

NTBA-00313PC_ST25
SEQUENCE LISTING

<110> SEATTLE GENETICS, INC.

<120> ANTI-NTB-A ANTIBODIES AND RELATED COMPOSITIONS AND METHODS

<130> NTBA-00313PC

<150> US 62/186,596
<151> 2015-06-30

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<151> 2016-04-13

<160> 29

<170> PatentIn version 3.5

<210> 1
<211> 332
<212> PRT
<213> Homo sapiens

<400> 1

Met Leu Trp Leu Phe Gln Ser Leu Leu Phe Val Phe Cys Phe Gly Pro
1 5 10 15

Gly Asn Val Val Ser Gln Ser Ser Leu Thr Pro Leu Met Val Asn Gly
20 25 30

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

Lys Val Asn Phe Ile Thr Trp Leu Phe Asn Glu Thr Ser Leu Ala Phe
50 55 60

Ile Val Pro His Glu Thr Lys Ser Pro Glu Ile His Val Thr Asn Pro
65 70 75 80

Lys Gln Gly Lys Arg Leu Asn Phe Thr Gln Ser Tyr Ser Leu Gln Leu
85 90 95

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Ser Asn Leu Lys Met Glu Asp Thr Gly Ser Tyr Arg Ala Gln Ile Ser
100 105 110

Thr Lys Thr Ser Ala Lys Leu Ser Ser Tyr Thr Leu Arg Ile Leu Arg
115 120 125

Gln Leu Arg Asn Ile Gln Val Thr Asn His Ser Gln Leu Phe Gln Asn
130 135 140

Met Thr Cys Glu Leu His Leu Thr Cys Ser Val Glu Asp Ala Asp Asp
145 150 155 160

Asn Val Ser Phe Arg Trp Glu Ala Leu Gly Asn Thr Leu Ser Ser Gln
165 170 175

Pro Asn Leu Thr Val Ser Trp Asp Pro Arg Ile Ser Ser Glu Gln Asp
180 185 190

Tyr Thr Cys Ile Ala Glu Asn Ala Val Ser Asn Leu Ser Phe Ser Val
195 200 205

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

Lys Met Ile Leu Phe Met Val Ser Gly Ile Cys Ile Val Phe Gly Phe
225 230 235 240

Ile Ile Leu Leu Leu Val Leu Arg Lys Arg Arg Asp Ser Leu Ser
245 250 255

Leu Ser Thr Gln Arg Thr Gln Gly Pro Ala Glu Ser Ala Arg Asn Leu
260 265 270

Glu Tyr Val Ser Val Ser Pro Thr Asn Asn Thr Val Tyr Ala Ser Val
275 280 285

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Thr His Ser Asn Arg Glu Thr Glu Ile Trp Thr Pro Arg Glu Asn Asp
 290 295 300

Thr Ile Thr Ile Tyr Ser Thr Ile Asn His Ser Lys Glu Ser Lys Pro
 305 310 315 320

Thr Phe Ser Arg Ala Thr Ala Leu Asp Asn Val Val
 325 330

<210> 2
 <211> 332
 <212> PRT
 <213> Macaca fascicularis

<400> 2

Met Leu Trp Leu Phe Gln Ser Leu Leu Phe Val Phe Cys Phe Gly Pro
 1 5 10 15

Gly Asn Leu Val Ser Gln Ser Ser Ser Thr Pro Leu Met Val Asn Gly
 20 25 30

Val Leu Gly Glu Ser Val Ile Leu Pro Leu Glu Leu Ser Ala Gly Glu
 35 40 45

Met Ile Ala Ser Ile Thr Trp Leu Cys Asn Gly Thr Ser Leu Ala Phe
 50 55 60

Ile Glu Pro Ser Glu Thr Lys Ser Pro Asn Ile Arg Val Thr His Pro
 65 70 75 80

Lys Gln Arg Lys Arg Leu Asn Phe Thr Gln Ser Tyr Ser Leu Lys Leu
 85 90 95

Ser Asn Leu Glu Met Glu Asp Thr Gly Ser Tyr Ser Ala Gln Ile Thr
 100 105 110

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Thr Glu Thr Ser Val Lys Leu Ser Ser Tyr Thr Leu Arg Ile Phe Arg
115 120 125

Gln Leu Arg Ser Ile Gln Val Asn Asn Tyr Ser Gln Leu Phe Gln Asn
130 135 140

Arg Thr Cys Glu Ile His Leu Thr Cys Ser Val Glu Asp Ala Asp Asp
145 150 155 160

Asn Val Ser Phe Arg Trp Glu Ala Leu Gly Ser Thr Leu Ser Ser Glu
165 170 175

Pro Asn Ile Thr Thr Ser Trp Asp Pro Arg Ile Ser Gly Glu Gln Asp
180 185 190

Tyr Thr Cys Ile Ala Glu Asn Ala Val Ser Asn Leu Ser Phe Ser Val
195 200 205

Ser Ala Gln Lys Leu Cys Gly Asp Val Lys Ile Gln Tyr Thr Asp Thr
210 215 220

Lys Met Ile Leu Phe Val Val Phe Gly Ile Cys Ile Val Thr Gly Phe
225 230 235 240

Ile Ile Met Leu Leu Leu Val Leu Arg Lys Arg Arg Asp Ser Leu Pro
245 250 255

Leu Ser Thr Gln Arg Thr Gln Gly Pro Ala Glu Pro Ala Gly Asn Ile
260 265 270

Glu Tyr Val Ser Val Ser Pro Val Asn Asn Thr Val Tyr Ala Ser Val
275 280 285

Thr His Ser Asn Arg Glu Thr Glu Ile Ser Thr Pro Ile Lys Asn Ala
290 295 300

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Thr Val Thr Ile Tyr Ser Thr Val Asn His Ser Lys Glu Ser Lys Pro
305 310 315 320

Thr Phe Ser Arg Ala Thr Ala Leu Asp Asn Val Val
325 330

<210> 3
<211> 118
<212> PRT
<213> Mus musculus

<400> 3

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

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

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

Gly Trp Ile Asn Thr Tyr Ser Gly Glu Pro Arg Tyr Ala Asp Asp Phe
50 55 60

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

Leu Gln Ile Asn Asn Leu Lys Asn Glu Asp Met Ala Thr Tyr Phe Cys
85 90 95

Ala Arg Asp Tyr Gly Arg Trp Tyr Phe Asp Val Trp Gly Thr Gly Thr
100 105 110

Thr Val Thr Val Ser Ser
115

<210> 4

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<211> 118

<212> PRT

<213> Artificial

<220>

<223> mature heavy chain variable region of humanized 20F3 with no back mutations

<400> 4

Gln Val Gln Leu Val Gln Ser Gly Ser Glu Leu 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

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

Gly Trp Ile Asn Thr Tyr Ser Gly Glu Pro Arg Tyr Ala Asp Asp Phe
50 55 60

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

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

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

Thr Val Thr Val Ser Ser
115

<210> 5

<211> 118

<212> PRT

<213> Artificial

<220>

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<223> mature heavy chain variable region of humanized 20F3 HA

<400> 5

Gln Val Gln Leu Val Gln Ser Gly Ser Glu Leu 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

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

Gly Trp Ile Asn Thr Tyr Ser Gly Glu Pro Arg Tyr Ala Asp Asp Phe
50 55 60

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

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

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

Thr Val Thr Val Ser Ser
115

<210> 6

<211> 118

<212> PRT

<213> Artificial

<220>

<223> mature heavy chain variable region of humanized 20F3 HB

<400> 6

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

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

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

Gly Trp Ile Asn Thr Tyr Ser Gly Glu Pro Arg Tyr Ala Asp Asp Phe
50 55 60

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

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

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

Thr Val Thr Val Ser Ser
115

<210> 7

<211> 118

<212> PRT

<213> Artificial

<220>

<223> mature heavy chain variable region of humanized 20F3 HC

<400> 7

Gln Ile Gln Leu Val Gln Ser Gly Ser Glu Leu 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

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

Gly Trp Ile Asn Thr Tyr Ser Gly Glu Pro Arg Tyr Ala Asp Asp Phe
 50 55 60

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

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

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

Thr Val Thr Val Ser Ser
 115

<210> 8

<211> 118

<212> PRT

<213> Artificial

<220>

<223> mature heavy chain variable region of humanized 20F3 HD

<400> 8

Gln Ile Gln Leu Val Gln Ser Gly Ser Glu Leu 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

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

Gly Trp Ile Asn Thr Tyr Ser Gly Glu Pro Arg Tyr Ala Asp Asp Phe
 50 55 60

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

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

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

Thr Val Thr Val Ser Ser
115

<210> 9
<211> 118
<212> PRT
<213> Artificial

<220>
<223> mature heavy chain variable region of humanized 20F3 HE

<400> 9

Gln Ile Gln Leu Val Gln Ser Gly Ser Glu Leu 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

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

Gly Trp Ile Asn Thr Tyr Ser Gly Glu Pro Arg Tyr Ala Asp Asp Phe
50 55 60

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

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

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

Thr Val Thr Val Ser Ser
 115

<210> 10
 <211> 5
 <212> PRT
 <213> Mus musculus

<400> 10

Asn Tyr Gly Met Asn
 1 5

<210> 11
 <211> 17
 <212> PRT
 <213> Mus musculus

<400> 11

Trp Ile Asn Thr Tyr Ser Gly Glu Pro Arg Tyr Ala Asp Asp Phe Lys
 1 5 10 15

Gly

<210> 12
 <211> 9
 <212> PRT
 <213> Mus musculus

<400> 12

Asp Tyr Gly Arg Trp Tyr Phe Asp Val
 1 5

<210> 13
 <211> 107
 <212> PRT
 <213> Mus musculus

<400> 13

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

Glu Lys Val Thr Met Thr Cys Arg Ala Ser Ser Ser Val Ser His Met
 20 25 30

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

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

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Val Glu Ala Glu
 65 70 75 80

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

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

<210> 14
 <211> 107
 <212> PRT
 <213> Artificial

<220>

<223> mature light chain variable region of humanized 20F3 with no back mutations

<400> 14

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

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

<210> 15
 <211> 107
 <212> PRT
 <213> Artificial

<220>
 <223> mature light chain variable region of humanized 20F3 LA

<400> 15

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

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Ala Thr Ser Asn Leu Ala Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser
50 55 60

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

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

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

<210> 16

<211> 107

<212> PRT

<213> Artificial

<220>

<223> mature light chain variable region of humanized 20F3 LB

<400> 16

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Ser Ser Val Ser His Met
20 25 30

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

Ala Thr Ser Asn Leu Ala Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser
50 55 60

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

Asp Phe Ala Val Tyr Tyr Cys Gln Gln Trp Ser Ser Thr Pro Arg Thr

85

90

95

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

<210> 17

<211> 107

<212> PRT

<213> Artificial

<220>

<223> mature light chain variable region of humanized 20F3 LC

<400> 17

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Ser Ser Val Ser His Met
 20 25 30

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

Ala Thr Ser Asn Leu Ala Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser
 50 55 60

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

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

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

<210> 18

<211> 107

<212> PRT

<213> Artificial

<220>

<223> mature light chain variable region of humanized 20F3 LD

<400> 18

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

Glu Arg Ala Thr Met Ser Cys Arg Ala Ser Ser Ser Val Ser His Met
20 25 30

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

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

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

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

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

<210> 19

<211> 10

<212> PRT

<213> Mus musculus

<400> 19

Arg Ala Ser Ser Ser Val Ser His Met His
1 5 10

<210> 20

<211> 7

<212> PRT
<213> Mus musculus

<400> 20

Ala Thr Ser Asn Leu Ala Ser
1 5

<210> 21
<211> 9
<212> PRT
<213> Mus musculus

<400> 21

Gln Gln Trp Ser Ser Thr Pro Arg Thr
1 5

<210> 22
<211> 8
<212> PRT
<213> Mus musculus

<400> 22

Gly Tyr Thr Phe Thr Asn Tyr Gly
1 5

<210> 23
<211> 8
<212> PRT
<213> Mus musculus

<400> 23

Ile Asn Thr Tyr Ser Gly Glu Pro
1 5

<210> 24
<211> 11
<212> PRT
<213> Mus musculus

<400> 24

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Ala Arg Asp Tyr Gly Arg Trp Tyr Phe Asp Val
1 5 10

<210> 25
<211> 5
<212> PRT
<213> Mus musculus

<400> 25

Ser Ser Val Ser His
1 5

<210> 26
<211> 9
<212> PRT
<213> Mus musculus

<400> 26

Gln Gln Trp Ser Ser Thr Pro Arg Thr
1 5

<210> 27
<211> 106
<212> PRT
<213> Homo sapiens

<400> 27

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

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

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

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

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

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

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

<210> 28
<211> 329
<212> PRT
<213> Homo sapiens

<400> 28

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Gln Lys Ser Leu Ser Leu Ser Pro Gly
325

<210> 29
<211> 329
<212> PRT
<213> Artificial

<220>
<223> variant heavy chain constant region (S239C)

<400> 29

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

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

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

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

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

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

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

Pro Ala Pro Glu Leu Leu Gly Gly Pro Cys Val Phe Leu Phe Pro Pro

115

120

125

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

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

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

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

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

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

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

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

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

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

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

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr

305

310

315

320

Gln Lys Ser Leu Ser Leu Ser Pro Gly
325