

SEQUENCE LISTING

<110> LAVA Therapeutics

<120> Novel CD40-binding antibodies

<130> P004

<160> 37

<170> PatentIn version 3.5

<210> 1

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 1

Arg Ser Ala Met Gly

1 5

<210> 2

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 2

Ala Ile Gly Thr Arg Gly Gly Ser Thr Lys Tyr Ala Asp Ser Val Lys

1 5 10 15

Gly

<210> 3

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 3

Arg Gly Pro Gly Tyr Pro Ser Ala Ala Ile Phe Gln Asp Glu Tyr His

1 5 10 15

Tyr

<210> 4

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 4

Ser Asp Thr Met Gly

1 5

<210> 5

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 5

Ser Ile Ser Ser Arg Gly Val Arg Glu Tyr Ala Asp Ser Val Lys Gly

1 5 10 15

<210> 6

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 6

Gly Ala Leu Gly Leu Pro Gly Tyr Arg Pro Tyr Asn Asn

1 5 10

<210> 7

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 7

Asn Tyr Ala Met Gly
1 5

<210> 8

<211> 17

<212> PRT

<213> Artificial Sequence

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<223> antibody sequence

<400> 8

Ala Ile Ser Trp Ser Gly Gly Ser Thr Ser Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 9

<211> 21

<212> PRT

<213> Artificial Sequence

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<400> 9

Gln Phe Ser Gly Ala Asp Tyr Gly Phe Gly Arg Leu Gly Ile Arg Gly
1 5 10 15

Tyr Glu Tyr Asp Tyr
20

<210> 10

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 10

Asn Tyr Gly Met Gly

1 5

<210> 11
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 11

Gly Ile Ser Trp Ser Gly Gly Ser Thr Asp Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 12
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 12

Val Phe Ser Gly Ala Glu Thr Ala Tyr Tyr Pro Ser Asp Asp Tyr Asp
1 5 10 15

Tyr

<210> 13
<211> 126
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 13

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Ala Ile Gly Thr Arg Gly Gly Ser Thr Lys Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Val Arg Gly Pro Gly Tyr Pro Ser Ala Ala Ile Phe Gln Asp Glu
100 105 110

Tyr His Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser
115 120 125

<210> 14

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 14

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

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

Thr Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Gln Arg Glu Leu Val
35 40 45

Ala Ser Ile Ser Ser Arg Gly Val Arg Glu Tyr Ala Asp Ser Val Lys
50 55 60

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

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

Arg Gly Ala Leu Gly Leu Pro Gly Tyr Arg Pro Tyr Asn Asn Trp Gly
100 105 110

Gln Gly Thr Gln Val Thr Val Ser Ser
115 120

<210> 15

<211> 156

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 15

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Ala Ile Gly Thr Arg Gly Gly Ser Thr Lys Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Val Arg Gly Pro Gly Tyr Pro Ser Ala Ala Ile Phe Gln Asp Glu
100 105 110

Tyr His Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser Gly Leu
115 120 125

Glu Gly His Ser Asp His Met Glu Gln Lys Leu Ile Ser Glu Glu Asp
130 135 140

Leu Asn Arg Ile Ser Asp His His His His His His
145 150 155

<210> 16
<211> 151
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 16

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

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

Thr Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Gln Arg Glu Leu Val
35 40 45

Ala Ser Ile Ser Ser Arg Gly Val Arg Glu Tyr Ala Asp Ser Val Lys
50 55 60

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

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

Arg Gly Ala Leu Gly Leu Pro Gly Tyr Arg Pro Tyr Asn Asn Trp Gly
100 105 110

Gln Gly Thr Gln Val Thr Val Ser Ser Gly Leu Glu Gly His Ser Asp
115 120 125

His Met Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Arg Ile Ser
130 135 140

Asp His His His His His His

145

150

<210> 17

<211> 130

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 17

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val
115 120 125

Ser Ser
130

<210> 18

<211> 126

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 18

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

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

Gly Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Lys Arg Glu Phe Val
35 40 45

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

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

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

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

Tyr Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser
115 120 125

<210> 19

<211> 291

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 19

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val

35

40

45

Ala Ala Ile Gly Thr Arg Gly Gly Ser Thr Lys Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Val Arg Gly Pro Gly Tyr Pro Ser Ala Ala Ile Phe Gln Asp Glu
100 105 110

Tyr His Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser Gly Gly
115 120 125

Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
130 135 140

Ala Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Pro Phe
145 150 155 160

Ser Asn Tyr Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg
165 170 175

Glu Phe Val Ala Ala Ile Ser Trp Ser Gly Gly Ser Thr Ser Tyr Ala
180 185 190

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn
195 200 205

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

Tyr Tyr Cys Ala Ala Gln Phe Ser Gly Ala Asp Tyr Gly Phe Gly Arg
225 230 235 240

Leu Gly Ile Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Gln
245 250 255

Val Thr Val Ser Ser Gly Leu Glu Gly His Ser Asp His Met Glu Gln
260 265 270

Lys Leu Ile Ser Glu Glu Asp Leu Asn Arg Ile Ser Asp His His His
275 280 285

His His His
290

<210> 20
<211> 286
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 20

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

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

Thr Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Gln Arg Glu Leu Val
35 40 45

Ala Ser Ile Ser Ser Arg Gly Val Arg Glu Tyr Ala Asp Ser Val Lys
50 55 60

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

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

Arg Gly Ala Leu Gly Leu Pro Gly Tyr Arg Pro Tyr Asn Asn Trp Gly
100 105 110

Gln Gly Thr Gln Val Thr Val Ser Ser Gly Gly Gly Gly Ser Glu Val
115 120 125

Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly Ser Leu

130 135 140

Arg Leu Ser Cys Ala Ala Ser Gly Arg Pro Phe Ser Asn Tyr Ala Met
145 150 155 160

Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ala
165 170 175

Ile Ser Trp Ser Gly Gly Ser Thr Ser Tyr Ala Asp Ser Val Lys Gly
180 185 190

Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr Leu Gln
195 200 205

Met Asn Ser Pro Lys Pro Glu Asp Thr Ala Ile Tyr Tyr Cys Ala Ala
210 215 220

Gln Phe Ser Gly Ala Asp Tyr Gly Phe Gly Arg Leu Gly Ile Arg Gly
225 230 235 240

Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser
245 250 255

Gly Leu Glu Gly His Ser Asp His Met Glu Gln Lys Leu Ile Ser Glu
260 265 270

Glu Asp Leu Asn Arg Ile Ser Asp His His His His His His
275 280 285

<210> 21
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker sequence

<400> 21

Gly Gly Gly Gly Ser
1 5

<210> 22
<211> 156

<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 22

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Ala Ile Gly Thr Arg Gly Gly Ser Thr Lys Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Val Arg Gly Pro Gly Tyr Pro Ser Ala Ala Ile Phe Gln Asp Glu
100 105 110

Tyr His Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser Gly Leu
115 120 125

Glu Gly His Ser Asp His Met Glu Gln Lys Leu Ile Ser Glu Glu Asp
130 135 140

Leu Asn Arg Ile Ser Asp His His His His His His
145 150 155

<210> 23
<211> 261
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 23

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ala Ala Ile Gly Thr Arg Gly Gly Ser Thr Lys Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Val Arg Gly Pro Gly Tyr Pro Ser Ala Ala Ile Phe Gln Asp Glu
100 105 110

Tyr His Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser Gly Gly
115 120 125

Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
130 135 140

Ala Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Pro Phe
145 150 155 160

Ser Asn Tyr Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg
165 170 175

Glu Phe Val Ala Ala Ile Ser Trp Ser Gly Gly Ser Thr Ser Tyr Ala
180 185 190

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn
195 200 205

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

Tyr Tyr Cys Ala Ala Gln Phe Ser Gly Ala Asp Tyr Gly Phe Gly Arg
225 230 235 240

Leu Gly Ile Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Gln
245 250 255

Val Thr Val Ser Ser
260

<210> 24
<211> 277
<212> PRT
<213> Homo sapiens

<400> 24

Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
1 5 10 15

Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
20 25 30

Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
35 40 45

Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
50 55 60

Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
65 70 75 80

Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
85 90 95

Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
100 105 110

Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
115 120 125

Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
130 135 140

Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
145 150 155 160

Cys His Pro Trp Thr Ser Cys Glu Thr Lys Asp Leu Val Val Gln Gln
165 170 175

Ala Gly Thr Asn Lys Thr Asp Val Val Cys Gly Pro Gln Asp Arg Leu
180 185 190

Arg Ala Leu Val Val Ile Pro Ile Ile Phe Gly Ile Leu Phe Ala Ile
195 200 205

Leu Leu Val Leu Val Phe Ile Lys Lys Val Ala Lys Lys Pro Thr Asn
210 215 220

Lys Ala Pro His Pro Lys Gln Glu Pro Gln Glu Ile Asn Phe Pro Asp
225 230 235 240

Asp Leu Pro Gly Ser Asn Thr Ala Ala Pro Val Gln Glu Thr Leu His
245 250 255

Gly Cys Gln Pro Val Thr Gln Glu Asp Gly Lys Glu Ser Arg Ile Ser
260 265 270

Val Gln Glu Arg Gln
275

<210> 25

<211> 130

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 25

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Pro Phe Ser Asn Tyr

20 25 30

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

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr Val
115 120 125

Ser Ser
130

<210> 26
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 26

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

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

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

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
115 120 125

Ser Ser
130

<210> 27

<211> 130

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 27

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

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

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

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
115 120 125

Ser Ser
130

<210> 28

<211> 130

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 28

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
115 120 125

Ser Ser
130

<210> 29
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 29

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
115 120 125

Ser Ser
130

<210> 30
<211> 130
<212> PRT
<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 30

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
115 120 125

Ser Ser
130

<210> 31

<211> 130

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 31

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
115 120 125

Ser Ser
130

<210> 32
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 32

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

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

Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

Ser Ala Ile Ser Trp Ser Gly Gly Ser Thr Ser Tyr Ala Asp Ser Val

50 55 60

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
115 120 125

Ser Ser
130

<210> 33

<211> 130

<212> PRT

<213> Artificial Sequence

<220>

<223> antibody sequence

<400> 33

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

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

Ala Met Gly Trp Phe Arg Glu Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
115 120 125

Ser Ser
130

<210> 34
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 34

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

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

Ala Met Gly Trp Phe Arg Glu Ala Pro Gly Lys Glu Arg Glu Phe Val
35 40 45

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

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

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

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

Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
115 120 125

Ser Ser
130

<210> 35
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<213> Artificial Sequence

<220>
<223> antibody sequence

<400> 35

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

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

Ser Met Asn Trp Tyr Arg Gln Pro Pro Gly Gln Gln Arg Gly Leu Val
35 40 45

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

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

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

Asn Met His Thr Phe Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser
100 105 110

<210> 36
<211> 142
<212> PRT
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<220>
<223> antibody sequence

<400> 36

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

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

Ser Met Asn Trp Tyr Arg Gln Pro Pro Gly Gln Gln Arg Gly Leu Val
35 40 45

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

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

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

Asn Met His Thr Phe Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser
100 105 110

Gly Leu Glu Gly His Ser Asp His Met Glu Gln Lys Leu Ile Ser Glu
115 120 125

Glu Asp Leu Asn Arg Ile Ser Asp His His His His His His
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Leu Val Phe Lys Arg Tyr
20 25 30

Ser Met Asn Trp Tyr Arg Gln Pro Pro Gly Gln Gln Arg Gly Leu Val
35 40 45

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

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

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

Asn Met His Thr Phe Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser
100 105 110

Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu
115 120 125

Val Gln Ala Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg
130 135 140

Pro Phe Ser Asn Tyr Ala Met Gly Trp Phe Arg Gln Ala Pro Gly Lys
145 150 155 160

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

Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala
180 185 190

Lys Asn Thr Val Tyr Leu Gln Met Asn Ser Pro Lys Pro Glu Asp Thr
195 200 205

Ala Ile Tyr Tyr Cys Ala Ala Gln Phe Ser Gly Ala Asp Tyr Gly Phe
210 215 220

Gly Arg Leu Gly Ile Arg Gly Tyr Glu Tyr Asp Tyr Trp Gly Gln Gly
225 230 235 240

Thr Gln Val Thr Val Ser Ser Gly Leu Glu Gly His Ser Asp His Met
245 250 255

Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Arg Ile Ser Asp His
260 265 270

His His His His His
275