaga gaaggttact 60
 atgagctgca agtccagtca gagcctttta tatagtagca atcaaaagaa ctacttggcc 120
 tgggtaccagc agaaaccagg gcagtctcct aaactgctga tttactgggc atccactagg 180
 gaatctgggg tccctgatcg cttcacaggc agtggatctg ggacagattt cactctcacc 240
 atcagcagtg tgaaggctga agacctggca gtttattact gtcagcaata ttatagctat 300
 ccgctcacgt tcggtgctgg gaccaagctg gagctgaaa 339

<210> 69
 <211> 321
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: PCR product

<400> 69
 aacattgtaa tgaccaatc tcccaaattc atgtccatgt cagtaggaga gagggtcacc 60
 ttgacctgca aggccagtga gaatgtggtt acttatgttt cctggtatca acagaaacca 120
 gagcagtctc cttaaactgct gatatacggg gcatccaacc ggtacactgg ggtccccgat 180
 cgcttcacag gcagtggatc tgcaacagat ttcactctca ccatcagcag tgtgaaggct 240
 gaagacctgg cagtttatta ctgtcagcaa tattatagct atccgctcac gttcggtgct 300
 gggaccaagc tggagctgaa a 321

<210> 70
 <211> 43
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: Oligonucleotide

<400> 70
 gagaaagctt gccgccacca tggaatggac ctgggtcttt ctc 43

<210> 71
 <211> 43
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: Oligonucleotide

<400> 71

gagagggccc ttggtggagg ctgcagagac agtgaccaga gtc 43

<210> 72
<211> 47
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 72
gagaaagctt gccgccacca tggattggct gtggaacttg ctattcc 47

<210> 73
<211> 44
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 73
gagagggccc ttggtggagg ctgaggagac ggtgactgag gttc 44

<210> 74
<211> 46
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 74
gagaaagctt gccgccacca tggaatggat ctggatcttt ctcttc 46

<210> 75
<211> 44
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 75
gagagggccc ttggtggagg ctgaggagac tgtgagagtg gtgc 44

<210> 76
<211> 46
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 76
gagaaagctt gccgccacca tgggatggag ctgtatcatc ctcttc 46

<210> 77
<211> 43
<212> DNA
<213> Artificial

<220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 77
 gagagggccc ttggtggagg ctgaggagac tgtgagagtg gtg 43

<210> 78
 <211> 47
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 78
 gagaaagctt gccgccacca tggaatggag gatctttctc ttcattcc 47

<210> 79
 <211> 44
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 79
 gagagggccc ttggtggagg ctgaggagac ggtgactgag gtcc 44

<210> 80
 <211> 51
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 80
 gagaggtctc aagcttagcc accatggact ggatttggat catgctccat c 51

<210> 81
 <211> 44
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 81
 gagagggccc ttggtggagg ctgcagagac agtgaccaga gtcc 44

<210> 82
 <211> 43
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: oligonucleotide
 <400> 82
 gagaaagctt gccgccacca tggaatcaca gactcaggtc ctc 43

<210> 83

<211> 34
 <212> DNA
 <213> Artificial

 <220>
 <223> Description of artificial sequence: oligonucleotide

 <400> 83
 cacacgtacg tttcagctcc agcttgggtcc cagc 34

 <210> 84
 <211> 46
 <212> DNA
 <213> Artificial

 <220>
 <223> Description of artificial sequence: oligonucleotide

 <400> 84
 gagaaagctt gccgccacca tgcattttca agtgcagatt ttcagc 46

 <210> 85
 <211> 30
 <212> DNA
 <213> Artificial

 <220>
 <223> Description of artificial sequence: oligonucleotide

 <400> 85
 cacacgtacg ttttattttcc agcttgggtcc 30

 <210> 86
 <211> 44
 <212> DNA
 <213> Artificial

 <220>
 <223> Description of artificial sequence: oligonucleotide

 <400> 86
 gagaaagctt gccgccacca tggagtttca gaccaggtc tttg 44

 <210> 87
 <211> 33
 <212> DNA
 <213> Artificial

 <220>
 <223> Description of artificial sequence: oligonucleotide

 <400> 87
 cacacgtacg tttgattttcc agcttgggtgc ctc 33

 <210> 88
 <211> 46
 <212> DNA
 <213> Artificial

 <220>
 <223> Description of artificial sequence: oligonucleotide

 <400> 88

gagaaagctt gccgccacca tggattcaca ggcccagggtt cttatg 46

<210> 89
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 89
cacacgtacg tttcagctcc agcttgggtcc 30

<210> 90
<211> 46
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 90
gagaaagctt gccgccacca tggaatcaca gactcagggtc ctcacg 46

<210> 91
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 91
cacacgtacg ttttatttcc aactttgtcc 30

<210> 92
<211> 49
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 92
gagaaagctt gccgccacca tggattcaca ggcccagggtt cttatattg 49

<210> 93
<211> 30
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: Oligonucleotide

<400> 93
cacacgtacg ttttatttcc agcttgggtcc 30

<210> 94
<211> 46
<212> DNA
<213> Artificial

<220>
 <223> Description of artificial sequence: Oligonucleotide
 <400> 94
 gagaaagctt gccgccacca tggattcaca ggcccagggtt cttatg 46
 <210> 95
 <211> 30
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: Oligonucleotide
 <400> 95
 cacacgtacg ttttatttcc agcttggtcc 30
 <210> 96
 <211> 46
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: Oligonucleotide
 <400> 96
 gagaaagctt gccgccacca tggattcaca ggctcagggtt cttatg 46
 <210> 97
 <211> 33
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: Oligonucleotide
 <400> 97
 cacacgtacg tttcagctcc agcttggtcc cag 33
 <210> 98
 <211> 41
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: Oligonucleotide
 <400> 98
 gagaaagctt agccaccatg gaatcacaga ctctggtctt c 41
 <210> 99
 <211> 30
 <212> DNA
 <213> Artificial
 <220>
 <223> Description of artificial sequence: Oligonucleotide
 <400> 99
 cacacgtacg tttcagctcc agcttggtcc 30
 <210> 100

<211> 1401
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 100
atggaatgga cctgggtcct tctcttcctc ctgtcagtaa ctgcaggtgt ccactcccag 60
gttcagctgc agcagtctgg agctgagctg atgaagcctg gggcctcagt gaagatatcc 120
tgcaaggcta ctggctacac attcagtagc tactggatag agtgggtaaa gcagaggcct 180
ggacatggcc ttgagtggat tggagagatt ttacctggaa gtggtagtac taactacaat 240
gagaagttca agggcaaggc cacattcact gcagatacat cctccaacac agcctacatg 300
caactcagca gcctgacatc tgaggactct gccgtctatt actgtgcaag atatgattac 360
ccctggtttg cttactgggg ccaagggact ctggctactg tctctgcagc ctccaccaag 420
ggcccatcgg tcttccccct ggcaccctcc tccaagagca cctctggggg cacagcggcc 480
ctgggctgcc tgggtcaaggc ctacttcccc gaaccggtga cgggtgctgtg gaactcaggc 540
gccctgacca gcggcggtgca caccttcccc gctgtcctac agtcctcagg actctactcc 600
ctcagcagcg tgggtgaccgt gccctccagc agcttgggca cccagaccta catctgcaac 660
gtgaatcaca agcccagcaa caccaagggtg gacaagaaag ttgagccaa atcttgtgac 720
aaaactcaca catgcccacc gtgcccagca cctgaactcc tggggggacc gtcagtcttc 780
ctcttcccc caaaacccaa ggacaccctc atgatctccc ggaccctga ggtcacatgc 840
gtggtggtgg acgtgagcca cgaagaccct gaggtcaagt tcaactggta cgtggacggc 900
gtggagggtgc ataatgcaa gacaaagccg cgggaggagc agtacaacag cacgtaccgt 960
gtggtcagcg tcctcaccgt cctgcaccag gactggctga atggcaagga gtacaagtgc 1020
aagggtctcca acaaagccct cccagcccc atcgagaaaa ccatctcaa agccaaaggg 1080
cagccccgag aaccacaggt gtacaccctg ccccatccc gggatgagct gaccaagaac 1140
caggctagcc tgacctgcct ggtcaaaggc ttctatccca gcgacatcgc cgtggagtgg 1200
gagagcaatg ggcagccgga gaacaactac aagaccacgc ctcccgtgct ggactccgac 1260
ggctccttct tcctctatag caagctcacc gtggacaaga gcagggtggca gcaggggaac 1320
gtcttctcat gctccgtgat gcatgaggct ctgcacaacc actacacgca gaagagcctc 1380
tccctgtctc cgggtaaatg a 1401

<210> 101
<211> 1404
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 101
atggattggc tgtggaactt gctattcctg atggcagctg ccaaagtat ccaagcacag 60

atccagttgg	tgcagtctgg	acctgagctg	aagaagcctg	gagagacagt	caagatctcc	120
tgcaaggctt	ctgggtatac	cttcacaaac	tatggaatga	actgggtgaa	gcaggctcca	180
ggaaagggtt	taaagtggat	gggctggata	aacaccaaca	ctggagagcc	aacatatgct	240
gaagagttca	agggacggtt	tgccttctct	ttggaaacct	ctgccagcac	tgcctatttg	300
cagatcaaca	acctcaaaaa	tgaggacacg	gctacatatt	tctgtgcaag	actgggtttt	360
ggtaatgcta	tggactactg	gggtcaagga	acctcagtca	ccgtctcctc	agcctccacc	420
aagggcccat	cggtcttccc	cctggcacc	tcctccaaga	gcacctctgg	gggcacagcg	480
gccctgggct	gcctggtcaa	ggactacttc	cccgaaccgg	tgacggtgtc	gtggaactca	540
ggcgccctga	ccagcggcgt	gcacaccttc	ccggctgtcc	tacagtcctc	aggactctac	600
tcctcagca	gcgtggtgac	cgtgccctcc	agcagcttgg	gcaccagac	ctacatctgc	660
aacgtgaatc	acaagcccag	caacaccaag	gtggacaaga	aagttgagcc	caaactctgt	720
gacaaaactc	acacatgccc	accgtgccc	gcacctgaac	tcctgggggg	accgtcagtc	780
ttcctcttcc	ccccaaaacc	caaggacacc	ctcatgatct	cccggacccc	tgaggtcaca	840
tgcgtggtgg	tggacgtgag	ccacgaagac	cctgaggtca	agttcaactg	gtacgtggac	900
ggcgtggagg	tgcataatgc	caagacaaag	ccgcgggagg	agcagtacaa	cagcacgtac	960
cgtgtggtca	gcgtcctcac	cgtcctgcac	caggactggc	tgaatggcaa	ggagtacaag	1020
tgcaaggctt	ccaacaaagc	cctcccagcc	cccatcgaga	aaaccatctc	caaagccaaa	1080
gggcagcccc	gagaaccaca	ggtgtacacc	ctgcccccat	cccgggatga	gctgaccaag	1140
aaccaggtca	gcctgacctg	cctggtcaaa	ggcttctatc	ccagcgacat	cgccgtggag	1200
tgggagagca	atgggcagcc	ggagaacaac	tacaagacca	cgctcccgt	gctggactcc	1260
gacggctcct	tcttctctta	tagcaagctc	accgtggaca	agagcaggtg	gcagcagggg	1320
aacgtcttct	catgctccgt	gatgcatgag	gctctgcaca	accactacac	gcagaagagc	1380
ctctccctgt	ctccgggtaa	atga				1404

<210> 102

<211> 1398

<212> DNA

<213> Artificial

<220>

<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 102

atggaatgga	tctggatctt	tctcttcac	ctctcaggaa	ctgcaggtgt	ccactcccag	60
gttcagctgc	agcagtctgg	agctgagctg	gcgaggcccc	gggcttcagt	gaagctgtcc	120
tgcaaggctt	ctggctacac	cttcactgac	tactatataa	actgggtgaa	gcagaggact	180
ggacagggcc	ttgagtggat	tggagagatt	tatcctggaa	gtggtataac	ttactacaat	240
gagaagttca	agggcaaggc	cacactgact	gcagacaaat	cctccagcac	agcctacatg	300
cagctcagca	gcctgacatc	tgaggactct	gcagtctatt	tctgtgcaag	atcgatatggt	360

gcctttgact	actggggcca	aggcaccact	ctcacagtct	cctcagcctc	caccaagggc	420
ccatcgggtct	tccccctggc	accctcctcc	aagagcacct	ctggggggcac	agcggccctg	480
ggctgcctgg	tcaaggacta	cttccccgaa	ccggtgacgg	tgtcgtggaa	ctcaggcgcc	540
ctgaccagcg	gcgtgcacac	cttcccggct	gtcctacagt	cctcaggact	ctactccctc	600
agcagcgtgg	tgaccgtgcc	ctccagcagc	ttgggcaccc	agacctacat	ctgcaacgtg	660
aatcacaagc	ccagcaacac	caaggtggac	aagaaagttg	agcccaaadc	ttgtgacaaa	720
actcacacat	gcccaccgtg	cccagcacct	gaactcctgg	ggggaccgtc	agtcttcctc	780
ttccccccaa	aaccaagga	caccctcatg	atctcccggg	cccctgaggt	cacatgcgtg	840
gtggtggacg	tgagccacga	agaccctgag	gtcaagttca	actggtacgt	ggacggcgtg	900
gaggtgcata	atgccaagac	aaagccgcgg	gaggagcagt	acaacagcac	gtaccgtgtg	960
gtcagcgtcc	tcaccgtcct	gcaccaggac	tggctgaatg	gcaaggagta	caagtgcag	1020
gtctccaaca	aagccctccc	agccccatc	gagaaaacca	tctccaaagc	caaagggcag	1080
ccccgagaac	cacaggtgta	caccctgccc	ccatcccggg	atgagctgac	caagaaccag	1140
gtcagcctga	cctgcctggg	caaaggcttc	tatcccagcg	acatcgccgt	ggagtgggag	1200
agcaatgggc	agccggagaa	caactacaag	accacgcctc	ccgtgctgga	ctccgacggc	1260
tcctttcttc	tctatagcaa	gtcaccgtg	gacaagagca	ggtggcagca	ggggaacgtc	1320
ttctcatgct	ccgtgatgca	tgaggctctg	cacaaccact	acacgcagaa	gagcctctcc	1380
ctgtctccgg	gtaaatga					1398

<210> 103
 <211> 1404
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 103	
atgggatgga	gctgtatcat cctcttcttg gtagcaacag ctacagggtg ccactcccag 60
gtccaactgc	agcagcctgg ggctgagctg gtgaggcctg gggcttcagt gaagctgtcc 120
tgcaaggctt	ctggctacac cttcaccagc tactggataa actgggtgaa gcagaggcct 180
ggacaaggcc	ttgagtggat cggaaatatt tatccttctg atagttatac taactacaat 240
caaaagttca	aggacaaggc cacattgact gtagacaaat cctccagcac agcctacatg 300
cagctcagca	gcccgcacatc tgaggactct gcggtctatt actgtacaag atcgtggagg 360
ggtaactcct	ttgactactg gggccaaggc accactctca cagtctcctc agcctccacc 420
aagggcccat	cggtcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg 480
gccctgggct	gcctggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca 540
ggcgccctga	ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac 600
tccttcagca	gcgtggtgac cgtgccctcc agcagcttgg gcacccagac ctacatctgc 660

aacgtgaatc	acaagcccag	caacaccaag	gtggacaaga	aagttgagcc	caaattcttgt	720
gacaaaactc	acacatgccc	accgtgcccc	gcacctgaac	tcctgggggg	accgtcagtc	780
ttcctcttcc	ccccaaaacc	caaggacacc	ctcatgatct	cccggacccc	tgaggtcaca	840
tgcgtggtgg	tggacgtgag	ccacgaagac	cctgaggtca	agttcaactg	gtacgtggac	900
ggcgtggagg	tgcataatgc	caagacaaaag	ccgcgggagg	agcagtacaa	cagcacgtac	960
cgtgtggtca	gcgtcctcac	cgtcctgcac	caggactggc	tgaatggcaa	ggagtacaag	1020
tgcaagggtct	ccaacaaagc	cctcccagcc	cccatcgaga	aaaccatctc	caaagccaaa	1080
gggcagcccc	gagaaccaca	ggtgtacacc	ctgcccccat	cccgggatga	gctgaccaag	1140
aaccagggtca	gcctgacctg	cctggtcaaa	ggcttctatc	ccagcgacat	cgccgtggag	1200
tgggagagca	atgggcagcc	ggagaacaac	tacaagacca	cgctcccgt	gctggactcc	1260
gacggctcct	tcttctctta	tagcaagctc	accgtggaca	agagcaggtg	gcagcagggg	1320
aacgtcttct	catgctccgt	gatgcatgag	gctctgcaca	accactacac	gcagaagagc	1380
ctctccctgt	ctccgggtaa	atga				1404

<210> 104
 <211> 1401
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 104	
atggaatgga	ggatctttct cttcatcctg tcaggaactg caggtgtcca ctcccagggtt 60
cagctgcagc	agtctggacc tgagctggtg aagcctgggg cttcagtga gatgtcctgc 120
aaggcttctg	gatacacatt cactgactat gttataagct ggggtgaagca gagaactgga 180
cagggccttg	agtggattgg agagatttat cctggaagtg gtagtactta ctacaatgag 240
aagttcaagg	gcaaggccac actgactgca gacaaatcct ccaacacagc ctacatgcag 300
ctcagcagcc	tgacatctga ggactctgcg gtctatttct gtgcaagagg ggtattacta 360
cgggctatgg	actactgggg tcaaggaacc tcagtcaccg tctcctcagc ctccaccaag 420
ggcccatcgg	tcttccccct ggcaccctcc tccaagagca cctctggggg cacagcggcc 480
ctgggctgcc	tgggtcaagga ctacttcccc gaaccggtga cgggtgtcgtg gaactcaggc 540
gccctgacca	gcggcgtgca caccttcccc gctgtcctac agtcctcagg actctactcc 600
ctcagcagcg	tgggtgaccgt gccctccagc agcttgggca cccagaccta catctgcaac 660
gtgaatcaca	agcccagcaa caccaagggtg gacaagaaaag ttgagcccaa atcttgtgac 720
aaaactcaca	catgcccacc gtgcccagca cctgaactcc tgggggggacc gtcagtcttc 780
ctcttcccc	caaaacccaa ggacaccctc atgatctccc ggaccctga ggtcacatgc 840
gtggtggtgg	acgtgagcca cgaagaccct gaggtcaagt tcaactggta cgtggacggc 900
gtggagggtgc	ataatgccaa gacaaagccg cgggaggagc agtacaacag cacgtaccgt 960

gtggtcagcg	tcctcaccgt	cctgcaccag	gactggctga	atggcaagga	gtacaagtgc	1020
aaggtctcca	acaaagccct	cccagcccc	atcgagaaaa	ccatctccaa	agccaaaggg	1080
cagccccgag	aaccacaggt	gtacaccctg	cccccatccc	gggatgagct	gaccaagaac	1140
caggtcagcc	tgacctgcct	ggtcaaaggc	ttctatccca	gcgacatcgc	cgtggagtgg	1200
gagagcaatg	ggcagccgga	gaacaactac	aagaccacgc	ctcccgtgct	ggactccgac	1260
ggctccttct	tcctctatag	caagctcacc	gtggacaaga	gcaggtggca	gcaggggaac	1320
gtctttctcat	gctccgtgat	gcatgaggct	ctgcacaacc	actacacgca	gaagagcctc	1380
tccctgtctc	cgggtaaata	a				1401

<210> 105
 <211> 1410
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 105	
atggactgga	tttggatcat gctccatctg ctggcagcag ctacaggtat ccaatcccag 60
gttcacctac	aacagtctgg ttctgaactg aggagtcctg ggtcttcagt aaagctttca 120
tgcaaggatt	ttgattcaga agtcttcctt tttgcttata tgagttggat taggcagaag 180
cctgggcatg	gatttgaatg gattggagac atactcccaa gtattggtag aacaatctat 240
ggagagaagt	ttgaggacaa agccacactg gatgcagaca cagtgtccaa cacagcctac 300
ttggagctca	acagtctgac atctgaggac tctgctatct actactgtgc aaggggggag 360
ggctacggtg	cctggtttgc ttactggggc caagggactc tggtcactgt ctctgcagcc 420
tccaccaagg	gcccatcggg cttccccctg gcaccctcct ccaagagcac ctctgggggc 480
acagcgcccc	tgggctgcct ggtcaaggac tacttccccg aaccggtgac ggtgtcgtgg 540
aactcaggcg	ccctgaccag cggcgtgcac accttccccg ctgtcctaca gtcctcagga 600
ctctactccc	tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac ccagacctac 660
atctgcaacg	tgaatcacao gcccagcaac accaagggtg acaagaaagt tgagcccaaa 720
tcttgtgaca	aaactcacac atgcccaccg tgcccagcac ctgaactcct ggggggaccg 780
tcagtcttcc	tcttcccccc aaaacccaag gacaccctca tgatctcccg gaccctgag 840
gtcacatgcg	tggtggtgga cgtgagccac gaagaccctg aggtcaagtt caactggtac 900
gtggacggcg	tggaggtgca taatgccaaag acaaagccgc gggaggagca gtacaacagc 960
acgtaccgtg	tggtcagcgt cctcaccgtc ctgcaccagg actggctgaa tggcaaggag 1020
tacaagtgca	aggtctccaa caaagccctc ccagccccca tcgagaaaac catctccaaa 1080
gccaaagggc	agccccgaga accacaggtg tacaccctgc ccccatcccg ggatgagctg 1140
accaagaacc	aggtcagcct gacctgcctg gtcaaaggct tctatcccag cgacatcgcc 1200
gtggagtggg	agagcaatgg gcagccggag aacaactaca agaccacgcc tcccgtgctg 1260

gactccgacg gctccttctt cctctatagc aagctcaccg tggacaagag caggtggcag	1320
caggggaacg tcttctcatg ctccgtgatg catgaggctc tgcacaacca ctacacgcag	1380
aagagcctct ccctgtctcc gggtaaata	1410

<210> 106
 <211> 723
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 106	
atggaatcac agactcaggt cctcatgtcc ctgctgttct gggatatctgg tacctgtggg	60
gacattgtga tgacacagtc tccatcctcc ctgactgtga cagcaggaga gaaggctact	120
atgagctgca agtccagtca gagtctgtta aacagtggaa atcaaaagaa ctacttgacc	180
tggtagcagc agaaaccagg gcagcctcct aaactgttga tctactgggc atccactagg	240
gaatctgggg tccctgatcg cttcacaggc agtggatctg gaacagattt cactctcacc	300
atcagcagtg tgcaggctga agacctggca gtttattact gtcagaatga ttatagttat	360
ccgctcacgt tcggtgctgg gaccaagctg gagctgaaac gtacggtggc tgcaccatct	420
gtcttcatct tcccgccatc tgatgagcag ttgaaatctg gaactgcctc tgttggtgag	480
ctgctgaata acttctatcc cagagaggcc aaagtacagt ggaagggtgga taacgccctc	540
caatcgggta actcccagga gagtgtcaca gagcaggaca gcaaggacag cacctacagc	600
ctcagcagca ccctgacgct gagcaaagca gactacgaga aacacaaagt ctacgcctgc	660
gaagtcaccc atcagggcct gagctcgccc gtcacaaaga gcttcaacag gggagagtgt	720
tag	723

<210> 107
 <211> 708
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 107	
atgcattttc aagtgcagat ttccagcttc ctgctaata gtcctcagc cataatgtcc	60
agaggacaaa ttgttctcac ccagctctca gcaatcatgt ctgcatctcc aggggagaag	120
gtcaccataa cctgcagtgc cagctcaagt gtaagttaca tgcactgggt ccagcagaag	180
ccaggcactt ctccaaact ctggatttat agcacatcca acctggcttc tggagtccct	240
gctcgcttca gtggcagtgg atctgggacc tcttactctc tcacaatcag ccgaatggag	300
gctgaagatg ctgccactta ttactgccag caaaggagta gttaccacc cacgttcgga	360
ggggggacca agctggaaat aaaacgtacg gtggctgcac catctgtctt catcttccc	420
ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgcctgct gaataacttc	480

tatcccagag	aggccaaagt	acagtggaag	gtggataacg	ccctccaatc	gggtaactcc	540
caggagagtg	tcacagagca	ggacagcaag	gacagcacct	acagcctcag	cagcaccctg	600
acgctgagca	aagcagacta	cgagaaacac	aaagtctacg	cctgcgaagt	cacccatcag	660
ggcctgagct	cgcccgtcac	aaagagcttc	aacaggggag	agtgttag		708

<210> 108
 <211> 705
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 108	
atggagtttc	agaccaggt ctttgatttc gtgttgctct ggttgtctgg tgttgatgga 60
gacattgtga	tgaccagtc tcaaaaattc atgtccacat cagtaggaga cagggtcagc 120
atcacctgca	aggccagtc gaatgttcgt actgctgtag cctggatatca acagaaacca 180
gggcagtctc	ctaaagcact gatttacttg gcatccaacc ggcacactgg agtccctgat 240
cgcttcacag	gcagtggatc tgggacagat ttcactctca ccattagcaa tgtgcaatct 300
gaagacctgg	cagattatct ctgtctgcaa cattggaatt atcctctgac gttcgggtgga 360
ggcaccaagc	tggaaatcaa acgtacggtg gctgcacat ctgtcttcat cttcccgcca 420
tctgatgagc	agttgaaatc tggaaactgcc tctgttgtgt gcctgctgaa taacttctat 480
cccagagagg	ccaaagtaca gtggaagggtg gataacgccc tccaatcggg taactcccag 540
gagagtgtca	cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 600
ctgagcaaag	cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 660
ctgagctcgc	ccgtcacaaa gagcttcaac aggggagagt gtttag 705

<210> 109
 <211> 723
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 109	
atggattcac	aggcccaggt tcttatgtta ctgctgctat gggtatctgg tacctgtggg 60
gacattgtga	tgtcacagtc tccatcctcc ctagctgtgt cagttggaga gaaggttact 120
atgagctgca	agtccagtc gagcctttta tatagttagca atcaaaagaa ctacttggcc 180
tggtaccagc	agaaaccagg gcagtctcct aaactgctga ttactgggc atccactagg 240
gaatctgggg	tccctgatcg cttcacaggc agtggatctg ggacagattt cactctcacc 300
atcagcagtg	tgaaggctga agacctggca gtttattact gtcagcaata ttatagctat 360
ccgctcacgt	tcggtgctgg gaccaagctg gagctgaaac gtacggtggc tgcaccatct 420
gtcttcatct	tccccccatc tgatgagcag ttgaaatctg gaactgcctc tgttgtgtgc 480

ctgctgaata acttctatcc cagagaggcc aaagtacagt ggaaggtgga taacgccctc	540
caatcgggta actcccagga gagtgtcaca gagcaggaca gcaaggacag cacctacagc	600
ctcagcagca ccctgacgct gagcaaagca gactacgaga aacacaaagt ctacgcctgc	660
gaagtcaccc atcagggcct gagctcgccc gtcacaaaga gcttcaacag gggagagtgt	720
tag	723

<210> 110
 <211> 723
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 110	
atggaatcac agactcaggt cctcatgtcc ctgctgttct gggatatctgg tacctgtggg	60
gacattgtga tgacacagtc tccatcctcc ctgactgtga cagcaggaga gaaggtcact	120
atgagctgca agtccagtca gagtctgtta aacagtggaa atcaaaagaa ctacttgacc	180
tggtaccagc agaaaccagg gcagcctcct aaactgttga tctactgggc atccactagg	240
gaatctgggg tccctgatcg cttcacaggc agtggatctg gaacagattt cactctcacc	300
atcagcagtg tgcaggctga agacctggca gtttattact gtcagaatga ttatagttat	360
ccattcacgt tcggctcggg gacaaagttg gaaataaaac gtacggtggc tgcaccatct	420
gtcttcatct tcccgccatc tgatgagcag ttgaaatctg gaactgcctc tgttgtgtgc	480
ctgctgaata acttctatcc cagagaggcc aaagtacagt ggaaggtgga taacgccctc	540
caatcgggta actcccagga gagtgtcaca gagcaggaca gcaaggacag cacctacagc	600
ctcagcagca ccctgacgct gagcaaagca gactacgaga aacacaaagt ctacgcctgc	660
gaagtcaccc atcagggcct gagctcgccc gtcacaaaga gcttcaacag gggagagtgt	720
tag	723

<210> 111
 <211> 720
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 111	
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gacattgtga tgacacagtc tccatcctcc ctggctgtgt cagcaggaga gaaggtcact	120
atgagctgca aatccagtca gagtctgtc aacagtagaa cccgaaagaa ctacttggtc	180
tggtaccagc agaaaccagg gcagtctcct aaactgctga tctactgggc atccactagg	240
gaatctgggg tccctgatcg cttcacaggc agtggatctg ggacagattt cactctcacc	300
atcagcagtg tgcaggctga agacctggca gtttattact gcaagcaatc ttataatctg	360

tacacgttcg	gaggggggac	caagctggaa	ataaaacgta	cggtggctgc	accatctgtc	420
ttcatcttcc	cgccatctga	tgagcagttg	aaatctggaa	ctgcctctgt	tgtgtgcctg	480
ctgaataact	tctatcccag	agaggccaaa	gtacagtggg	aggtggataa	cgccctccaa	540
tcgggtaact	cccaggagag	tgtcacagag	caggacagca	aggacagcac	ctacagcctc	600
agcagcacc	tgacgctgag	caaagcagac	tacgagaaac	acaaagtcta	cgcttgcgaa	660
gtcaccatc	agggcctgag	ctcgcccgtc	acaaagagct	tcaacagggg	agagtgttag	720

<210> 112
 <211> 723
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 112	
atggattcac	aggcccaggt tcttatgtta ctgctgctat gggatatctgg tacctgtggg 60
gacatcgtga	tgtcacagtc tccatcctcc ctagctgtgt cagttggaga gaaggttact 120
atgagctgca	agtccagtc gagcctttta tatagtagca atcaaaagaa ctacttggcc 180
tggtaccagc	agaaaccagg gcagtctcct aaactgctga ttactgggc atccactagg 240
gaatctgggg	tccctgatcg cttcacaggc agtggatctg caacagattt cactctgacc 300
atcagcagtg	tgcaggctga agaccttgca gattatcact gtggacaggg ttacagctat 360
ccgtacacgt	tcggaggggg gaccaagctg gaaataaaac gtacgggtggc tgcaccatct 420
gtcttcatct	ccccgccatc tgatgagcag ttgaaatctg gaactgcctc tgttgtgtgc 480
ctgctgaata	acttctatcc cagagaggcc aaagtacagt ggaagggtgga taacgcctc 540
caatcgggta	actccagga gagtgtcaca gagcaggaca gcaaggacag cacctacagc 600
ctcagcagca	ccctgacgct gagcaaagca gactacgaga aacacaaagt ctacgcctgc 660
gaagtcacc	atcagggcct gagctcgccc gtcacaaaga gcttcaacag gggagagtgt 720
tag	723

<210> 113
 <211> 723
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 113	
atggattcac	aggctcaggt tcttatgtta ctgctgctat gggatatctgg tacctgtggg 60
gacattgtga	tgtcacagtc tccatcctcc ctagctgtgt cagttggaga gaaggttact 120
atgagctgca	agtccagtc gagcctttta tatagtagca atcaaaagaa ctacttggcc 180
tggtaccagc	agaaaccagg gcagtctcct aaactgctga ttactgggc atccactagg 240
gaatctgggg	tccctgatcg cttcacaggc agtggatctg ggacagattt cactctcacc 300

atcagcagtg tgaaggctga agacctggca gtttattact gtcagcaata ttatagctat	360
ccgctcacgt tcggtgctgg gaccaagctg gagctgaaac gtacggtggc tgcaccatct	420
gtcttcatct tcccgccatc tgatgagcag ttgaaatctg gaactgcctc tgttgtgtgc	480
ctgctgaata acttctatcc cagagaggcc aaagtacagt ggaagggtgga taacgccctc	540
caatcgggta actcccagga gagtgtcaca gagcaggaca gcaaggacag cacctacagc	600
ctcagcagca ccctgacgct gagcaaagca gactacgaga aacacaaagt ctacgcctgc	660
gaagtcaccc atcagggcct gagctcgccc gtcacaaaga gcttcaacag gggagagtgt	720
tag	723

<210> 114
 <211> 705
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 114	
atggaatcac agactctggt cttcatatcc atactgctct gggtatatgg agctgatggg	60
aacattgtaa tgaccaatc tcccaaatcc atgtccatgt cagtaggaga gagggtcacc	120
ttgacctgca aggccagtga gaatgtgggt acttatgttt cctgggtatca acagaaacca	180
gagcagtctc ctaaactgct gatatacggg gcatccaacc ggtacactgg ggtccccgat	240
cgcttcacag gcagtggatc tgcaacagat ttcactctca ccatcagcag tgtgaaggct	300
gaagacctgg cagtttatta ctgtcagcaa tattatagct atccgctcac gttcgggtgct	360
gggaccaagc tggagctgaa acgtacggtg gctgcaccat ctgtcttcat cttcccgcc	420
tctgatgagc agttgaaatc tggaaactgcc tctgttgtgt gcctgctgaa taacttctat	480
cccagagagg ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactcccag	540
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg	600
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc	660
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag	705

<210> 115
 <211> 466
 <212> PRT
 <213> Artificial

<220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

<400> 115

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

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

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
305 310 315 320

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
325 330 335

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
340 345 350

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
355 360 365

Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu
370 375 380

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
385 390 395 400

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
405 410 415

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
420 425 430

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
435 440 445

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
450 455 460

Gly Lys
465

<210> 116

<211> 467

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 116

Met Asp Trp Leu Trp Asn Leu Leu Phe Leu Met Ala Ala Ala Gln Ser
1 5 10 15

Ile Gln Ala Gln Ile Gln Leu Val Gln Ser Gly Pro Glu Leu Lys Lys
20 25 30

Pro Gly Glu Thr Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45

Thr Asn Tyr Gly Met Asn Trp Val Lys Gln Ala Pro Gly Lys Gly Leu
Page 50

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

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Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
355 360 365

Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr
370 375 380

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
385 390 395 400

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
405 410 415

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
420 425 430

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
435 440 445

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
450 455 460

Lys
465

<210> 118

<211> 467

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 118

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
1 5 10 15

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

Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe
35 40 45

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

Glu Trp Ile Gly Asn Ile Tyr Pro Ser Asp Ser Tyr Thr Asn Tyr Asn
65 70 75 80

Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser
85 90 95

Thr Ala Tyr Met Gln Leu Ser Ser Pro Thr Ser Glu Asp Ser Ala Val

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

370 375 380
 Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
 385 390 395 400
 Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
 405 410 415
 Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
 420 425 430
 Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
 435 440 445
 His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
 450 455 460
 Pro Gly Lys
 465
 <210> 119
 <211> 466
 <212> PRT
 <213> Artificial
 <220>
 <223> Description of artificial sequence: chimeric monoclonal antibody
 <400> 119
 Met Glu Trp Arg Ile Phe Leu Phe Ile Leu Ser Gly Thr Ala Gly Val
 1 5 10 15
 His Ser Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro
 20 25 30
 Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr
 35 40 45
 Asp Tyr Val Ile Ser Trp Val Lys Gln Arg Thr Gly Gln Gly Leu Glu
 50 55 60
 Trp Ile Gly Glu Ile Tyr Pro Gly Ser Gly Ser Thr Tyr Tyr Asn Glu
 65 70 75 80
 Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Asn Thr
 85 90 95
 Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr
 100 105 110
 Phe Cys Ala Arg Gly Val Leu Leu Arg Ala Met Asp Tyr Trp Gly Gln
 115 120 125

Gly Thr Ser Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
 130 135 140
 Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
 145 150 155 160
 Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
 165 170 175
 Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
 180 185 190
 Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
 195 200 205
 Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
 210 215 220
 Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp
 225 230 235 240
 Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly
 245 250 255
 Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 260 265 270
 Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
 275 280 285
 Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 290 295 300
 Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
 305 310 315 320
 Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 325 330 335
 Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
 340 345 350
 Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 355 360 365
 Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu
 370 375 380
 Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 385 390 395 400

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
405 410 415

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
420 425 430

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
435 440 445

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
450 455 460

Gly Lys
465

<210> 120

<211> 469

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 120

Met Asp Trp Ile Trp Ile Met Leu His Leu Leu Ala Ala Ala Thr Gly
1 5 10 15

Ile Gln Ser Gln Val His Leu Gln Gln Ser Gly Ser Glu Leu Arg Ser
20 25 30

Pro Gly Ser Ser Val Lys Leu Ser Cys Lys Asp Phe Asp Ser Glu Val
35 40 45

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

Phe Glu Trp Ile Gly Asp Ile Leu Pro Ser Ile Gly Arg Thr Ile Tyr
65 70 75 80

Gly Glu Lys Phe Glu Asp Lys Ala Thr Leu Asp Ala Asp Thr Val Ser
85 90 95

Asn Thr Ala Tyr Leu Glu Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala
100 105 110

Ile Tyr Tyr Cys Ala Arg Gly Glu Gly Tyr Gly Ala Trp Phe Ala Tyr
115 120 125

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala Ala Ser Thr Lys Gly
130 135 140

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly

145	150	155	160
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val	165	170	175
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe	180	185	190
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val	195	200	205
Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val	210	215	220
Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys	225	230	235
Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu	245	250	255
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr	260	265	270
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val	275	280	285
Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val	290	295	300
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser	305	310	315
Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu	325	330	335
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala	340	345	350
Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro	355	360	365
Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln	370	375	380
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala	385	390	395
Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr	405	410	415
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu			

420 425 430
 Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 435 440 445
 Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 450 455 460
 Leu Ser Pro Gly Lys
 465
 <210> 121
 <211> 240
 <212> PRT
 <213> Artificial
 <220>
 <223> Description of artificial sequence: chimeric monoclonal antibody
 <400> 121
 Met Glu Ser Gln Thr Gln Val Leu Met Ser Leu Leu Phe Trp Val Ser
 1 5 10 15
 Gly Thr Cys Gly Asp Ile Val Met Thr Gln Ser Pro Ser Ser Leu Thr
 20 25 30
 Val Thr Ala Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser
 35 40 45
 Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu Thr Trp Tyr Gln Gln
 50 55 60
 Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
 65 70 75 80
 Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
 85 90 95
 Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr
 100 105 110
 Tyr Cys Gln Asn Asp Tyr Ser Tyr Pro Leu Thr Phe Gly Ala Gly Thr
 115 120 125
 Lys Leu Glu Leu Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe
 130 135 140
 Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys
 145 150 155 160
 Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val
 165 170 175

Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln
180 185 190

Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser
195 200 205

Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His
210 215 220

Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230 235 240

<210> 122

<211> 235

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 122

Met His Phe Gln Val Gln Ile Phe Ser Phe Leu Leu Ile Ser Ala Ser
1 5 10 15

Val Ile Met Ser Arg Gly Gln Ile Val Leu Thr Gln Ser Pro Ala Ile
20 25 30

Met Ser Ala Ser Pro Gly Glu Lys Val Thr Ile Thr Cys Ser Ala Ser
35 40 45

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

Pro Lys Leu Trp Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro
65 70 75 80

Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile
85 90 95

Ser Arg Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg
100 105 110

Ser Ser Tyr Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
115 120 125

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
130 135 140

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
145 150 155 160

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

	165		170		175
Ser Gly Asn	Ser 180	Gln Glu Ser Val Thr 185	Glu Gln Asp Ser	Lys 190	Asp Ser
Thr Tyr Ser 195	Leu Ser Ser Thr	Leu 200	Thr Leu Ser Lys	Ala 205	Asp Tyr Glu
Lys His 210	Lys Val Tyr Ala	Cys 215	Glu Val Thr His	Gln 220	Gly Leu Ser Ser
Pro Val Thr 225	Lys Ser Phe 230	Asn Arg Gly Glu	Cys 235		

<210> 123
 <211> 234
 <212> PRT
 <213> Artificial
 <220>
 <223> Description of artificial sequence: chimeric monoclonal antibody
 <400> 123

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

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
165 170 175

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
180 185 190

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
195 200 205

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
210 215 220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230

<210> 124

<211> 240

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 124

Met Asp Ser Gln Ala Gln Val Leu Met Leu Leu Leu Trp Val Ser
1 5 10 15

Gly Thr Cys Gly Asp Ile Val Met Ser Gln Ser Pro Ser Ser Leu Ala
20 25 30

Val Ser Val Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser
35 40 45

Leu Leu Tyr Ser Ser Asn Gln Lys Asn Tyr Leu Ala Trp Tyr Gln Gln
50 55 60

Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
65 70 75 80

Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
85 90 95

Phe Thr Leu Thr Ile Ser Ser Val Lys Ala Glu Asp Leu Ala Val Tyr
100 105 110

Tyr Cys Gln Gln Tyr Tyr Ser Tyr Pro Leu Thr Phe Gly Ala Gly Thr
115 120 125

Lys Leu Glu Leu Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe
130 135 140

Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys
Page 63

145		150		155		160									
Leu	Leu	Asn	Asn	Phe	Tyr	Pro	Arg	Glu	Ala	Lys	Val	Gln	Trp	Lys	Val
				165					170					175	
Asp	Asn	Ala	Leu	Gln	Ser	Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln
			180					185					190		
Asp	Ser	Lys	Asp	Ser	Thr	Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser
		195					200					205			
Lys	Ala	Asp	Tyr	Glu	Lys	His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	His
	210					215					220				
Gln	Gly	Leu	Ser	Ser	Pro	Val	Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	Cys
225					230					235					240

<210> 125
 <211> 240
 <212> PRT
 <213> Artificial
 <220>
 <223> Description of artificial sequence: chimeric monoclonal antibody
 <400> 125

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

Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys
145 150 155 160

Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val
165 170 175

Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln
180 185 190

Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser
195 200 205

Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His
210 215 220

Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230 235 240

<210> 126

<211> 239

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 126

Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Leu Trp Val Ser
1 5 10 15

Gly Thr Cys Gly Asp Ile Val Met Ser Gln Ser Pro Ser Ser Leu Ala
20 25 30

Val Ser Ala Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser
35 40 45

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

Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
65 70 75 80

Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
85 90 95

Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr
100 105 110

Tyr Cys Lys Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gly Gly Thr Lys
115 120 125

Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro
Page 65

130 135 140
 Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu
 145 150 155 160
 Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp
 165 170 175
 Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp
 180 185 190
 Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys
 195 200 205
 Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln
 210 215 220
 Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 225 230 235

 <210> 127
 <211> 240
 <212> PRT
 <213> Artificial

 <220>
 <223> Description of artificial sequence: chimeric monoclonal antibody

 <400> 127

 Met Asp Ser Gln Ala Gln Val Leu Met Leu Leu Leu Trp Val Ser
 1 5 10 15

 Gly Thr Cys Gly Asp Ile Val Met Ser Gln Ser Pro Ser Ser Leu Ala
 20 25 30

 Val Ser Val Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser
 35 40 45

 Leu Leu Tyr Ser Ser Asn Gln Lys Asn Tyr Leu Ala Trp Tyr Gln Gln
 50 55 60

 Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
 65 70 75 80

 Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Ala Thr Asp
 85 90 95

 Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Asp Tyr
 100 105 110

 His Cys Gly Gln Gly Tyr Ser Tyr Pro Tyr Thr Phe Gly Gly Gly Thr
 115 120 125

Lys Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe
130 135 140

Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys
145 150 155 160

Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val
165 170 175

Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln
180 185 190

Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser
195 200 205

Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His
210 215 220

Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230 235 240

<210> 128

<211> 240

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: chimeric monoclonal antibody

<400> 128

Met Asp Ser Gln Ala Gln Val Leu Met Leu Leu Leu Leu Trp Val Ser
1 5 10 15

Gly Thr Cys Gly Asp Ile Val Met Ser Gln Ser Pro Ser Ser Leu Ala
20 25 30

Val Ser Val Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser
35 40 45

Leu Leu Tyr Ser Ser Asn Gln Lys Asn Tyr Leu Ala Trp Tyr Gln Gln
50 55 60

Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
65 70 75 80

Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
85 90 95

Phe Thr Leu Thr Ile Ser Ser Val Lys Ala Glu Asp Leu Ala Val Tyr
100 105 110

Tyr Cys Gln Gln Tyr Tyr Ser Tyr Pro Leu Thr Phe Gly Ala Gly Thr
Page 67

115		120		125
Lys	Leu	Glu	Leu	Lys
130				Arg
			Thr	Val
			135	Ala
				Ala
			Pro	Ser
			140	Val
				Phe
				Ile
				Phe
Pro	Pro	Ser	Asp	Glu
145				Gln
			150	Leu
				Lys
			Ser	Gly
			155	Thr
				Ala
			Ser	Val
				Val
				Cys
				160
Leu	Leu	Asn	Asn	Phe
				165
			Tyr	Pro
			Arg	Glu
				Ala
			170	Lys
				Val
			Gln	Trp
				175
				Lys
				Val
Asp	Asn	Ala	Leu	Gln
			180	Ser
				Gly
			Asn	Ser
			185	Gln
				Glu
			Ser	Val
				190
				Thr
				Glu
				Gln
Asp	Ser	Lys	Asp	Ser
		195		Thr
			Tyr	Ser
			200	Leu
				Ser
			Ser	Ser
			Thr	Leu
				205
				Thr
				Leu
				Ser
Lys	Ala	Asp	Tyr	Glu
	210			Lys
				His
			215	Lys
				Val
			Tyr	Ala
				Cys
			220	Glu
				Val
				Thr
				His
Gln	Gly	Leu	Ser	Ser
225				Pro
				230
			Val	Thr
			Lys	Ser
				Phe
			235	Asn
				Arg
			Gly	Glu
				Cys
				240
<210>	129			
<211>	234			
<212>	PRT			
<213>	Artificial			
<220>				
<223>	Description of artificial sequence: chimeric monoclonal antibody			
<400>	129			
Met	Glu	Ser	Gln	Thr
1			5	Leu
				Val
				Phe
				Ile
			10	Ser
				Ile
				Leu
				Leu
				Trp
				15
				Tyr
Gly	Ala	Asp	Gly	Asn
			20	Ile
				Val
				Met
			25	Thr
				Gln
			Ser	Pro
				Lys
			30	Ser
				Met
				Ser
Met	Ser	Val	Gly	Glu
		35		Arg
			Val	Thr
			40	Leu
				Thr
				Cys
			Lys	Ala
			45	Ser
				Glu
				Asn
Val	Val	Thr	Tyr	Val
	50			Ser
			55	Trp
				Tyr
				Gln
				Gln
			Lys	Pro
			60	Glu
				Gln
				Ser
				Pro
Lys	Leu	Leu	Ile	Tyr
65			70	Gly
				Ala
				Ser
				Asn
				Arg
			75	Tyr
				Thr
				Gly
				Val
				Pro
				Asp
				80
Arg	Phe	Thr	Gly	Ser
			85	Gly
				Ser
				Ala
				Thr
			90	Asp
				Phe
				Thr
				Leu
				Thr
				Ile
				95
				Ser
Ser	Val	Lys	Ala	Glu
			100	Asp
				Leu
				Ala
			105	Val
				Tyr
				Tyr
				Cys
				Gln
				Gln
				110
				Tyr
				Tyr

Ser Tyr Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg
115 120 125

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
130 135 140

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
145 150 155 160

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
165 170 175

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
180 185 190

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
195 200 205

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
210 215 220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230

<210> 130
<211> 18
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: oligonucleotide

<400> 130
ccaagggtta tggcggtc

18

<210> 131
<211> 18
<212> DNA
<213> Artificial

<220>
<223> Description of artificial sequence: oligonucleotide

<400> 131
ccgaagggtg acctggtc

18

<210> 132
<211> 117
<212> PRT
<213> Artificial

<220>
<223> Description of artificial sequence: Translation of PCR product

<400> 132

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

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

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

Ser Val Thr Val Ser Ser
115

<210> 134
<211> 116
<212> PRT
<213> Artificial

<220>
<223> Description of artificial sequence: Translation of PCR product
<400> 134

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

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

Tyr Ile Asn Trp Val Lys Gln Arg Thr Gly Gln Gly Leu Glu Trp Ile
35 40 45

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

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

Thr Val Ser Ser
115

<210> 135
<211> 118
<212> PRT
<213> Artificial

<220>
<223> Description of artificial sequence: Translation of PCR product
<400> 135

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

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

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

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

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

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

Thr Arg Ser Trp Arg Gly Asn Ser Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Thr Leu Thr Val Ser Ser
115

<210> 136

<211> 118

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 136

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

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

Val Ile Ser Trp Val Lys Gln Arg Thr Gly Gln Gly Leu Glu Trp Ile
35 40 45

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

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

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

Ala Arg Gly Val Leu Leu Arg Ala Met Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Ser Val Thr Val Ser Ser
115

<210> 137

<211> 120

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 137

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

Ser Val Lys Leu Ser Cys Lys Asp Phe Asp Ser Glu Val Phe Pro Phe
20 25 30

Ala Tyr Met Ser Trp Ile Arg Gln Lys Pro Gly His Gly Phe Glu Trp
35 40 45

Ile Gly Asp Ile Leu Pro Ser Ile Gly Arg Thr Ile Tyr Gly Glu Lys
50 55 60

Phe Glu Asp Lys Ala Thr Leu Asp Ala Asp Thr Val Ser Asn Thr Ala
65 70 75 80

Tyr Leu Glu Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Ile Tyr Tyr
85 90 95

Cys Ala Arg Gly Glu Gly Tyr Gly Ala Trp Phe Ala Tyr Trp Gly Gln
100 105 110

Gly Thr Leu Val Thr Val Ser Ala
115 120

<210> 138

<211> 113

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 138

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

Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

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

Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

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

85

90

95

Asp Tyr Ser Tyr Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu
 100 105 110

Lys

<210> 139

<211> 106

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 139

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

Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
 20 25 30

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

Ser 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 Met Glu Ala Glu
 65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Pro Thr
 85 90 95

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

<210> 140

<211> 107

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 140

Asp Ile Val Met Thr Gln Ser Gln Lys Phe Met Ser Thr Ser Val Gly
 1 5 10 15

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

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

40

45

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

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

Glu Asp Leu Ala Asp Tyr Phe Cys Leu Gln His Trp Asn Tyr Pro Leu
85 90 95

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

<210> 141

<211> 113

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 141

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

Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
20 25 30

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

Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg 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 Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu
100 105 110

Lys

<210> 142

<211> 113

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 142

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

Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

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

Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr Tyr Cys Gln Asn
85 90 95

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

Lys

<210> 143

<211> 112

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 143

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

Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Asn Ser
20 25 30

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

Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg 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 Gln Ala Glu Asp Leu Ala Val Tyr Tyr Cys Lys Gln
85 90 95

Ser Tyr Asn Leu Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 144
<211> 113
<212> PRT
<213> Artificial

<220>
<223> Description of artificial sequence: Translation of PCR product

<400> 144

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

Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
20 25 30

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

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

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

Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Asp Tyr His Cys Gly Gln
85 90 95

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

Lys

<210> 145
<211> 113
<212> PRT
<213> Artificial

<220>
<223> Description of artificial sequence: Translation of PCR product

<400> 145

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

Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
20 25 30

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

Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg 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 Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu
100 105 110

Lys

<210> 146

<211> 107

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: Translation of PCR product

<400> 146

Asn Ile Val Met Thr Gln Ser Pro Lys Ser Met Ser Met Ser Val Gly
1 5 10 15

Glu Arg Val Thr Leu Thr Cys Lys Ala Ser Glu Asn Val Val Thr Tyr
20 25 30

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

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

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

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

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

<210> 147

<211> 324

<212> DNA

<213> Artificial

<220>

<223> Description of artificial sequence: codon optimized nucleic acid

<400> 147

cgtacggtgg ccgctcccag cgtgttcac ttcccccca gcgacgagca gctgaagtcc 60
 ggcaccgccca gcgtggtgtg cctgctgaac aacttctacc cccgggaggc caaggtgcag 120
 tggaaggtgg acaacgccct gcagagcggc aacagccagg agagcgtcac cgagcaggac 180
 agcaaggact ccacctacag cctgagcagc accctgaccc tgagcaaggc cgactacgag 240
 aagcacaagg tgtacgcctg cgaggtgacc caccagggcc tgtccagccc cgtgaccaag 300
 agcttcaaca ggggcgagtg ctag 324

<210> 148
 <211> 107
 <212> PRT
 <213> Artificial

<220>
 <223> Description of artificial sequence: codon optimized protein
 <400> 148

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

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

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

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

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

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

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

<210> 149
 <211> 981
 <212> DNA
 <213> Artificial

<220>
 <223> Description of artificial sequence: codon optimized nucleic acid

<400> 149
 ggcccaagcg tggtccccct ggccccagc agcaagagca ccagcggcgg cacagccgcc 60
 ctgggctgcc tggtgaagga ctacttcccc gagcccgtga ccgtgagctg gaacagcgga 120
 gccctgacct ccggcgtgca caccttcccc gccgtgctgc agagcagcgg cctgtacagc 180
 ctgagcagcg tggtgaccgt gccagcagc agcctgggca ccagaccta catctgcaac 240

gtgaaccaca agcccagcaa caccaaggtg gacaagagag tggagcccaa gagctgcgac 300
 aagaccacaca cctgcccccc ctgcccagcc ccagagctgc tgggcggacc cagcgtgttc 360
 ctgttcccccc ccaagcccaa ggacaccctg atgatcagca ggacccccga ggtgacctgc 420
 gtggtggtgg acgtgagcca cgaggaccca gaggtgaagt tcaactggta cgtggacggc 480
 gtggaggtgc acaacgcaa gaccaagccc agagaggagc agtacaacag cacctacagg 540
 gtggtgtccg tgctgaccgt gctgcaccag gactggctga acggcaagga atacaagtgc 600
 aaggtctcca acaaggccct gccagcccc atcgaaaaga ccatcagcaa ggccaagggc 660
 cagccacggg agccccaggt gtacaccctg cccccagcc gggaggagat gaccaagaac 720
 caggtgtccc tgacctgtct ggtgaagggc ttctaccca gcgacatcgc cgtggagtgg 780
 gagagcaacg gccagcccga gaacaactac aagaccaccc cccagtgct ggacagcgac 840
 ggcagcttct tcctgtacag caagctgacc gtggacaagt ccaggtggca gcagggcaac 900
 gtgttcagct gcagcgtgat gcacgaggcc ctgcacaacc actacacca gaagtccttg 960
 agcctgagcc ccggcaagta g 981

<210> 150

<211> 326

<212> PRT

<213> Artificial

<220>

<223> Description of artificial sequence: codon optimized protein

<400> 150

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

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

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 35 40 45

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

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
 65 70 75 80

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro
 85 90 95

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

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

Thr 130 Leu Met Ile Ser Arg Thr 135 Pro Glu Val Thr Cys 140 Val Val Val Asp
 Val 145 Ser His Glu Asp Pro 150 Glu Val Lys Phe Asn 155 Trp Tyr Val Asp Gly 160
 Val Glu Val His Asn 165 Ala Lys Thr Lys Pro 170 Arg Glu Glu Gln Tyr Asn 175
 Ser Thr Tyr Arg 180 Val Val Ser Val Leu 185 Thr Val Leu His Gln Asp Trp 190
 Leu Asn Gly 195 Lys Glu Tyr Lys Cys 200 Lys Val Ser Asn Lys 205 Ala Leu Pro
 Ala Pro 210 Ile Glu Lys Thr Ile 215 Ser Lys Ala Lys Gly 220 Gln Pro Arg Glu
 Pro Gln Val Tyr Thr Leu 230 Pro Pro Ser Arg Glu 235 Glu Met Thr Lys Asn 240
 Gln Val Ser Leu Thr 245 Cys Leu Val Lys Gly 250 Phe Tyr Pro Ser Asp Ile 255
 Ala Val Glu Trp 260 Glu Ser Asn Gly Gln 265 Pro Glu Asn Asn Tyr Lys Thr 270
 Thr Pro Pro 275 Val Leu Asp Ser Asp 280 Gly Ser Phe Phe Leu 285 Tyr Ser Lys
 Leu Thr 290 Val Asp Lys Ser Arg 295 Trp Gln Gln Gly Asn 300 Val Phe Ser Cys
 Ser Val Met His Glu Ala 310 Leu His Asn His Tyr 315 Thr Gln Lys Ser Leu 320
 Ser Leu Ser Pro Gly 325 Lys

<210> 151
 <211> 15
 <212> PRT
 <213> Artificial

<220>
 <223> Epitope

<400> 151

Met Asp Gln Trp Ser Thr Gln Asp Leu Tyr Asn Asn Pro Val Thr
 1 5 10 15

<210> 152

<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope

<400> 152

Ser Thr Gln Asp Leu Tyr Asn Asn Pro Val Thr Ala Val Phe Asn
1 5 10 15

<210> 153
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope

<400> 153

Leu Tyr Asn Asn Pro Val Thr Ala Val Phe Asn Tyr Gln Gly Leu
1 5 10 15

<210> 154
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope

<400> 154

Pro Val Thr Ala Val Phe Asn Tyr Gln Gly Leu Trp Arg Ser Cys
1 5 10 15

<210> 155
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope

<400> 155

Val Phe Asn Tyr Gln Gly Leu Trp Arg Ser Cys Val Arg Glu Ser
1 5 10 15

<210> 156
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope

<400> 156

Gln Gly Leu Trp Arg Ser Cys Val Arg Glu Ser Ser Gly Phe Thr
1 5 10 15

<210> 157
<211> 15
<212> PRT
<213> Artificial

<220>
<223> Epitope

<400> 157

Arg	Ser	Cys	Val	Arg	Glu	Ser	Ser	Gly	Phe	Thr	Glu	Cys	Arg	Gly
1				5					10					15