

SEQUENCE LISTING

<110> BRISTOL-MYERS SQUIBB COMPANY

<120> ANTIBODIES AGAINST TIM3 AND USES THEREOF

<130> 3338.052PC02/ELE/C-K/DKC

<150> US 62/459,499

<151> 2017-02-15

<150> US 62/362,541

<151> 2016-07-14

<160> 385

<170> PatentIn version 3.5

<210> 1

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 IgG1.1f HC

<400> 1

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 2
<211> 447
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8B9 IgG1.1f HC

<400> 2

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Ser Ser Leu Lys
50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 3
<211> 447
<212> PRT
<213> Artificial Sequence

<220>

<223> Antibody 8C4 IgG1.1f HC

<400> 3

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
 20 25 30

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

Gly Tyr Ile His Tyr Thr Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60

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

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

Thr Asp Thr Gly Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 4
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C3 IgG1.1f HC

<400> 4

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

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

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80

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

Ala Arg Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 5
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 IgG1.1f HC

<400> 5

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Ala Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 6

<211> 454

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 3G4 IgG1.1f HC

<400> 6

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

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

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

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

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

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

Ala Arg Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp
 100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys
 115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
 130 135 140

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
 195 200 205

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro
210 215 220

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
225 230 235 240

Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
245 250 255

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
260 265 270

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
275 280 285

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
290 295 300

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
305 310 315 320

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
325 330 335

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
340 345 350

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
355 360 365

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
370 375 380

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
385 390 395 400

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
405 410 415

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
420 425 430

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 435 440 445

Ser Leu Ser Pro Gly Lys
 450

<210> 7
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 17C8 IgG1.1f HC

<400> 7

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

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

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

Ser Phe Ile Ser Ser Ser Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
 50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
 100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 8
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 IgG1.1f HC (no C-terminal K)

<400> 8

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 9

<211> 446

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8B9 IgG1.1f HC (no C-terminal K)

<400> 9

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
 20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Ser Ser Leu Lys
 50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
 210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
 225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ser Ser Ile Glu Lys Thr Ile
 325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
 340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
 355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
 370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
 385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
 405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
 420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
 435 440 445

<210> 10
 <211> 446
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8C4 IgG1.1f HC (no C-terminal K)

<400> 10

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
 20 25 30

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

Gly Tyr Ile His Tyr Thr Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60

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

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

Thr Asp Thr Gly Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
435 440 445

<210> 11
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C3 IgG1.1f HC (no C-terminal K)

<400> 11

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

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

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80

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

Ala Arg Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
 100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 12
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 IgG1.1f HC (no C-terminal K)

<400> 12

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Ala Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
 325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly
 450

<210> 13
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 3G4 IgG1.1f HC (no C-terminal K)

<400> 13

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

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

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

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

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

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

Ala Arg Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp
 100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys
 115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
 130 135 140

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
195 200 205

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro
210 215 220

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
225 230 235 240

Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
245 250 255

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
260 265 270

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
275 280 285

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
290 295 300

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
305 310 315 320

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
325 330 335

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
340 345 350

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
355 360 365

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
370 375 380

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
385 390 395 400

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
405 410 415

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
420 425 430

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
435 440 445

Ser Leu Ser Pro Gly
450

<210> 14
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C8 IgG1.1f HC (no C-terminal K)

<400> 14

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

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

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

Ser Phe Ile Ser Ser Ser Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
 100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 15
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 IgG1.3f HC

<400> 15

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly Lys
 450

<210> 16
 <211> 447
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 IgG1.3f HC

<400> 16

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
 20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Ser Ser Leu Lys
 50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
 210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
 225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
 325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
 340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
 355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
 370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 17
<211> 447
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8C4 IgG1.3f HC

<400> 17

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
20 25 30

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

Gly Tyr Ile His Tyr Thr Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60

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

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

Thr Asp Thr Gly Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
 210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
 225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
 325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 18
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C3 IgG1.3f HC

<400> 18

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

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

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80

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

Ala Arg Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly Lys
 450

<210> 19

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 9F6 IgG1.3f HC

<400> 19

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Ala Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly Lys
 450

<210> 20
 <211> 454
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 3G4 IgG1.3f HC

<400> 20

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

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

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

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

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

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

Ala Arg Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp
 100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys
 115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
 130 135 140

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
 195 200 205

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro
 210 215 220

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
 225 230 235 240

Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
 245 250 255

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 260 265 270

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 275 280 285

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 290 295 300

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 305 310 315 320

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
 325 330 335

Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 340 345 350

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
355 360 365

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
370 375 380

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
385 390 395 400

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
405 410 415

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
420 425 430

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
435 440 445

Ser Leu Ser Pro Gly Lys
450

<210> 21
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C8 IgG1.3f HC

<400> 21

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

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

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

Ser Phe Ile Ser Ser Ser Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly Lys
 450

<210> 22

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 IgG1.3f HC (no C-terminal K)

<400> 22

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly
 450

<210> 23
 <211> 446
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 IgG1.3f HC (no C-terminal K)

<400> 23

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
 20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Ser Ser Leu Lys
 50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
 210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
 225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
 325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
 340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
435 440 445

<210> 24
<211> 446
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8C4 IgG1.3f HC (no C-terminal K)

<400> 24

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
20 25 30

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

Gly Tyr Ile His Tyr Thr Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60

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

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

Thr Asp Thr Gly Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
 325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
 340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
 355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
 370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
 385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
 405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
 420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
 435 440 445

<210> 25

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 17C3 IgG1.3f HC (no C-terminal K)

<400> 25

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

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

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80

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

Ala Arg Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly
450

<210> 26
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 IgG1.3f HC (no C-terminal K)

<400> 26

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Ala Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 27
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 3G4 IgG1.3f HC (no C-terminal K)

<400> 27

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

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

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

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

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

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

Ala Arg Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp
 100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys
 115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
 130 135 140

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
 195 200 205

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro
 210 215 220

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
 225 230 235 240

Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
 245 250 255

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 260 265 270

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 275 280 285

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 290 295 300

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
305 310 315 320

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
325 330 335

Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
340 345 350

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
355 360 365

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
370 375 380

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
385 390 395 400

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
405 410 415

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
420 425 430

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
435 440 445

Ser Leu Ser Pro Gly
450

<210> 28
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C8 IgG1.3f HC (no C-terminal K)

<400> 28

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

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

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

Ser Phe Ile Ser Ser Ser Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
 50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
 100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala
	370					375					380				

Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr
385					390					395					400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 29
<211> 215
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3, 17C3, 3G4 LC

<400> 29

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
20 25 30

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

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

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

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

Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Arg Thr Val Ala
100 105 110

Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
115 120 125

Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
130 135 140

Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145 150 155 160

Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
165 170 175

Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
180 185 190

Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
195 200 205

Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 30

<211> 215

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8B9, 8C4, 17C8 LC

<400> 30

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
20 25 30

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

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

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

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

Leu Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
100 105 110

Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
115 120 125

Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
130 135 140

Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145 150 155 160

Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
165 170 175

Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
180 185 190

Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
195 200 205

Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 31
<211> 215
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 (VK3) LC

<400> 31

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
20 25 30

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

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

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

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

Leu Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
100 105 110

Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
115 120 125

Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
130 135 140

Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145 150 155 160

Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
165 170 175

Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
180 185 190

Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
195 200 205

Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 32

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (VK1) LC

<400> 32

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

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

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Asp Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

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

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
100 105 110

Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125

Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140

Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160

Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190

Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205

Phe Asn Arg Gly Glu Cys
210

<210> 33

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (VK2) LC

<400> 33

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
20 25 30

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

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

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

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

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
100 105 110

Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125

Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140

Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160

Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190

Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205

Phe Asn Arg Gly Glu Cys
210

<210> 34
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 VH

<400> 34

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 35
<211> 117

<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8B9 VH

<400> 35

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Ser Ser Leu Lys
50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser
115

<210> 36
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8C4 VH

<400> 36

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
20 25 30

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

Gly Tyr Ile His Tyr Thr Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60

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

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

Thr Asp Thr Gly Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser
115

<210> 37
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C3 VH

<400> 37

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

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

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80

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

Ala Arg Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 38

<211> 123

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 9F6 VH

<400> 38

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Ala Val Thr Val Ser Ser
115 120

<210> 39
<211> 124
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 3G4 VH

<400> 39

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

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

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

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

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

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

Ala Arg Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp
100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 40
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C8 VH

<400> 40

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

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

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

Ser Phe Ile Ser Ser Ser Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 41

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 CDR1 (VH)

<400> 41

Ser Arg Ser Tyr Tyr Trp Gly
1 5

<210> 42

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8B9 CDR1 (VH)

<400> 42

Arg His Tyr Trp Asn
1 5

<210> 43

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8C4 CDR1 (VH)

<400> 43

Arg Tyr Tyr Trp Ser
1 5

<210> 44

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 17C3 CDR1 (VH)

<400> 44

Ser Tyr Tyr Met His
1 5

<210> 45

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 9F6 CDR1 (VH)

<400> 45

Asp Tyr Tyr Met Ser
1 5

<210> 46

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 CDR2 (VH)

<400> 46

Ser	Ile	Tyr	Tyr	Ser	Gly	Phe	Thr	Tyr	Tyr	Asn	Pro	Ser	Leu	Lys	Ser
1				5					10					15	

<210> 47

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8B9 CDR2 (VH)

<400> 47

Tyr	Ile	His	Tyr	Ser	Gly	Ser	Thr	Asn	Tyr	Asn	Ser	Ser	Leu	Lys	Ser
1				5					10					15	

<210> 48

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8C4 CDR2 (VH)

<400> 48

Tyr	Ile	His	Tyr	Thr	Gly	Ser	Thr	Asn	Tyr	Asn	Pro	Ser	Leu	Lys	Ser
1				5					10					15	

<210> 49

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 17C3 CDR2 (VH)

<400> 49

Ile	Ile	Asn	Pro	Arg	Gly	Asp	Ser	Ile	Ile	Tyr	Ala	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 50
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 CDR2 (VH)

<400> 50

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

Gly

<210> 51
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 3G4 CDR2 (VH)

<400> 51

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

Gly

<210> 52
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 17C8 CDR2 (VH)

<400> 52

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

Gly

<210> 53
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 CDR3 (VH)

<400> 53

Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 1 5 10

<210> 54
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 CDR3 (VH)

<400> 54

Asp Thr Gly Tyr Tyr Gly Met Asp Ile
 1 5

<210> 55
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8C4 CDR3 (VH)

<400> 55

Asp Thr Gly Tyr Tyr Gly Met Asp Val
 1 5

<210> 56
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 17C3 CDR3 (VH)

<400> 56

Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
1 5 10

<210> 57
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 CDR3 (VH)

<400> 57

Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
1 5 10

<210> 58
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 3G4 CDR3 (VH)

<400> 58

Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp Val
1 5 10 15

<210> 59
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C8 CDR3 (VH)

<400> 59

Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
1 5 10

<210> 60
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3, 17C3, 3G4 VL

<400> 60

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
 20 25 30

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

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

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

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

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

<210> 61

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8B9, 8C4, 17C8 , 9F6 (VK3) VL

<400> 61

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
 20 25 30

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

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

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

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

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

<210> 62
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 (VK1) VL

<400> 62

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

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

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Asp Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

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

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

<210> 63
<211> 107

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (VK2) VL

<400> 63

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
 20 25 30

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

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

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

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

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

<210> 64
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3, 8B9, 8C4, 17C3, 9F6 (VK2, VK3), 3G4, 17C8 CDR1
 (VL)

<400> 64

Arg Ala Ser Gln Ser Val Ser Ser Ser Tyr Leu Ala
 1 5 10

<210> 65
 <211> 11
 <212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (VK1) CDR1 (VL)

<400> 65

Arg	Ala	Ser	Gln	Gly	Ile	Ser	Ser	Ala	Leu	Ala
1				5					10	

<210> 66

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3, 8B9, 8C4, 17C3, 9F6 (VK2, VK3), 3G4, 17C8 CDR2 (VL)

<400> 66

Gly	Ala	Ser	Ser	Arg	Ala	Thr
1				5		

<210> 67

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (VK1) CDR2 (VL)

<400> 67

Asp	Ala	Ser	Ser	Leu	Glu	Ser
1				5		

<210> 68

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3, 17C3, 3G4 CDR3 (VL)

<400> 68

Gln	Gln	Tyr	Gly	Ser	Ser	Pro	Ile	Thr
1				5				

<210> 69
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9, 8C4, 9F6 (VK3), 17C8 CDR3 (VL)

<400> 69

Gln Gln Tyr Gly Ser Ser Pro Leu Thr
 1 5

<210> 70
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (VK1) CDR3 (VL)

<400> 70

Gln Gln Phe Asn Ser Tyr Pro Arg Thr
 1 5

<210> 71
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (VK2) CDR3 (VL)

<400> 71

Gln Gln Tyr Gly Ser Ser Leu Thr
 1 5

<210> 72
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60Q) IgG1.1f HC

<400> 72

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 73
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60S) IgG1.1f HC

<400> 73

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ser Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly Lys
 450

<210> 74
 <211> 453
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60A) IgG1.1f HC

<400> 74

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ala Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 75

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (D101E) IgG1.1f HC

<400> 75

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 76
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (P102V) IgG1.1f HC

<400> 76

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Val
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 77
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (P102Y) IgG1.1f HC

<400> 77

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 78

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102L) IgG1.1f HC

<400> 78

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

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

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 79
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60Q, P102Y) IgG1.1f HC

<400> 79

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 80
<211> 447
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8B9 (S61P) IgG1.1f HC

<400> 80

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 81
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 (A108T) IgG1.1f HC

<400> 81

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 82
 <211> 452
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60Q) IgG1.1f HC (no C-terminal K)

<400> 82

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 83
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60S) IgG1.1f HC (no C-terminal K)

<400> 83

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ser Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 84
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60A) IgG1.1f HC (no C-terminal K)

<400> 84

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 85
 <211> 452
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (D101E) IgG1.1f HC (no C-terminal K)

<400> 85

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 86
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (P102V) IgG1.1f HC (no C-terminal K)

<400> 86

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Val
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 87
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (P102Y) IgG1.1f HC (no C-terminal K)

<400> 87

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 88
 <211> 452
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (P102L) IgG1.1f HC (no C-terminal K)

<400> 88

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Leu
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 89
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60Q, P102Y) IgG1.1f HC (no C-terminal K)

<400> 89

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 90
<211> 446
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8B9 (S61P) IgG1.1f HC (no C-terminal K)

<400> 90

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
20 25 30

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

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
435 440 445

<210> 91
<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (A108T) IgG1.1f HC (no C-terminal K)

<400> 91

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
 100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 92

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q) IgG1.3f HC

<400> 92

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 93
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60S) IgG1.3f HC

<400> 93

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ser Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 94

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60A) IgG1.3f HC

<400> 94

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ala Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 95

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (D101E) IgG1.3f HC

<400> 95

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 96
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (P102V) IgG1.3f HC

<400> 96

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Val
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 97
<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102Y) IgG1.3f HC

<400> 97

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 98

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102L) IgG1.3f HC

<400> 98

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Leu
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 99
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60Q, P102Y) IgG1.3f HC

<400> 99

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly Lys
 450

<210> 100

<211> 447

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8B9 (S61P) IgG1.3f HC

<400> 100

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
 20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 101
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 (A108T) IgG1.3f HC

<400> 101

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 102
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60Q) IgG1.3f HC (no C-terminal K)

<400> 102

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 103

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60S) IgG1.3f HC (no C-terminal K)

<400> 103

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ser Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly
 450

<210> 104
 <211> 452
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60A) IgG1.3f HC (no C-terminal K)

<400> 104

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ala Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 105
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (D101E) IgG1.3f HC (no C-terminal K)

<400> 105

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 106

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102V) IgG1.3f HC (no C-terminal K)

<400> 106

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Val
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

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

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly
 450

<210> 107
 <211> 452
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (P102Y) IgG1.3f HC (no C-terminal K)

<400> 107

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 108
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (P102L) IgG1.3f HC (no C-terminal K)

<400> 108

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Leu
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 109

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q, P102Y) IgG1.3f HC (no C-terminal K)

<400> 109

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

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

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly
 450

<210> 110
 <211> 446
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 (S61P) IgG1.3f HC (no C-terminal K)

<400> 110

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
 20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 195 200 205

Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His
 210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val
 225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
 325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
 340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
435 440 445

<210> 111
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 (A108T) IgG1.3f HC (no C-terminal K)

<400> 111

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 112
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60Q) VH

<400> 112

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 113
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60S) VH

<400> 113

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ser Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 114
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60A) VH

<400> 114

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ala Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 115
 <211> 123
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (D101E) VH

<400> 115

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 116
 <211> 123
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102V) VH

<400> 116

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Val
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 117

<211> 123

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102Y) VH

<400> 117

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 118
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (P102L) VH

<400> 118

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Leu
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 119
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60Q, P102Y) VH

<400> 119

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 120
 <211> 117
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 (S61P) VH

<400> 120

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
 20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser
 115

<210> 121
 <211> 123
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (A108T) VH

<400> 121

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 122

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q); 13A3 (N60Q, P102Y); 13A3 (N60Q, D101E) CDR2 (VH)

<400> 122

Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser Leu Lys Ser
1 5 10 15

<210> 123

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60S) CDR2 (VH)

<400> 123

Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ser Pro Ser Leu Lys Ser
1 5 10 15

<210> 124

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60A) CDR2 (VH)

<400> 124

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

<210> 125

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8B9 (S61P) CDR2 (VH)

<400> 125

Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 126

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (D101E); 13A3 (N60Q, D101E) CDR3 (VH)

<400> 126

Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
1 5 10

<210> 127

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102V) CDR3 (VH)

<400> 127

Gly	Gly	Pro	Tyr	Gly	Asp	Tyr	Ala	His	Trp	Phe	Asp	Val
1				5					10			

<210> 128

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102Y); 13A3 (N60Q, P102Y) CDR3 (VH)

<400> 128

Gly	Gly	Pro	Tyr	Gly	Asp	Tyr	Ala	His	Trp	Phe	Asp	Tyr
1				5					10			

<210> 129

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102L) CDR3 (VH)

<400> 129

Gly	Gly	Pro	Tyr	Gly	Asp	Tyr	Ala	His	Trp	Phe	Asp	Leu
1				5					10			

<210> 130

<211> 330

<212> PRT

<213> Artificial Sequence

<220>

<223> All antibodies HC Constant Domain (IgG1.1f)

<400> 130

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

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

Pro Ala Pro Glu Ala Glu Gly Ala 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 Ser Ser 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 Glu Glu
225 230 235 240

Met 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 Lys
325 330

<210> 131

<211> 329

<212> PRT

<213> Artificial Sequence

<220>

<223> All antibodies HC Constant Domain (IgG1.1f) (no C-terminal K)

<400> 131

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

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

Pro Ala Pro Glu Ala Glu Gly Ala 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 Ser Ser 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 Glu Glu
225 230 235 240

Met 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

<210> 132
<211> 330
<212> PRT
<213> Artificial Sequence

<220>
<223> All antibodies HC Constant Domain (IgG1.3f)

<400> 132

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

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

Pro Ala Pro Glu Ala Glu Gly Ala 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 Glu Glu
225 230 235 240

Met 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 Lys
325 330

<210> 133
<211> 329
<212> PRT
<213> Artificial Sequence

<220>

<223> All antibodies HC Constant Domain (IgG1.3f) (no C-terminal K)

<400> 133

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	

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

Pro	Ala	Pro	Glu	Ala	Glu	Gly	Ala	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
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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 Glu Glu
225 230 235 240

Met 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

<210> 134
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody 13A3 IgG1.1f HC

<400> 134
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggttg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
tacaaccgt cctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300

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gggccctacg gtgactacgc ccactggttc gacccctggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctggccaagg actacttccc cgaaccggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc      600
accagacctt acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc ccaaaacca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtaag      840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggtaa at ga                        1362

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<210> 135
<211> 1344
<212> DNA
<213> Artificial Sequence

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<220>
<223> Antibody 8B9 IgG1.1f HC

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<400> 135
caggtgcagc tgcaggagtc gggcccagga ctggtaagc cttcggagac cctgtccctc      60
acctgcactg tctctgggtg ctccatcagt cgtcactact ggaactggat ccggcagccc     120
ccagggaagg gactggagtg gattgggtat atccattaca gtggaagcac caactacaat     180
tcctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg     240

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aagctgagct ctgtgaccgc tgcggacacg gccgtgtatt actgtgcgag agatactggg	300
tactacggta tggacatctg gggccaaggg accacgggtca ccgtctcctc agctagcacc	360
aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg	420
gccctgggct gcctggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca	480
ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac	540
tccctcagca gcgtgggtgac cgtgccctcc agcagcttgg gcacccagac ctacatctgc	600
aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc caaatcttgt	660
gacaaaactc acacatgccc accgtgcccc gcacctgaag ccgaagggggc cccgtcagtc	720
ttcctcttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca	780
tgctgtggtgg tggacgtgag ccacgaagac cctgaggtca agttcaactg gtacgtggac	840
ggcgtggagg tgcataatgc caagacaaag ccgcggggagg agcagtacaa cagcacgtac	900
cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag	960
tgcaaggtct ccaacaaagc cctcccaagc agcatcgaga aaaccatctc caaagccaaa	1020
gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag	1080
aaccaggtca gcctgacctg cctggtcaaa ggcttctatc ccagcgacat cgccgtggag	1140
tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt gctggactcc	1200
gacggctcct tcttcctcta tagcaagctc accgtggaca agagcaggtg gcagcagggg	1260
aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc	1320
ctctccctgt ccccggttaa atga	1344

<210> 136

<211> 1344

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 8C4 IgG1.1f HC

<400> 136

caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60

acctgcactg tctctggtgg ctccatcagt cgttactact ggagctggat ccggcagccc 120

ccagggaagg gactggagtg gattgggtat atccattaca ctgggagcac caactacaac 180

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ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg      240
aagctgagct ctgtgaccgc agcggacacg gccgtgtatt actgtgcgac agatacgggc      300
tactacggta tggacgtctg gggccaaggg accacgggtca ccgtctcctc agctagcacc      360
aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg      420
gccctgggct gcctgggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca      480
ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac      540
tccctcagca gcgtgggtgac cgtgccctcc agcagcttgg gcacccagac ctacatctgc      600
aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc caaatcttgt      660
gacaaaactc acacatgccc accgtgcccga gcacctgaag ccgaagggggc cccgtcagtc      720
ttcctcttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca      780
tgcgtgggtg tggacgtgag ccacgaagac cctgagggtca agttcaactg gtacgtggac      840
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cgtgtgggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag      960
tgcaaggtct ccaacaaagc cctcccaagc agcatcgaga aaaccatctc caaagccaaa    1020
gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag    1080
aaccagggtca gcctgacctg cctgggtcaaa ggcttctatc ccagcgacat cgccgtggag    1140
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gacggctcct tcttcctcta tagcaagctc accgtggaca agagcaggtg gcagcagggg    1260
aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc    1320
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<210> 137

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 17C3 IgG1.1f HC

<400> 137

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caggtgcagt tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaaggtc      60
```

```
tcctgcaagg catctggata cactttcacc agctactata tgcaactgggt gcgacaggcc    120
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```

cctggacaag ggcttgagtg gatgggaata atcaacccta ggggtgatag cataatctac      180
gcacagaagt tccagggcag agtcaccatg accaggggaca cgtccacgag cacagtctac      240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagatttc      300
tatggttcgg gaaactacta ctacggtatg gacgtctggg gccaaaggac cacggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg      480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc      600
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gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaaggggccc cgtcagtcct cctcttcccc ccaaaacca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag      840
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cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa     1020
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cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc     1140
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<210> 138
<211> 1362
<212> DNA
<213> Artificial Sequence

```

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<220>
<223> Antibody 9F6 IgG1.1f HC

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<400> 138
caggtgcagc tgggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc      60

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ccaggggaagg ggctggagtg ggtttcattc attagtgggtg gtggtagtac catatactac	180
gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcgctgttt	240
ctgcaaatga acagcctgag agtcgaggac acggctgtgt attactgtgc gagagatggc	300
tatagcagtg gctggacta ctacggatat gacgtctggg gccaaaggac cgcggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtaagg actacttccc cgaaccgggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
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gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtcct cctcttcccc caaaaacca aggacaccct catgatctcc	780
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cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaaagg cttctatccc	1140
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cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 139

<211> 1365

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 3G4 IgG1.1f HC

<400> 139

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tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct	120
ccagggaagg ggctggagtg ggtttcattc attagtacta gtggtagtat catatactac	180
gcagactctg tgaagggccg attcaccatc tccagggaaca acgccaagaa ctactgtat	240
ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagaaggg	300
tatagcagca gctggtccta ctactacggc atggacgtct ggggccaagg gaccacggtc	360
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agcacctctg ggggcacagc ggccctgggc tgcctgggtc aggactactt ccccgaaaccg	480
gtgacggtgt cgtggaactc aggcgccctg accagcggcg tgcacacctt cccggctgtc	540
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ggcaccacaga cctacatctg caacgtgaat cacaagccca gcaacaccaa ggtggacaag	660
agagttgagc ccaaattctg tgacaaaact cacacatgcc caccgtgccc agcacctgaa	720
gccgaagggg ccccgctcagt cttcctcttc ccccaaaaac ccaaggacac cctcatgac	780
tcccggaccc ctgagggtcac atgcgtgggtg gtggacgtga gccacgaaga ccctgaggtc	840
aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa gccgcgggag	900
gagcagtaca acagcacgta ccgtgtggtc agcgtcctca ccgtcctgca ccaggactgg	960
ctgaatggca aggagtacaa gtgcaaggtc tccaacaaag ccctcccaag cagcatcgag	1020
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tcccgggagg agatgaccaa gaaccaggtc agcctgacct gcctgggtcaa aggccttctat	1140
cccagcgaca tcgccgtgga gtgggagagc aatgggcagc cggagaacaa ctacaagacc	1200
acgcctcccg tgctggactc cgacggctcc ttcttcctct atagcaagct caccgtggac	1260
aagagcaggt ggcagcaggg gaacgtcttc tcatgctccg tgatgcatga ggctctgcac	1320
aaccactaca cgcagaagag cctctccctg tccccgggta aatga	1365

<210> 140

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 17C8 IgG1.1f HC

<400> 140
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 tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct 120
 ccagggaagg ggctggagtg ggtttcattc attagtagta gtggtagtat catatactac 180
 gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctactgtat 240
 ctgcaaatac acagcctgag agccgaggac acggctgtgt attactgtgc gagagatggg 300
 tatagcagtg gctgggagta ctacggtatg gacgtctggg gccaaaggac cacggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg 480
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 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaagggggccc cgtcagtcct cctcttcccc ccaaaaccca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgagggtcaag 840
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 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccaagcag catcgagaaa 1020
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 cctcccgtgc tggactccga cggctccttc ttctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga 1362

<210> 141
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Antibody 13A3 IgG1.1f HC (no C-terminal K)

<400> 141

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtctt cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtgggtg gacgtgagcc acgaagaccc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 142

<211> 1341

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 8B9 IgG1.1f HC (no C-terminal K)

<400> 142

```

caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc      60
acctgcactg tctctggtgg ctccatcagt cgtcactact ggaactggat ccggcagccc      120
ccagggaagg gactggagtg gattgggtat atccattaca gtggaagcac caactacaat      180
tcctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg      240
aagctgagct ctgtgaccgc tgcggacacg gccgtgtatt actgtgcgag agatactggg      300
tactacggta tggacatctg gggccaaggg accacgggtca ccgtctcctc agctagcacc      360
aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg      420
gccctgggct gcctggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca      480
ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac      540
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cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag      960
tgcaaggtct ccaacaaagc cctcccaagc agcatcgaga aaaccatctc caaagccaaa     1020
gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag     1080
aaccaggtca gcctgacctg cctggtcaaa ggcttctatc ccagcgacat cgccgtggag     1140
tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt gctggactcc     1200
gacggctcct tcttcctcta tagcaagctc accgtggaca agagcaggtg gcagcagggg     1260
aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc     1320
ctctccctgt ccccggttg a                                     1341

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<210> 143

<211> 1341
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 8C4 IgG1.1f HC (no C-terminal K)

<400> 143
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 acctgcactg tctctggtgg ctccatcagt cgttactact ggagctggat ccggcagccc 120
 ccagggaagg gactggagtg gattgggtat atccattaca ctgggagcac caactacaac 180
 ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
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 tactacggta tggacgtctg gggccaaggg accacgggtca ccgtctcctc agctagcacc 360
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 aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc caaatcttgt 660
 gacaaaactc acacatgccc accgtgcccga gcacctgaag ccgaaggggc cccgtcagtc 720
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 tgcgtggtgg tggacgtgag ccacgaagac cctgaggtca agttcaactg gtacgtggac 840
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 cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag 960
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 aaccagggtca gcctgacctg cctgggtcaaa ggcttctatc ccagcgacat cgccgtggag 1140
 tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt gctggactcc 1200
 gacggctcct tcttcctcta tagcaagctc accgtggaca agagcaggtg gcagcagggg 1260
 aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc 1320
 ctctccctgt ccccggttg a 1341

<210> 144
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 17C3 IgG1.1f HC (no C-terminal K)

<400> 144
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 tcctgcaagg catctggata cactttcacc agctactata tgcactgggt gcgacaggcc 120
 cctggacaag ggcttgagtg gatgggaata atcaacccta ggggtgatag cataatctac 180
 gcacagaagt tccagggcag agtcaccatg accaggggaca cgtccacgag cacagtctac 240
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 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaagggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc 780
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 cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac 1320

cactacacgc agaagagcct ctccctgtcc ccgggttga 1359

<210> 145

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 9F6 IgG1.1f HC (no C-terminal K)

<400> 145

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acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg 480

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cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600

accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660

gttagacca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720

gaagggggccc cgtcagtcct cctcttcccc ccaaaaccca aggacaccct catgatctcc 780

cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag 840

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aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa 1020

accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc 1080

cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc 1140

agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200

cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260

agcagggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggttga 1359

<210> 146
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 3G4 IgG1.1f HC (no C-terminal K)

<400> 146
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 tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct 120
 ccagggaagg ggctggagtg ggtttcattc attagtacta gtggtagtat catatactac 180
 gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctactgtat 240
 ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagaaggg 300
 tatagcagca gctggctcta ctactacggc atggacgtct ggggccaagg gaccacggtc 360
 accgtctcct cagctagcac caagggccca tcggtcttcc ccctggcacc ctctccaag 420
 agcacctctg ggggcacagc ggccctgggc tgcctgggtca aggactactt ccccgaaaccg 480
 gtgacgggtg cgtggaactc aggcgccctg accagcggcg tgcacacctt cccggctgtc 540
 ctacagtcct caggactcta ctccctcagc agcgtgggtga ccgtgccctc cagcagcttg 600
 ggcacccaga cctacatctg caacgtgaat cacaagccca gcaacaccaa ggtggacaag 660
 agagttgagc ccaaattctg tgacaaaact cacacatgcc caccgtgccc agcacctgaa 720
 gccgaagggg ccccgctcagt cttcctcttc ccccaaaaac ccaaggacac cctcatgac 780
 tcccggaccc ctgaggtcac atgcgtgggtg gtggacgtga gccacgaaga ccctgaggtc 840
 aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa gccgcgggag 900
 gagcagtaca acagcacgta ccgtgtggtc agcgtcctca ccgtcctgca ccaggactgg 960
 ctgaatggca aggagtacaa gtgcaaggtc tccaacaaag ccctcccaag cagcatcgag 1020
 aaaaccatct ccaaagccaa agggcagccc cgagaaccac aggtgtacac cctgccccca 1080
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 cccagcgaca tcgccgtgga gtgggagagc aatgggcagc cggagaacaa ctacaagacc 1200

acgcctcccg tgctggactc cgacggctcc ttcttcctct atagcaagct caccgtggac	1260
aagagcaggt ggcagcaggg gaacgtcttc tcatgctccg tgatgcatga ggctctgcac	1320
aaccactaca cgcagaagag cctctccctg tccccgggtt ga	1362

<210> 147
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 17C8 IgG1.1f HC (no C-terminal K)

<400> 147	
caggtgcagc tgggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc	60
tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct	120
ccagggaagg ggctggagtg ggtttcattc attagtagta gtggtagtat catatactac	180
gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctactgtat	240
ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagatggg	300
tatagcagtg gctgggagta ctacggtatg gacgtctggg gccaaaggac cacggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtcct cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccttg aggtcacatg cgtgggtggtg gacgtgagcc acgaagacc tgagggtcaag	840
ttcaactggg acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc	1140

agcgacatcg ccgtaggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 148
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 IgG1.3f HC

<400> 148	
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaaggggccc cgtcagtctt cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtgggtg gacgtgagcc acgaagacc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcttcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080

cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 149
 <211> 1343
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 IgG1.3f HC

<400> 149	
aggtgcagct gcaggagtcg ggcccaggac tggatgaagcc ttcggagacc ctgtccctca	60
cctgcactgt ctctgggtggc tccatcagtc gtcactactg gaactggatc cggcagcccc	120
caggggaaggg actggagtggt attgggtata tccattacag tggaagcacc aactacaatt	180
cctccctcaa gagtcgagtc accatatcag tagacacgtc caagaaccag ttctccctga	240
agctgagctc tgtgaccgct gcggacacgg ccgtgtatta ctgtgagaga gatactgggt	300
actacggtat ggacatctgg ggccaaggga ccacggtcac cgtctcctca gctagcacca	360
agggcccatc ggtcttcccc ctggcaccct cctccaagag cacctctggg ggacagcgg	420
ccctgggctg cctgggtcaag gactacttcc ccgaaccggt gacgggtgtcg tggaactcag	480
gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca ggactctact	540
ccctcagcag cgtgggtgacc gtgccctcca gcagcttggg caccagacc tacatctgca	600
acgtgaatca caagcccagc aacaccaagg tggacaagag agttgagccc aaatcttgtg	660
acaaaactca cacatgcca ccgtgcccag cacctgaagc cgaaggggccc ccgtcagtct	720
tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggacccct gaggtcacat	780
gcgtgggtggt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg tacgtggacg	840
gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac agcacgtacc	900
gtgtgggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag gagtacaagt	960
gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc aaagccaaag	1020

ggcagccccg agaaccacag gtgtacaccc tgcccccatc ccgggaggag atgaccaaga 1080
 accagggtcag cctgacctgc ctgggtcaaag gcttctatcc cagcgacatc gccgtggagt 1140
 gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg ctggactccg 1200
 acggctcctt cttcctctat agcaagctca ccgtggacaa gagcagggtgg cagcagggga 1260
 acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg cagaagagcc 1320
 tctccctgtc cccgggtaaa tga 1343

<210> 150
 <211> 1344
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 8C4 IgG1.3f HC

<400> 150
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 acctgcactg tctctggtgg ctccatcagt cgttactact ggagctggat ccggcagccc 120
 ccagggaagg gactggagtg gattgggtat atccattaca ctgggagcac caactacaac 180
 ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
 aagctgagct ctgtgaccgc agcggacacg gccgtgtatt actgtgcgac agatacgggc 300
 tactacggta tggacgtctg gggccaaggg accacgggtca ccgtctcctc agctagcacc 360
 aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg 420
 gccctgggct gcctgggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca 480
 ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac 540
 tccctcagca gcgtggtgac cgtgccctcc agcagcttgg gcacccagac ctacatctgc 600
 aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc caaatcttgt 660
 gacaaaactc acacatgccc accgtgcccga gcacctgaag ccgaaggggc cccgtcagtc 720
 ttctctttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca 780
 tgcgtggtgg tggacgtgag ccacgaagac cctgagggtca agttcaactg gtacgtggac 840
 ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagtacaa cagcacgtac 900
 cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag 960

tgcaaggtct ccaacaaagc cctcccagcc cccatcgaga aaaccatctc caaagccaaa	1020
gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag	1080
aaccaggtca gcctgacctg cctggtcaaa ggcttctatc ccagcgacat cgccgtggag	1140
tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt gctggactcc	1200
gacggctcct tcttctctta tagcaagctc accgtggaca agagcagggtg gcagcagggg	1260
aacgtcttct catgtctcgt gatgcatgag gctctgcaca accactacac gcagaagagc	1320
ctctccctgt ccccggttaa atga	1344

<210> 151
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 17C3 IgG1.3f HC

<400> 151	
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tcctgcaagg catctggata cactttcacc agctactata tgcactgggt gcgacaggcc	120
cctggacaag ggcttgagtg gatgggaata atcaacccta ggggtgatag cataatctac	180
gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac	240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagatttc	300
tatggttcgg gaaactacta ctacggtatg gacgtctggg gccaaaggac cacggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
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accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaaggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtgggtg gacgtgagcc acgaagacc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcc aagacaaagcc gcgggaggag	900

cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 152
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 IgG1.3f HC

<400> 152	
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tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct	120
ccagggaagg ggctggagtg ggtttcattc attagtggtg gtggtagtac catatactac	180
gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcgctgttt	240
ctgcaaatga acagcctgag agtcgaggac acggctgtgt attactgtgc gagagatggc	300
tatagcagtg gctgggtacta ctacggtatg gacgtctggg gccaagggac cgcggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
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accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttagagcca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaaggggccc cgtcagtcct cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag	840

ttcaactggt acgtggacgg cgtggagggtg cataatgcc aagacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcagggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 153
 <211> 1365
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 3G4 IgG1.3f HC

<400> 153	
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tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct	120
ccagggaagg ggctggagtg ggtttcattc attagtacta gtggtagtat catatactac	180
gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctactgtat	240
ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagaaggg	300
tatagcagca gctggctcta ctactacgg atggacgtct ggggccaagg gaccacggctc	360
accgtctcct cagctagcac caagggccca tcggtcttcc ccctggcacc ctctccaag	420
agcacctctg ggggcacagc ggccctgggc tgcctgggtca aggactactt cccgaaccg	480
gtgacgggtgt cgtggaactc aggcgccctg accagcggcg tgcacacctt cccggctgtc	540
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ggcaccacga cctacatctg caacgtgaat cacaagccca gcaacaccaa ggtggacaag	660
agagttgagc ccaaattctg tgacaaaact cacacatgcc caccgtgccc agcacctgaa	720
gccgaagggg ccccgctcagt cttcctcttc ccccaaaaac ccaaggacac cctcatgatc	780

tcccggaccc	ctgaggtcac	atgcgtggtg	gtggacgtga	gccacgaaga	ccctgaggtc	840
aagttcaact	ggtacgtgga	cggcgtggag	gtgcataatg	ccaagacaaa	gccgcgggag	900
gagcagtaca	acagcacgta	ccgtgtggtc	agcgtcctca	ccgtcctgca	ccaggactgg	960
ctgaatggca	aggagtacaa	gtgcaaggtc	tccaacaaag	ccctcccagc	ccccatcgag	1020
aaaaccatct	ccaaagccaa	agggcagccc	cgagaaccac	aggtgtacac	cctgccccca	1080
tcccgggagg	agatgaccaa	gaaccaggtc	agcctgacct	gcctgggtcaa	aggcttctat	1140
cccagcgaca	tcgccgtgga	gtgggagagc	aatgggcagc	cggagaacaa	ctacaagacc	1200
acgcctcccg	tgctggactc	cgacggctcc	ttcttcctct	atagcaagct	caccgtggac	1260
aagagcaggt	ggcagcaggg	gaacgtcttc	tcatgtctccg	tgatgcatga	ggctctgcac	1320
aaccactaca	cgcagaagag	cctctccctg	tccccgggta	aatga		1365

<210> 154
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 17C8 IgG1.3f HC

<400> 154	
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ccagggaagg	ggctggagtg ggtttcattc attagtagta gtggtagtat catatactac 180
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acgggtgtcgt	ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
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acccagacct	acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
gttgagccca	aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720

gaaggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
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aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaata ga	1362

<210> 155
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 IgG1.3f HC (no C-terminal K)

<400> 155	
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccga gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660

```

gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtgggtggtg gacgtgagcc acgaagaccc tgagggtcaag      840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc      1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc      1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg      1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag      1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac      1320
cactacacgc agaagagcct ctccctgtcc ccgggttga                               1359

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<210> 156
<211> 1340
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Antibody 8B9 IgG1.3f HC (no C-terminal K)

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```

<400> 156
aggtgcagct gcaggagtcg ggcccaggac tggatgaagcc ttcggagacc ctgtccctca      60
cctgcactgt ctctgggtggc tccatcagtc gtcactactg gaactggatc cggcagcccc      120
caggggaaggg actggagtgg attgggtata tccattacag tggaagcacc aactacaatt      180
cctccctcaa gagtcgagtc accatatcag tagacacgtc caagaaccag ttctccctga      240
agctgagctc tgtgaccgct gcggacacgg ccgtgtatta ctgtgcgaga gatactgggt      300
actacggtat ggacatctgg ggccaaggga ccacggtcac cgtctcctca gctagcacca      360
agggcccatc ggtcttcccc ctggcacccct cctccaagag cacctctggg ggcacagcgg      420
ccctgggctg cctgggtcaag gactacttcc ccgaaccggg gacgggtgtcg tggaactcag      480
gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca ggactctact      540
ccctcagcag cgtgggtgacc gtgccctcca gcagcttggg caccagacc tacatctgca      600

```

acgtgaatca caagcccagc aacaccaagg tggacaagag agttgagccc aaatcttgtg	660
acaaaactca cacatgcccac ccgtgcccag cacctgaagc cgaagggggcc ccgtcagtct	720
tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggacccct gaggtcacat	780
gcgtggtggt ggacgtgagc cacgaagacc ctgagggtcaa gttcaactgg tacgtggacg	840
gcgtggaggt gcataatgcc aagacaaagc gcgaggagga gcagtacaac agcacgtacc	900
gtgtggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag gagtacaagt	960
gcaagggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc aaagccaaag	1020
ggcagccccg agaaccacag gtgtacaccc tgccccatc ccgggaggag atgaccaaga	1080
accagggtcag cctgacctgc ctgggtcaaag gcttctatcc cagcgacatc gccgtggagt	1140
gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg ctggactccg	1200
acggctcctt cttcctctat agcaagctca ccgtggacaa gagcagggtgg cagcagggga	1260
acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg cagaagagcc	1320
tctccctgtc cccgggttga	1340

<210> 157
 <211> 1341
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 8C4 IgG1.3f HC (no C-terminal K)

<400> 157	
cagggtgcagc tgcaggagtc gggcccagga ctgggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctgggtg ctccatcagt cgttactact ggagctggat ccggcagccc	120
ccagggaagg gactggagtg gattgggtat atccattaca ctgggagcac caactacaac	180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg	240
aagctgagct ctgtgaccgc agcggacacg gccgtgtatt actgtgcgac agatacgggc	300
tactacggta tggacgtctg gggccaaggg accacgggtca ccgtctcctc agctagcacc	360
aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg	420
gccctgggct gcctggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca	480
ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac	540

```

tccctcagca gcgtggtgac cgtgccctcc agcagcttgg gcacccagac ctacatctgc      600
aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc caaatcttgt      660
gacaaaactc acacatgccc accgtgcccga gcacctgaag ccgaagggggc cccgtcagtc      720
ttcctcttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca      780
tgcgtggtgg tggacgtgag ccacgaagac cctgagggtca agttcaactg gtacgtggac      840
ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagtacaa cagcacgtac      900
cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag      960
tgcaagggtct ccaacaaagc cctcccagcc cccatcgaga aaaccatctc caaagccaaa     1020
gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag     1080
aaccagggtca gcctgacctg cctggtcaaa ggcttctatc ccagcgacat cgccgtggag     1140
tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt gctggactcc     1200
gacggctcct tcttctctta tagcaagctc accgtggaca agagcagggtg gcagcagggg     1260
aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc     1320
ctctccctgt ccccggttg a                                     1341

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```

<210> 158
<211> 1359
<212> DNA
<213> Artificial Sequence

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<220>
<223> Antibody 17C3 IgG1.3f HC (no C-terminal K)

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```

<400> 158
cagggtgcagt tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaaggtc      60
tcctgcaagg catctggata cactttcacc agctactata tgcactgggt gcgacaggcc     120
cctggacaag ggcttgagtg gatgggaata atcaacccta ggggtgatag cataatctac     180
gcacagaagt tccagggcag agtcacatg accagggaca cgtccacgag cacagtctac     240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagatttc     300
tatggttcgg gaaactacta ctacggtatg gacgtctggg gccaaaggac cacggtcacc     360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc     420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg     480

```

acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtgggtggtg gacgtgagcc acgaagaccc tgaggtcaag 840
 ttcaactggt acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag 900
 cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggttga 1359

<210> 159
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 IgG1.3f HC (no C-terminal K)

<400> 159
 caggtgcagc tgggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc 60
 tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct 120
 ccagggaagg ggctggagtg ggtttcattc attagtggtg gtggtagtag catatactac 180
 gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcgctgttt 240
 ctgcaaatga acagcctgag agtcgaggac acggctgtgt attactgtgc gagagatggc 300
 tatagcagtg gctggtacta ctacggtatg gacgtctggg gccaaggagc gcgggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc 420

```

acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc      600
accagacctt acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttagaccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtgggtggg gacgtgagcc acgaagacc tgaggtcaag      840
ttcaactggg acgtggacgg cgtggagggt cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgagg tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggttga                             1359

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<210> 160
<211> 1362
<212> DNA
<213> Artificial Sequence

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```

<220>
<223> Antibody 3G4 IgG1.3f HC (no C-terminal K)

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```

<400> 160
caggtgcagc tgggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc      60
tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct     120
ccagggaagg ggctggagtg ggtttcattc attagtacta gtggtagtat catatactac     180
gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctactgtat     240
ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagaaggg     300
tatagcagca gctggctcta ctactacgg atggacgtct ggggccaagg gaccacggct     360

```


accgtctcct cagctagcac caagggccca tcggtcttcc ccctggcacc ctcctccaag 420
 agcacctctg ggggcacagc ggccctgggc tgcctgggtca aggactactt ccccgaaccg 480
 gtgacggtgt cgtggaactc aggcgccctg accagcggcg tgcacacctt cccggctgtc 540
 ctacagtcct caggactcta ctccctcagc agcgtgggtga ccgtgccctc cagcagcttg 600
 ggcacccaga cctacatctg caacgtgaat cacaagccca gcaacaccaa ggtggacaag 660
 agagttgagc ccaaattctt tgacaaaact cacacatgcc caccgtgccc agcacctgaa 720
 gccgaagggg ccccgctcagt cttcctcttc cccccaaaac ccaaggacac cctcatgac 780
 tcccggaccc ctgaggtcac atgcgtgggtg gtggacgtga gccacgaaga ccctgaggtc 840
 aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa gccgcgggag 900
 gagcagtaca acagcacgta ccgtgtgggtc agcgtcctca ccgtcctgca ccaggactgg 960
 ctgaatggca aggagtacaa gtgcaagggtc tccaacaaag ccctcccagc ccccatcgag 1020
 aaaaccatct ccaaagccaa agggcagccc cgagaaccac aggtgtacac cctgccccca 1080
 tcccgggagg agatgaccaa gaaccagggtc agcctgacct gcctgggtcaa aggcttctat 1140
 cccagcgaca tcgccgtgga gtgggagagc aatgggcagc cggagaacaa ctacaagacc 1200
 acgcctcccg tgctggactc cgacggctcc ttcttcctct atagcaagct caccgtggac 1260
 aagagcaggt ggcagcaggg gaacgtcttc tcatgctccg tgatgcatga ggctctgcac 1320
 aaccactaca cgcagaagag cctctccctg tccccgggtt ga 1362

<210> 161
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 17C8 IgG1.3f HC (no C-terminal K)

<400> 161
 caggtgcagc tgggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc 60
 tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct 120
 ccagggaagg ggctggagtg ggtttcattc attagtagta gtggtagtat catatactac 180
 gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctactgtat 240
 ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagatggg 300

tatagcagtg gctgggagta ctacggtatg gacgtctggg gccaaaggac cacggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtgggtggg gacgtgagcc acgaagaccc tgagggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc	1080
cgggaggaga tgaccaagaa ccaggctcagc ctgacctgcc tgggtcaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 162

<211> 648

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3, 17C3, 3G4 LC

<400> 162

gaaatttgtg tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc	60
ctctcctgca gggccagtca gagggttagc agcagctact tagcctggta ccagcagaaa	120
cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca	180
gacaggttca gtggcagtggt gtctgggaca gacttcactc tcaccatcag cagactggag	240

cctgaagatt ttgcagtgtg ttactgtcag cagtatggta gctcaccgat caccttcggc 300
 caagggaacac gactggagat taaacgtacg gtggctgcac catctgtctt catcttcccg 360
 ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgcctgct gaataacttc 420
 tatcccagag aggccaaagt acagtggaag gtggataacg ccctccaatc gggtaactcc 480
 caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcaccctg 540
 acgctgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag 600
 ggcttgagct cgcccgtcac aaagagcttc aacaggggag agtgtag 648

<210> 163
 <211> 648
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9, 8C4, 17C8 LC

<400> 163
 gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60
 ctctcctgca gggccagtca gagtgtagc agcagctact tagcctggta ccagcagaaa 120
 cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180
 gacaggttca gtggcagtggt gtctgggaca gacttcactc tcaccatcag cagactggag 240
 cctgaagatt ttgcagtgtg ttactgtcag cagtatggta gctcacctct cactttcggc 300
 ggagggacca aggtggagat caaacgtacg gtggctgcac catctgtctt catcttcccg 360
 ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgcctgct gaataacttc 420
 tatcccagag aggccaaagt acagtggaag gtggataacg ccctccaatc gggtaactcc 480
 caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcaccctg 540
 acgctgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag 600
 ggcttgagct cgcccgtcac aaagagcttc aacaggggag agtgtag 648

<210> 164
 <211> 648
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (VK3) LC

<400> 164
gaaatttgtt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60
ctctcctgca gggccagtca gagggttagc agcagctact tagcctggta ccagcagaaa 120
cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180
gacaggttca gtggcagtggt gtctgggaca gacttcactc tcaccatcag cagactggag 240
cctgaagatt ttgcagtgtt ttactgtcag cagtattggt gctcaccgct cactttcggc 300
ggagggacca aggtggagat caaacgtacg gtggctgcac catctgtctt catcttccc 360
ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgcctgct gaataacttc 420
tatccagag aggccaaagt acagtggag gtggataacg cctccaatc gggttaactcc 480
caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcaccctg 540
acgctgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag 600
ggcctgagct cgcccgtcac aaagagcttc aacaggggag agtgtag 648

<210> 165
<211> 645
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody 9F6 (VK1) LC

<400> 165
gccatccagt tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gggcattagc agtgcttttag cctgggtatca gcagaaacca 120
gggaaagctc ctaagctcct gatctatgat gcctccagtt tggaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagat ttactctca ccatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtcaacag tttaatagtt accctcggac gttcggccaa 300
gggaccaagg tggaatcaa acgtacggtg gctgcacat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
cccagagagg ccaaagtaca gtggaagggtg gataacgcc tccaatcggg taactccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600

ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag 645

<210> 166
 <211> 645
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (VK2) LC

<400> 166
 gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60
 ctctcctgca gggccagtca gagtgttagc agcagctact tagcctggta ccagcagaaa 120
 cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180
 gacaggttca gtggcagtggt gtctgggaca gacttcactc tcaccatcag cagactggag 240
 cctgaagatt ttgcagtgtta ttactgtcag cagtatggta gctcactcac tttcggcgga 300
 gggaccaagg tggagatcaa acgtacgggtg gctgcaccat ctgtcttcat cttcccgcca 360
 tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
 cccagagagg ccaaagtaca gtggaagggtg gataacgccc tccaatcggg taactcccag 480
 gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
 ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
 ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag 645

<210> 167
 <211> 369
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 VH

<400> 167
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tacaacccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300

gggccctacg gtgactacgc ccactggttc gacccctggg gccagggaac cctggtcacc 360
gtctcctca 369

<210> 168
<211> 351
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody 8B9 VH

<400> 168
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctgggtg ctccatcagt cgtcactact ggaactggat ccggcagccc 120
ccagggaagg gactggagtg gattgggtat atccattaca gtggaagcac caactacaat 180
tcctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
aagctgagct ctgtgaccgc tgcggacacg gccgtgtatt actgtgcgag agatactggg 300
tactacggta tggacatctg gggccaaggg accacgggtca ccgtctcctc a 351

<210> 169
<211> 351
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody 8C4 VH

<400> 169
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctgggtg ctccatcagt cgttactact ggagctggat ccggcagccc 120
ccagggaagg gactggagtg gattgggtat atccattaca ctgggagcac caactacaac 180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
aagctgagct ctgtgaccgc agcggacacg gccgtgtatt actgtgcgac agatacgggc 300
tactacggta tggacgtctg gggccaaggg accacgggtca ccgtctcctc a 351

<210> 170
<211> 369
<212> DNA
<213> Artificial Sequence

<220>

<223> Antibody 17C3 VH

<400> 170

caggtgcagt tgggtgcagtc tggggctgag gtgaagaagc ctggggcctc agtgaaggtc	60
tcctgcaagg catctggata cactttcacc agctactata tgcactgggt gcgacaggcc	120
cctggacaag ggcttgagtg gatgggaata atcaacccta ggggtgatag cataatctac	180
gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag cacagtctac	240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagagatttc	300
tatggttcgg gaaactacta ctacggtatg gacgtctggg gccaagggaac cacggtcacc	360
gtctcctca	369

<210> 171

<211> 375

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 9F6 VH

<400> 171

cagtgtcagg tgcagctggg ggagtcctgg ggaggcttgg tcaagcctgg agggccctg	60
agactctcct gtgcagcctc tggattcacc ttcagtgact actacatgag ctggatccgc	120
caggctccag ggaaggggct ggagtgggtt tcattcatta gtggtgggtg tagtaccata	180
tactacgcag actctgtgaa gggccgattc accatctcca gggacaacgc caagaactcg	240
ctgtttctgc aaatgaacag cctgagagtc gaggacacgg ctgtgtatta ctgtgcgaga	300
gatggctata gcagtggctg gtactactac ggtatggacg tctggggcca agggaccgcg	360
gtcaccgtct cctca	375

<210> 172

<211> 378

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 3G4 VH

<400> 172

cagtgtcagg tgcagctggg ggagtcctgg ggaggcttgg tcaagcctgg agggccctg	60
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agactctcct gtgcagcctc tggattcacc ttcagtgact actacatgag ctggatccgc      120
caggctccag ggaaggggct ggagtgggtt tcattcatta gtactagtgg tagtatcata      180
tactacgcag actctgtgaa gggccgattc accatctcca gggacaacgc caagaactca      240
ctgtatctgc aaatgaacag cctgagagcc gaggacacgg ctgtgtatta ctgtgcgaga      300
gaagggtata gcagcagctg gtcctactac tacggtatgg acgtctgggg ccaagggacc      360
acggtcaccg tctcctca                                                    378

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```

<210> 173
<211> 375
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Antibody 17C8 VH

```

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<400> 173
cagtgtcagg tgcagctggt ggagtctggg ggaggcttgg tcaagcctgg agggtccttg      60
agactctcct gtgcagcctc tggattcacc ttcagtgact actacatgag ctggatccgc      120
caggctccag ggaaggggct ggagtgggtt tcattcatta gtagtagtgg tagtatcata      180
tactacgcag actctgtgaa gggccgattc accatctcca gggacaacgc caagaactca      240
ctgtatctgc aaatgaacag cctgagagcc gaggacacgg ctgtgtatta ctgtgcgaga      300
gatgggtata gcagtggctg ggagtactac ggtatggacg tctggggcca agggaccacg      360
gtcaccgtct cctca                                                    375

```

```

<210> 174
<211> 21
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Antibody 13A3 CDR1 (VH) and variants (N60Q; N60S; N60A; D101E;
      P102V; P102Y; P102L; N60Q and P102Y; 13A3 (N60Q, D101E))

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<400> 174
agtagaagtt actactgggg c                                                    21

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<210> 175
<211> 15
<212> DNA
<213> Artificial Sequence

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<220>
 <223> Antibody 8B9 CDR1 (VH) and 8B9 (S61P) variant

<400> 175
 cgtcactact ggaac 15

<210> 176
 <211> 15
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 8C4 CDR1 (VH)

<400> 176
 cgttactact ggagc 15

<210> 177
 <211> 15
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 17C3 CDR1 (VH)

<400> 177
 agctactata tgcac 15

<210> 178
 <211> 15
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 CDR1 (VH), 9F6 (A108T) variant, 3G4 and 17C8

<400> 178
 gactactaca tgagc 15

<210> 179
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 CDR2 (VH) and variants (D101E, P102V, P102Y, and P102L)

<400> 179

agtatctatt atagtgggtt cacctactac aaccggtccc tcaagagt 48

<210> 180
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 CDR2 (VH)

<400> 180
 tatatccatt acagtgggaag caccaactac aattcctccc tcaagagt 48

<210> 181
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 8C4 CDR2 (VH)

<400> 181
 tatatccatt aactgggag caccaactac aaccctccc tcaagagt 48

<210> 182
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 17C3 CDR2 (VH)

<400> 182
 ataatcaacc ctaggggtga tagcataatc tacgcacaga agttccaggg c 51

<210> 183
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 CDR2 (VH) and 9F6 (A108T) variant

<400> 183
 ttcattagtg gtggtggtag taccatatac tacgcagact ctgtgaaggg c 51

<210> 184
 <211> 51
 <212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 3G4 CDR2 (VH)

<400> 184

ttcattagta ctagtggtag tatcatatac tacgcagact ctgtgaaggg c 51

<210> 185

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 17C8 CDR2 (VH)

<400> 185

ttcattagta gtagtggtag tatcatatac tacgcagact ctgtgaaggg c 51

<210> 186

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 CDR3 (VH) and variants (N60Q, N60S, N60A)

<400> 186

ggggggccct acggtgacta cgcccactgg ttcgacccc 39

<210> 187

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 8B9 CDR3 (VH) and 8B9 (S61P) variant

<400> 187

gatactgggt actacggtat ggacatc 27

<210> 188

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 8C4 CDR3 (VH)

<400> 188

gatacgggct actacgggtat ggacgtc 27

<210> 189
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 17C3 CDR3 (VH)

<400> 189
 gatttctatg gttcgggaaa ctactactac ggtatggacg tc 42

<210> 190
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 CDR3 (VH) and 9F6 (A108T) variant

<400> 190
 gatggctata gcagtggctg gtactactac ggtatggacg tc 42

<210> 191
 <211> 45
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 3G4 CDR3 (VH)

<400> 191
 gaagggtata gcagcagctg gtcctactac tacggtatgg acgtc 45

<210> 192
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 17C8 CDR3 (VH)

<400> 192
 gatgggtata gcagtggctg ggagtactac ggtatggacg tc 42

<210> 193
 <211> 324
 <212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3, 17C3, 3G4 VL

<400> 193

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gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc      60
ctctcctgca gggccagtca gagggttagc agcagctact tagcctggta ccagcagaaa      120
cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca      180
gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag      240
cctgaagatt ttgcagtgtg ttactgtcag cagtatggta gctcaccgat caccttcggc      300
caagggacac gactggagat taaa                                           324

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<210> 194

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 8B9, 8C4, 17C8 , 9F6 (VK3) VL

<400> 194

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gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc      60
ctctcctgca gggccagtca gagggttagc agcagctact tagcctggta ccagcagaaa      120
cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca      180
gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag      240
cctgaagatt ttgcagtgtg ttactgtcag cagtatggta gctcaccgct cactttcggc      300
ggagggacca aggtggagat caaa                                           324

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<210> 195

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (VK1) VL

<400> 195

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gccatccagt tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc      60
atcacttgcc gggcaagtca gggcattagc agtgctttag cctggatatca gcagaaacca      120

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gggaaagctc ctaagctcct gatctatgat gcctccagtt tggaaagtgg ggtcccatca 180
 aggttcagcg gcagtggatc tgggacagat ttactctca ccatcagcag cctgcagcct 240
 gaagattttg caacttatta ctgtcaacag tttaatagtt accctcggac gttcggccaa 300
 gggaccaagg tggaaatcaa a 321

<210> 196
 <211> 321
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (VK2) VL

<400> 196
 gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60
 ctctcctgca gggccagtca gagtgttagc agcagctact tagcctggta ccagcagaaa 120
 cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180
 gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
 cctgaagatt ttgcagtgta ttactgtcag cagtatggta gctcactcac tttcggcgga 300
 gggaccaagg tggagatcaa a 321

<210> 197
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3, 8B9, 8C4, 17C3, 9F6 (VK2, VK3), 3G4, 17C8 CDR1 (VL)

<400> 197
 agggccagtc agagtgttag cagcagctac ttagcc 36

<210> 198
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (VK1) CDR1 (VL)

<400> 198
 cgggcaagtc agggcattag cagtgcctta gcc 33

<210> 199
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antibody 13A3, 8B9, 8C4, 17C3, 9F6 (VK2, VK3), 3G4, 17C8 CDR2 (VL)

 <400> 199
 ggtgcatcca gcagggccac t 21

 <210> 200
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antibody 9F6 (VK1) CDR2 (VL)

 <400> 200
 gatgcctcca gtttggaag t 21

 <210> 201
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antibody 13A3, 17C3, 3G4 CDR3 (VL)

 <400> 201
 cagcagtatg gtagctcacc gatcacc 27

 <210> 202
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antibody 8B9, 8C4, 9F6 (VK3), 17C8 CDR3 (VL)

 <400> 202
 cagcagtatg gtagctcacc gctcact 27

 <210> 203
 <211> 27
 <212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (VK1) CDR3 (VL)

<400> 203

caacagttta atagttaccc tcggacg 27

<210> 204

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (VK2) CDR3 (VL)

<400> 204

cagcagtatg gtagctcact cact 24

<210> 205

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q) IgG1.1f HC

<400> 205

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60

acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120

cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180

taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240

tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300

gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaac cctggtcacc 360

gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacccctc ctccaagagc 420

acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg 480

acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540

cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600

accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660

gttagaccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720


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gaaggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag      840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggtaa at ga                        1362

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<210> 206
<211> 1362
<212> DNA
<213> Artificial Sequence

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```

<220>
<223> Antibody 13A3 (N60S) IgG1.1f HC

```

```

<400> 206
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc      60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc     120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac     180
tactcacctg ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc     240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg     300
gggccctacg gtgactacgc ccactggttc gacccttggg gccagggaac cctggtcacc     360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacctc ctccaagagc     420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg     480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta     540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc     600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga     660

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gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtgggtggtg gacgtgagcc acgaagaccc tgagggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggctctcc aacaaagccc tcccaagcag catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 207

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60A) IgG1.1f HC

<400> 207

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcgagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tacgcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600

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accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtgggtgggtg gacgtgagcc acgaagaccc tgaggtcaag      840
ttcaactgggt acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga                        1362

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<210> 208

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (D101E) IgG1.1f HC

<400> 208

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cagctgcagc tgcaggagtc gggcccagga ctggatgaagc cttcggagac cctgtccctc      60
acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc      120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtcaa gaaccagttc      240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300
gggccctacg gtgactacgc cactgggttc gaacctggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctggatcaagg actacttccc cgaaccggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540

```

cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaaggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag 840
 ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag 900
 cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga 1362

<210> 209
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (P102V) IgG1.1f HC

<400> 209
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc cactggttc gacgtatggg gccagggaac cctggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg 480

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acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc      600
accagacctt acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag      840
ttcaactggt acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaata ga                       1362

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<210> 210
<211> 1362
<212> DNA
<213> Artificial Sequence

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<220>
<223> Antibody 13A3 (P102Y) IgG1.1f HC

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```

<400> 210
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcgagac cctgtccctc      60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc     120
cagccccagc ggaaggggct ggagtggatt gggagtatct attatagtg gttcacctac     180
tacaacccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc     240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg     300
gggccctacg gtgactacgc ccactggttc gactactggg gccaggggaa cctggtcacc     360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc     420

```

acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg 480
 acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtgggtgggtg gacgtgagcc acgaagacc tgagggtcaag 840
 ttcaactgggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag 900
 cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccaagcag catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga 1362

<210> 211
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (P102L) IgG1.1f HC

<400> 211
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gacctatggg gccagggaac cctggtcacc 360

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gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctggtaagg actacttccc cgaaccgggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc      600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag      840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag      1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag      1260
agcagggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac      1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga                        1362

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<210> 212
<211> 1362
<212> DNA
<213> Artificial Sequence

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<220>
<223> Antibody 13A3 (N60Q, P102Y) IgG1.1f HC

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```

<400> 212
cagctgcagc tgcaggagtc gggcccagga ctggtaagc cttcggagac cctgtccctc      60
acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc      120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc      240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300

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gggccctacg gtgactacgc ccactggttc gactactggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc      600
accagacctt acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc ccaaaacca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtgggtggg gacgtgagcc acgaagaccc tgagggtcaag      840
ttcaactggg acgtggacgg cgtggagggt cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga                        1362

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```

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

```

```

<220>
<223> Antibody 8B9 (S61P) IgG1.1f HC

```

```

<400> 213
caggtgcagc tgcaggagtc gggcccagga ctgggtgaagc cttcggagac cctgtccctc      60
acctgcactg tctctgggtg ctccatcagt cgtcactact ggaactggat ccggcagccc     120
ccagggaagg gactggagtg gattgggtat atccattaca gtggaagcac caactacaat     180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg     240

```



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aagctgagct ctgtgaccgc tgcggacacg gccgtgtatt actgtgagag agatactggg      300
tactacggta tggacatctg gggccaaggg accacgggtca ccgtctcctc agctagcacc      360
aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg      420
gccctgggct gcctgggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca      480
ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac      540
tccctcagca gcgtgggtgac cgtgccctcc agcagcttgg gcacccagac ctacatctgc      600
aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc caaatcttgt      660
gacaaaactc acacatgccc accgtgcccc gcacctgaag ccgaagggggc cccgtcagtc      720
ttcctcttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca      780
tgcgtgggtg tggacgtgag ccacgaagac cctgaggtca agttcaactg gtacgtggac      840
ggcgtggagg tgcataatgc caagacaaag ccgcggggagg agcagtacaa cagcacgtac      900
cgtgtgggtc gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag      960
tgcaaggtct ccaacaaagc cctcccaagc agcatcgaga aaaccatctc caaagccaaa     1020
gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag     1080
aaccagggtc gcctgacctg cctgggtcaaa ggcttctatc ccagcgacat cgccgtggag     1140
tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt gctggactcc     1200
gacggctcct tcttcctcta tagcaagctc accgtggaca agagcagggtg gcagcagggg     1260
aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc     1320
ctctccctgt ccccggttaa atga                                             1344

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<210> 214

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (A108T) IgG1.1f HC

<400> 214

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cagggtgcagc tgggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc      60
tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct      120
ccagggaagg ggctggagtg ggtttcattc attagtgggtg gtggtagtac catatactac      180

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gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcgctgttt 240
ctgcaaatga acagcctgag agtcgaggac acggctgtgt attactgtgc gagagatggc 300
tatagcagtg gctggtacta ctacggtatg gacgtctggg gccaaaggac cacggtcacc 360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacccctc ctccaagagc 420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg 480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
gaaggggccc cgtcagtctt cctcttcccc caaaaacca aggacaccct catgatctcc 780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag 840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag 900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa 1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc 1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaaagg cttctatccc 1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac 1320
cactacacgc agaagagcct ctccctgtcc ccgggtaa at ga 1362

<210> 215

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q) IgG1.1f HC (no C-terminal K)

<400> 215

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcgagac cctgtccctc 60

acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120

```

cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc      240
tccttgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300
gggccctacg gtgactacgc cacttggttc gacccctggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg      480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc      600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaaggggccc cgtcagtcct cctcttcccc caaaaacca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag      840
ttcaactggt acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggttga                             1359

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<210> 216

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60S) IgG1.1f HC (no C-terminal K)

<400> 216

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cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcgagac cctgtccctc      60

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acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc      120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
tactcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc      240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300
gggccctacg gtgactacgc cactgggttc gaccctggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccgggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc      600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc caaaaacca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag      840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggttga                             1359

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<210> 217

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60a) IgG1.1f HC (no C-terminal K)

<400> 217

```

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc      60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc      120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
tacgcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc      240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300
gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc      600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc caaaaacca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtgggtggtg gacgtgagcc acgaagacc tgaggtcaag      840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggttga                               1359

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<210> 218

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (D101E) IgG1.1f HC (no C-terminal K)

<400> 218
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gaaccctggg gccagggaac cctggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg 480
 acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaagggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgagggtcaag 840
 ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag 900
 cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccaagcag catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccagc 1200
 cctcccgtgc tggactccga cggctccttc ttctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcagaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggttga 1359

<210> 219
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102V) IgG1.1f HC (no C-terminal K)

<400> 219

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccactggttc gacgtatggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtctttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtctt cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag	1200
cctcccgtgc tggactccga cggctccttc ttctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 220

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102Y) IgG1.1f HC (no C-terminal K)

<400> 220

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc cactgggttc gactactggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtctt cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtgggtggg gacgtgagcc acgaagacc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggt cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagt caaggtctcc aacaaagccc tccaagcag catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 221

<211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102L) IgG1.1f HC (no C-terminal K)

<400> 221

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cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc      60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc      120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc      240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300
gggccctacg gtgactacgc cacttggttc gacctatggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg      480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc      600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaagggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc caaaaacca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag      840
ttcaactggt acgtggacgg cgtggagggt cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcagaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggttga                               1359

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<210> 222
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60Q, P102Y) IgG1.1f HC (no C-terminal K)

<400> 222
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gactactggg gccagggaac cctggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg 480
 acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaaggggccc cgtcagtctt cctcttcccc caaaaccca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag 840
 ttcaactggt acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag 900
 cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac 1320

cactacacgc agaagagcct ctccctgtcc ccgggttga 1359

<210> 223

<211> 1341

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 8B9 (S61P) IgG1.1f HC (no C-terminal K)

<400> 223

caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60

acctgcactg tctctggtgg ctccatcagt cgtcactact ggaactggat ccggcagccc 120

ccagggaagg gactggagtg gattgggtat atccattaca gtggaagcac caactacaat 180

ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240

aagctgagct ctgtgaccgc tgcggacacg gccgtgtatt actgtgcgag agatactggg 300

tactacggta tggacatctg gggccaaggg accacgggtca ccgtctcctc agctagcacc 360

aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg 420

gccctgggct gcctgggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca 480

ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac 540

tcctctagca gcgtggtgac cgtgccctcc agcagcttgg gcacccagac ctacatctgc 600

aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc caaatcttgt 660

gacaaaactc acacatgccc accgtgcccc gcacctgaag ccgaagggggc cccgtcagtc 720

ttcctcttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca 780

tgcgtggtgg tggacgtgag ccacgaagac cctgaggtca agttcaactg gtacgtggac 840

ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagtacaa cagcacgtac 900

cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag 960

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aaccaggtca gcctgacctg cctggtcaaa ggcttctatc ccagcgacat cgccgtggag 1140

tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt gctggactcc 1200

gacggctcct tcttctctta tagcaagctc accgtggaca agagcaggtg gcagcagggg 1260

aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc 1320
 ctctccctgt ccccggttg a 1341

<210> 224
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (A108T) IgG1.1f HC (no C-terminal K)

<400> 224
 caggtgcagc tgggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc 60
 tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct 120
 ccagggaagg ggctggagtg ggtttcattc attagtgggtg gtggtagtac catatactac 180
 gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcgctgttt 240
 ctgcaaatga acagcctgag agtcgaggac acggctgtgt attactgtgc gagagatggc 300
 tatagcagtg gctggtacta ctacggtatg gacgtctggg gccaaaggac cacggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg 480
 acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaagggggccc cgtcagtcct cctcttcccc ccaaaacca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtgggtgggtg gacgtgagcc acgaagacc tgaggtcaag 840
 ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag 900
 cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccaagcag catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200

cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 225
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60Q) IgG1.3f HC

<400> 225	
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtctt cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtgggtg gacgtgagcc acgaagacc tgaggtcaag	840
ttcaactgggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140

agcgacatcg ccgtaggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaata ga	1362

<210> 226

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60S) IgG1.3f HC

<400> 226

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acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tactcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaaggggccc cgtcagtcct cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtgggtg gacgtgagcc acgaagacc tgaggtcaag	840
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cagtacaaca gcacgtaccg tgtggtcagc gtcttcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc	1080

cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcagaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 227
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60A) IgG1.3f HC

<400> 227	
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acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tacgcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc cactgggttc gacccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtcct cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggt cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc acaaagccc tcccagcccc catcgagaaa	1020

accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcagggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 228
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (D101E) IgG1.3f HC

<400> 228	
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acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc cacttggttc gaacctggg gccaggggaa cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagttt cctcttcccc caaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgagggtcaag	840
ttcaactggt acgtggacgg cgtggagggt cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960

aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 229

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102V) IgG1.3f HC

<400> 229

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acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtg gttcacctac	180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc cactgggttc gacgtatggg gccaggggaa cctgggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaaggggccc cgtcagtcct cctcttcccc caaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgagggtcaag	840
ttcaactggc acgtggacgg cgtggagggt cataatgcca agacaaagcc gcgggaggag	900

cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga 1362

<210> 230
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (P102Y) IgG1.3f HC

<400> 230
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 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gactactggg gccagggaac cctggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg 480
 acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgccac cgtgcccagc acctgaagcc 720
 gaaggggccc cgtcagtctt cctcttcccc ccaaaacca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtggtgggtg gacgtgagcc acgaagacc tgaggtcaag 840

ttcaactggt acgtggacgg cgtggagggtg cataatgcc aagacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcagggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 231
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (P102L) IgG1.3f HC

<400> 231	
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acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtcaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccga gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc cactgggtc gacctatggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acgggtgtcgt ggaactcagg cgcctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttagaccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggcc cgtcagtcct cctcttcccc ccaaaacca aggacaccct catgatctcc	780

cggacccctg aggtcacatg cgtgggtggtg gacgtgagcc acgaagaccc tgaggtcaag 840
 ttcaactggt acgtggacgg cgtggagggtg cataatgcc aagacaaagcc gcggggaggag 900
 cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc 1080
 cgggaggaga tgaccaagaa ccagggtcagc ctgacctgcc tgggtcaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga 1362

<210> 232
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60Q, P102Y) IgG1.3f HC

<400> 232
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 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gactactggg gccagggaac cctggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg 480
 acggtgtcgt ggaactcagg gcacctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720

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gaaggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag      840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaata ga                       1362

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<210> 233
<211> 1344
<212> DNA
<213> Artificial Sequence

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<220>
<223> Antibody 8B9 (S61P) IgG1.3f HC

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<400> 233
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ccagggaagg gactggagtg gattgggtat atccattaca gtggaagcac caactacaat     180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg     240
aagctgagct ctgtgaccgc tgcggacacg gccgtgtatt actgtgcgag agatactggg     300
tactacggta tggacatctg gggccaaggg accacgggtca ccgtctcctc agctagcacc     360
aaggggccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg     420
gccctgggct gcctggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca     480
ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac     540
tcctcagca gcgtggtgac cgtgccctcc agcagcttgg gcacccagac ctacatctgc     600
aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc caaatcttgt     660

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gacaaaactc acacatgccc accgtgccc gcacctgaag ccgaaggggc cccgtcagtc 720
 ttctctttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca 780
 tgcgtggtgg tggacgtgag ccacgaagac cctgaggtca agttcaactg gtacgtggac 840
 ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagtacaa cagcacgtac 900
 cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag 960
 tgcaaggtct ccaacaaagc cctcccagcc cccatcgaga aaaccatctc caaagccaaa 1020
 gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag 1080
 aaccaggtca gcctgacctg cctggtcaaa ggcttctatc ccagcgacat cgccgtggag 1140
 tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt gctggactcc 1200
 gacggctcct tcttcctcta tagcaagctc accgtggaca agagcaggtg gcagcagggg 1260
 aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc 1320
 ctctccctgt ccccggttaa atga 1344

<210> 234
 <211> 1362
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (A108T) IgG1.3f HC

<400> 234
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 tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct 120
 ccagggaagg ggctggagtg ggtttcattc attagtgggtg gtggtagtag catatactac 180
 gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcgctgttt 240
 ctgcaaatga acagcctgag agtcgaggac acggctgtgt attactgtgc gagagatggc 300
 tatagcagtg gctggtacta ctacggtatg gacgtctggg gccaaggagc cacggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg 480
 acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600

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accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgagggtcaag      840
ttcaactggg acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc      1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg      1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag      1260
agcagggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga                        1362

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<210> 235
<211> 1359
<212> DNA
<213> Artificial Sequence

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<220>
<223> Antibody 13A3 (N60Q) IgG1.3f HC (no C-terminal K)

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<400> 235
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acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc      120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc      240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300
gggccctacg gtgactacgc cactgggttc gaccctggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540

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cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaagggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtgggtggg gacgtgagcc acgaagaccc tgaggtcaag 840
 ttcaactggg acgtggacgg cgtggagggt cataatgcca agacaaagcc gcgggaggag 900
 cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagt caaggtctcc aacaaagccc tcccagcccc catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggttga 1359

<210> 236
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60S) IgG1.3f HC (no C-terminal K)

<400> 236
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tactcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaac cctggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccgggtg 480

acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtgggtggtg gacgtgagcc acgaagaccc tgaggtcaag 840
 ttcaactggt acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag 900
 cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac 1320
 cactacacgc agaagagcct ctccctgtcc ccgggttga 1359

<210> 237
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60A) IgG1.3f HC (no C-terminal K)

<400> 237
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tacgcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gaccctggg gccaggggaac cctggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc 420

```

acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc      600
acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttagaccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtgggtgggt gacgtgagcc acgaagaccc tgagggtcaag      840
ttcaactgggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggttga                             1359

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<210> 238
<211> 1359
<212> DNA
<213> Artificial Sequence

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<220>
<223> Antibody 13A3 (D101E) IgG1.3f HC (no C-terminal K)

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```

<400> 238
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcgagac cctgtccctc      60
acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc     120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac     180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc     240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg     300
gggccctacg gtgactacgc ccactggttc gaaccctggg gccagggaac cctggtcacc     360

```

```

gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc      600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtgggtgggtg gacgtgagcc acgaagaccc tgaggtcaag      840
ttcaactgggt acgtggacgg cgtggagggtg cataatgcca agacaaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag      1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag      1260
agcagggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggttga      1359

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```

<210> 239
<211> 1359
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Antibody 13A3 (P102V) IgG1.3f HC (no C-terminal K)

```

```

<400> 239
cagctgcagc tgcaggagtc gggcccagga ctgggtgaagc cttcggagac cctgtccctc      60
acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc      120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc      240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300

```

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gggccctacg gtgactacgc ccactggttc gacgtatggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccgggtg      480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc      600
accagacctt acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtgggtggg gacgtgagcc acgaagaccc tgagggtcaag      840
ttcaactggg acgtggacgg cgtggagggt cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gcccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggttga                             1359

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<210> 240
<211> 1359
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Antibody 13A3 (P102Y) IgG1.3f HC (no C-terminal K)

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```

<400> 240
cagctgcagc tgcaggagtc gggcccagga ctgggtgaagc cttcggagac cctgtccctc      60
acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc     120
cagccccagc ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac     180
tacaaccgtt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc     240

```

tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc cacttggttc gactactggg gccaggggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcagggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 241

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (P102L) IgG1.3f HC (no C-terminal K)

<400> 241

cagctgcagc tgcaggagtc gggcccagga ctgggtgaagc cttcggagac cctgtccctc	60
--	----

acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
---	-----

cagccccag ggaaggggct ggagtggtt gggagtatct attatagtgg gttcacctac	180
---	-----

tacaacccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc cacttggttc gacctatggg gccaggggaa cctgggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccgggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgccac cgtgcccagc acctgaagcc	720
gaaggggccc cgtcagtcct cctcttcccc caaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgagggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggctctc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcagggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 242

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q, P102Y) IgG1.3f HC (no C-terminal K)

<400> 242

cagctgcagc tgcaggagtc gggcccagga ctgggtgaagc cttcggagac cctgtccctc	60
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acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
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cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc      240
tccttgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300
gggccctacg gtgactacgc ccactggttc gactactggg gccagggaac cctggtcacc      360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc      420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg      480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta      540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc      600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga      660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc      720
gaaggggccc cgtcagtcct cctcttcccc ccaaaacca aggacaccct catgatctcc      780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag      840
ttcaactggt acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag      900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg      960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa     1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc     1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc     1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag     1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag     1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac     1320
cactacacgc agaagagcct ctccctgtcc ccgggttga                             1359

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<210> 243
<211> 1341
<212> DNA
<213> Artificial Sequence

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<220>
<223> Antibody 8B9 (S61P) IgG1.3f HC (no C-terminal K)

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```

<400> 243
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc      60

```

```

acctgcactg tctctggtgg ctccatcagt cgtcactact ggaactggat ccggcagccc      120
ccaggggaagg gactggagtg gattgggtat atccattaca gtggaagcac caactacaat      180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg      240
aagctgagct ctgtgaccgc tgcggacacg gccgtgtatt actgtgcgag agatactggg      300
tactacggta tggacatctg gggccaaggg accacgggtca ccgtctcctc agctagcacc      360
aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg gggcacagcg      420
gccctgggct gcctgggtcaa ggactacttc cccgaaccgg tgacgggtgtc gtggaactca      480
ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc aggactctac      540
tcctcagca gcgtggtgac cgtgccctcc agcagcttgg gcacccagac ctacatctgc      600
aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc caaatcttgt      660
gacaaaactc acacatgccc accgtgccc a gcacctgaag ccgaaggggc cccgtcagtc      720
ttcctcttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca      780
tgctgtggtg tggacgtgag ccacgaagac cctgaggtca agttcaactg gtacgtggac      840
ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagtacaa cagcacgtac      900
cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag      960
tgcaaggtct ccaacaaagc cctcccagcc cccatcgaga aaaccatctc caaagccaaa     1020
gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag     1080
aaccaggtca gcctgacctg cctgggtcaaa ggcttctatc ccagcgacat cgccgtggag     1140
tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt gctggactcc     1200
gacggctcct tcttctctta tagcaagctc accgtggaca agagcaggtg gcagcagggg     1260
aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac gcagaagagc     1320
ctctccctgt ccccggttg a                                     1341

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<210> 244

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 9F6 (A108T) IgG1.3f HC (no C-terminal K)

<400> 244

caggtgcagc tgggtggagtc tgggggaggc ttggtcaagc ctggagggtc cctgagactc	60
tcctgtgcag cctctggatt caccttcagt gactactaca tgagctggat ccgccaggct	120
ccagggaagg ggctggagtg ggtttcattc attagtgggtg gtggtagtac catatactac	180
gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcgctgttt	240
ctgcaaatga acagcctgag agtcgaggac acggctgtgt attactgtgc gagagatggc	300
tatagcagtg gctgggtacta ctacgggtatg gacgtctggg gccaaaggac cacggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctgggtcaagg actacttccc cgaaccgggtg	480
acgggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtgggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtcct cctcttcccc caaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtgggtgggtg gacgtgagcc acgaagacc tgagggtcaag	840
ttcaactgggt acgtggacgg cgtggagggtg cataatgcc aagacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtgggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tgggtcaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 245

<211> 369

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q) VH

<400> 245
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaaac cctggtcacc 360
gtctcctca 369

<210> 246
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60S) VH

<400> 246
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
tactcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaaac cctggtcacc 360
gtctcctca 369

<210> 247
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60A) VH

<400> 247
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120

cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tacgcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gaccctggg gccagggaac cctggtcacc 360
 gtctcctca 369

<210> 248
 <211> 369
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (D101E) VH

<400> 248
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gaaccctggg gccagggaac cctggtcacc 360
 gtctcctca 369

<210> 249
 <211> 369
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (P102V) VH

<400> 249
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300

gggccctacg gtgactacgc ccactgggtc gacgtatggg gccagggaac cctggtcacc 360
gtctcctca 369

<210> 250
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (P102Y) VH

<400> 250
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
gggccctacg gtgactacgc ccactgggtc gactactggg gccagggaac cctggtcacc 360
gtctcctca 369

<210> 251
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (P102L) VH

<400> 251
cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
tacaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
gggccctacg gtgactacgc ccactgggtc gacctatggg gccagggaac cctggtcacc 360
gtctcctca 369

<210> 252

<211> 369
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60Q, P102Y) VH

<400> 252
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gactactggg gccagggaac cctggtcacc 360
 gtctcctca 369

<210> 253
 <211> 351
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 (S61P) VH

<400> 253
 caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagt cgtcactact ggaactggat ccggcagccc 120
 ccagggaagg gactggagtg gattgggtat atccattaca gtggaagcac caactacaat 180
 ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
 aagctgagct ctgtgaccgc tgcggacacg gccgtgtatt actgtgagag agatactggg 300
 tactacggta tggacatctg gggccaaggg accacgggtca ccgtctcctc a 351

<210> 254
 <211> 369
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 9F6 (A108T) VH

<400> 254

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cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc      60
acctgcactg tctctgggtg ctccatcagc agtagaagtt actactgggg ctggatccgc      120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac      180
tactcaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc      240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg      300
gggccctacg gtgactacgc ccactgggtc gaccctggg gccagggaac cctggtcacc      360
gtctcctca                                                                    369

```

```

<210> 255
<211> 48
<212> DNA
<213> Artificial Sequence

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```

<220>
<223> Antibodies 13A3 (N60Q), 13A3 (N60Q, P102Y), 13A3 (N60Q, D101E)
      CDR2 (VH)

```

```

<400> 255
agtatctatt atagtgggtt cacctactac caaccgtccc tcaagagt      48

```

```

<210> 256
<211> 48
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Antibody 13A3 (N60S) CDR2 (VH)

```

```

<400> 256
agtatctatt atagtgggtt cacctactac tcaccgtccc tcaagagt      48

```

```

<210> 257
<211> 48
<212> DNA
<213> Artificial Sequence

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```

<220>
<223> Antibody 13A3 (N60A) CDR2 (VH)

```

```

<400> 257
agtatctatt atagtgggtt cacctactac gcaccgtccc tcaagagt      48

```

```

<210> 258
<211> 48

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<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antibody 8B9 (S61P) CDR2 (VH)

 <400> 258
 tatatccatt acagtggaag caccaactac aatccctccc tcaagagt 48

<210> 259
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antibody 13A3 (D101E) CDR3 (VH)

 <400> 259
 ggggggcccct acggtgacta cgcccactgg ttcgaaccc 39

<210> 260
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antibody 13A3 (P102V) CDR3 (VH)

 <400> 260
 ggggggcccct acggtgacta cgcccactgg ttcgacgta 39

<210> 261
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antibodies 13A3 (P102Y), 13A3 (N60Q, P102Y), 13A3 (N60Q, D101E) CDR3 (VH)

 <400> 261
 ggggggcccct acggtgacta cgcccactgg ttcgactac 39

<210> 262
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antibody 13A3 (P102L) CDR3 (VH)

<400> 262
 ggggggcccct acggtgacta cgcccactgg ttcgaccta 39

<210> 263
 <211> 994
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> All antibodies HC Constant Domain (IgG1.1f)

<400> 263
 agctagcacc aaggggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg 60
 gggcacagcg gccctgggct gcctgggtcaa ggactacttc cccgaaccgg tgacgggtgtc 120
 gtggaactca ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc 180
 aggactctac tccctcagca gcgtgggtgac cgtgccctcc agcagcttgg gcaccagac 240
 ctacatctgc aacgtgaatc acaagcccag caacaccaag gtggacaaga gaggttgagcc 300
 caaatcttgt gacaaaactc acacatgccc accgtgcccga gcacctgaag ccgaagggggc 360
 cccgtcagtc ttcctcttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc 420
 tgaggtcaca tgcgtgggtgg tggacgtgag ccacgaagac cctgagggtca agttcaactg 480
 gtacgtggac ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagtacaa 540
 cagcacgtac cgtgtgggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa 600
 ggagtacaag tgcaagggtct ccaacaaagc cctcccaagc agcatcgaga aaaccatctc 660
 caaagccaaa gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga 720
 gatgaccaag aaccagggtca gcctgacctg cctgggtcaaa ggcttctatc ccagcgacat 780
 cgccgtggag tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccggt 840
 gctggactcc gacggctcct tcttcctcta tagcaagctc accgtggaca agagcagggtg 900
 gcagcagggg aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac 960
 gcagaagagc ctctccctgt ccccgggtaa atga 994

<210> 264
 <211> 991
 <212> DNA
 <213> Artificial Sequence

<220>

<223> All antibodies HC Constant Domain (IgG1.1f) (no C-terminal K)

<400> 264

```

agctagcacc aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg      60
gggcacagcg gccctgggct gcctgggtcaa ggactacttc cccgaaccgg tgacgggtgtc    120
gtggaactca ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc      180
aggactctac tccctcagca gcgtgggtgac cgtgccctcc agcagcttgg gcacccagac      240
ctacatctgc aacgtgaatc acaagcccag caacaccaag gtggacaaga gaggttgagcc      300
caaatcttgt gacaaaactc acacatgccc accgtgcccga gcacctgaag ccgaaggggc      360
cccgctcagtc ttctcttccc ccccaaaacc caaggacacc ctcatgatct cccggacccc      420
tgaggtcaca tgcgtgggtgg tggacgtgag ccacgaagac cctgagggtca agttcaactg      480
gtacgtggac ggcggtggagg tgcataatgc caagacaaag ccgcgggagg agcagtacaa      540
cagcacgtac cgtgtgggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa      600
ggagtacaag tgcaaggtct ccaacaaagc cctcccaagc agcatcgaga aaaccatctc      660
caaagccaaa gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga      720
gatgaccaag aaccagggtca gcctgacctg cctgggtcaaa ggcttctatc ccagcgacat      780
cgccgtggag tgggagagca atgggcagcc ggagaacaac tacaagacca cgctccccgt      840
gctggactcc gacggctcct tcttcctcta tagcaagctc accgtggaca agagcagggtg      900
gcagcagggg aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac      960
gcagaagagc ctctccctgt ccccggttg a                                     991

```

<210> 265

<211> 994

<212> DNA

<213> Artificial Sequence

<220>

<223> All antibodies HC Constant Domain (IgG1.3f)

<400> 265

```

agctagcacc aagggcccat cggctcttccc cctggcaccc tcctccaaga gcacctctgg      60
gggcacagcg gccctgggct gcctgggtcaa ggactacttc cccgaaccgg tgacgggtgtc    120
gtggaactca ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc      180

```

```

aggactctac tccctcagca gcgtggtgac cgtgccctcc agcagcttgg gcacccagac      240
ctacatctgc aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc      300
caaatcttgt gacaaaactc acacatgccc accgtgcccga gcacctgaag ccgaagggggc      360
cccgtcagtc ttcctcttcc ccccaaaaacc caaggacacc ctcatgatct cccggacccc      420
tgaggtcaca tgcgtggtgg tggacgtgag ccacgaagac cctgaggtca agttcaactg      480
gtacgtggac ggcggtggagg tgcataatgc caagacaaaag ccgcggggagg agcagtacaa      540
cagcacgtac cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa      600
ggagtacaag tgcaaggtct ccaacaaagc cctcccagcc cccatcgaga aaaccatctc      660
caaagccaaa gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga      720
gatgaccaag aaccaggtca gcctgacctg cctgggtcaaa ggcttctatc ccagcgacat      780
cgccgtggag tgggagagca atgggcagcc ggagaacaac tacaagacca cgctcccgt      840
gctggactcc gacggctcct tcttcctcta tagcaagctc accgtggaca agagcaggtg      900
gcagcagggg aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac      960
gcagaagagc ctctccctgt ccccgggtaa atga                                  994

```

<210> 266

<211> 991

<212> DNA

<213> Artificial Sequence

<220>

<223> All antibodies HC Constant Domain (IgG1.3f) (no C-terminal K)

<400> 266

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agctagcacc aaggggcccat cggtcttccc cctggcaccc tcctccaaga gcacctctgg      60
gggcacagcg gccctgggct gcctgggtcaa ggactacttc cccgaaccgg tgacggtgtc      120
gtggaactca ggcgccctga ccagcggcgt gcacaccttc ccggctgtcc tacagtcctc      180
aggactctac tccctcagca gcgtggtgac cgtgccctcc agcagcttgg gcacccagac      240
ctacatctgc aacgtgaatc acaagcccag caacaccaag gtggacaaga gagttgagcc      300
caaatcttgt gacaaaactc acacatgccc accgtgcccga gcacctgaag ccgaagggggc      360
cccgtcagtc ttcctcttcc ccccaaaaacc caaggacacc ctcatgatct cccggacccc      420
tgaggtcaca tgcgtggtgg tggacgtgag ccacgaagac cctgaggtca agttcaactg      480

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gtacgtggac ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagtacaa 540
 cagcacgtac cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaatggcaa 600
 ggagtacaag tgcaaggtct ccaacaaagc cctcccagcc cccatcgaga aaaccatctc 660
 caaagccaaa gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga 720
 gatgaccaag aaccagggtca gcctgacctg cctgggtcaaa ggcttctatc ccagcgacat 780
 cgccgtggag tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccgt 840
 gctggactcc gacggctcct tcttcctcta tagcaagctc accgtggaca agagcagggtg 900
 gcagcagggg aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac 960
 gcagaagagc ctctccctgt ccccggttg a 991

<210> 267
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Signal Peptide

<400> 267

Met	Asp	Trp	Thr	Trp	Arg	Val	Phe	Cys	Leu	Leu	Ala	Val	Ala	Pro	Gly
1				5					10					15	

Ala His Ser

<210> 268
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Signal Peptide

<400> 268

Met	Glu	Thr	Pro	Ala	Gln	Leu	Leu	Phe	Leu	Leu	Leu	Leu	Trp	Leu	Pro
1				5				10						15	

Asp Thr Thr Gly
 20

<210> 269
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Signal Peptide

<400> 269

Met	Lys	His	Leu	Trp	Phe	Phe	Leu	Leu	Leu	Val	Ala	Ala	Pro	Arg	Trp
1			5					10						15	

Val Leu Ser

<210> 270
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Signal Peptide

<400> 270

Met	Glu	Phe	Gly	Leu	Ser	Trp	Val	Phe	Leu	Val	Ala	Ile	Ile	Lys	Gly
1			5					10						15	

Val Gln Cys

<210> 271
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Signal Peptide

<400> 271

Met	Asp	Met	Arg	Val	Pro	Ala	Gln	Leu	Leu	Gly	Leu	Leu	Leu	Trp	Leu
1			5					10						15	

Pro Gly Ala Arg Cys
 20

<210> 272
 <211> 43
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Signal Peptide

 <400> 272
 atggactgga cctggagggt cttctgcttg ctggctgtag ctc 43

 <210> 273
 <211> 60
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Signal Peptide

 <400> 273
 atggaaaccc cagcgcagct tctcttcctc ctgctactct ggctcccaga taccaccgga 60

 <210> 274
 <211> 57
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Signal Peptide

 <400> 274
 atgaagcacc tgtggttctt cctcctgctg gtggcggctc ccagatgggt cctgtcc 57

 <210> 275
 <211> 51
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Signal Peptide

 <400> 275
 atggagtttg ggctgagctg ggttttcctt gttgctatta taaaagggtg c 51

 <210> 276
 <211> 66
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Signal Peptide

<400> 276

atggacatga ggggtccccgc tcagctcctg gggcttctgc tgctctggct cccaggtgcc 60

agatgt 66

<210> 277

<211> 330

<212> PRT

<213> Artificial Sequence

<220>

<223> human IgG1 (allotypic variant)

<400> 277

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

Arg 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 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 Glu Glu
225 230 235 240

Met 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 Lys
325 330

<210> 278
<211> 107
<212> PRT
<213> Homo sapiens

<400> 278

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> 279

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> C-terminal end of heavy chain

<400> 279

Leu Ser Pro Gly Lys
1 5

<210> 280

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> C-terminal end of heavy chain

<400> 280

Leu Ser Pro Gly
1

<210> 281
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> C-terminal end of heavy chain

<400> 281

Leu Ser Pro
1

<210> 282
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> VH CDR1 degenerate

<220>
<221> MISC_FEATURE
<222> (1)..(4)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (6)..(7)
<223> Xaa is any amino acid

<400> 282

Xaa Xaa Xaa Xaa Tyr Xaa Xaa
1 5

<210> 283
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> VH CDR2 degenerate

<220>
<221> MISC_FEATURE

<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (3)..(5)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (7)..(10)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (12)..(17)
<223> Xaa is any amino acid

<400> 283

Xaa	Ile	Xaa	Xaa	Xaa	Gly	Xaa	Xaa	Xaa	Xaa	Tyr	Xaa	Xaa	Xaa	Xaa	Xaa
1			5					10					15		

Xaa

<210> 284
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> VH CDR3 degenerate

<220>
<221> MISC_FEATURE
<222> (1)..(10)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (13)..(20)
<223> Xaa is any amino acid

<400> 284

Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Tyr	Gly	Xaa	Xaa	Xaa	Xaa
1				5					10					15	

Xaa Xaa Xaa Xaa

20

<210> 285
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL CDR1 degenerate

<220>
 <221> MISC_FEATURE
 <222> (3)..(4)
 <223> Xaa is any amino acid

<220>
 <221> MISC_FEATURE
 <222> (6)..(8)
 <223> Xaa is any amino acid

<400> 285

Gln Gln Xaa Xaa Ser Xaa Xaa Xaa Thr
 1 5

<210> 286
 <211> 300
 <212> PRT
 <213> Homo sapiens

<400> 286

Met Phe Ser His Leu Pro Phe Asp Cys Val Leu Leu Leu Leu Leu Leu
 1 5 10 15

Leu Leu Thr Arg Ser Ser Glu Val Glu Tyr Arg Ala Glu Val Gly Gln
 20 25 30

Asn Ala Tyr Leu Pro Cys Phe Tyr Thr Pro Ala Ala Pro Gly Asn Leu
 35 40 45

Val Pro Val Cys Trp Gly Lys Gly Ala Cys Pro Val Phe Glu Cys Gly
 50 55 60

Asn Val Val Leu Arg Thr Asp Glu Arg Asp Val Asn Tyr Trp Thr Ser
 65 70 75 80

Arg Tyr Trp Leu Asn Gly Asp Phe Arg Lys Gly Asp Val Ser Leu Thr
85 90 95

Ile Glu Asn Val Thr Leu Ala Asp Ser Gly Ile Tyr Cys Cys Arg Ile
100 105 110

Gln Ile Pro Gly Ile Met Asn Asp Glu Lys Phe Asn Leu Lys Leu Val
115 120 125

Ile Lys Pro Ala Lys Val Thr Pro Ala Pro Thr Arg Gln Arg Asp Phe
130 135 140

Thr Ala Ala Phe Pro Arg Met Leu Thr Thr Arg Gly His Gly Pro Ala
145 150 155 160

Glu Thr Gln Thr Leu Gly Ser Leu Pro Asp Ile Asn Leu Thr Gln Ile
165 170 175

Ser Thr Leu Ala Asn Glu Leu Arg Asp Ser Arg Leu Ala Asn Asp Leu
180 185 190

Arg Asp Ser Gly Ala Thr Ile Arg Ile Gly Ile Tyr Ile Gly Ala Gly
195 200 205

Ile Cys Ala Gly Leu Ala Leu Ala Leu Ile Phe Gly Ala Leu Ile Phe
210 215 220

Lys Trp Tyr Ser His Ser Lys Glu Lys Ile Gln Asn Leu Ser Leu Ile
225 230 235 240

Ser Leu Ala Asn Leu Pro Pro Ser Gly Leu Ala Asn Ala Val Ala Glu
245 250 255

Gly Ile Arg Ser Glu Glu Asn Ile Tyr Thr Ile Glu Glu Asn Val Tyr
260 265 270

Glu Val Glu Glu Pro Asn Glu Tyr Tyr Cys Tyr Val Ser Ser Arg Gln
275 280 285

Gln Pro Ser Gln Pro Leu Gly Cys Arg Phe Ala Met

290

295

300

<210> 287
 <211> 142
 <212> PRT
 <213> Homo sapiens

<400> 287

Met Phe Ser His Leu Pro Phe Asp Cys Val Leu Leu Leu Leu Leu Leu
 1 5 10 15

Leu Leu Thr Arg Ser Ser Glu Val Glu Tyr Arg Ala Glu Val Gly Gln
 20 25 30

Asn Ala Tyr Leu Pro Cys Phe Tyr Thr Pro Ala Ala Pro Gly Asn Leu
 35 40 45

Val Pro Val Cys Trp Gly Lys Gly Ala Cys Pro Val Phe Glu Cys Gly
 50 55 60

Asn Val Val Leu Arg Thr Asp Glu Arg Asp Val Asn Tyr Trp Thr Ser
 65 70 75 80

Arg Tyr Trp Leu Asn Gly Asp Phe Arg Lys Gly Asp Val Ser Leu Thr
 85 90 95

Ile Glu Asn Val Thr Leu Ala Asp Ser Gly Ile Tyr Cys Cys Arg Ile
 100 105 110

Gln Ile Pro Gly Ile Met Asn Asp Glu Lys Phe Asn Leu Lys Leu Val
 115 120 125

Ile Lys Pro Gly Glu Trp Thr Phe Ala Cys His Leu Tyr Glu
 130 135 140

<210> 288
 <211> 2448
 <212> DNA
 <213> Homo sapiens

<400> 288

agaacactta caggatgtgt gtagtgtggc atgacagaga acttttggttt cctttaatgt

60

gactgtagac ctggcagtgt tactataaga atcactggca atcagacacc cgggtgtgct	120
gagctagcac tcagtggggg cggctactgc tcatgtgatt gtggagtaga cagttggaag	180
aagtaccag tccatttggga gagttaaaac tgtgcctaac agagggtgtcc tctgactttt	240
cttctgcaag ctccatgttt tcacatcttc cttttgactg tgtcctgctg ctgctgctgc	300
tactacttac aaggtcctca gaagtggaat acagagcgga ggtcggtcag aatgcctatc	360
tgccctgctt ctacaccca gccgcccag ggaacctcgt gcccgctctgc tggggcaaag	420
gagcctgtcc tgtgtttgaa tgtggcaacg tgggtgctcag gactgatgaa agggatgtga	480
attattggac atccagatac tggctaaatg gggattttccg caaaggagat gtgtccctga	540
ccatagagaa tgtgactcta gcagacagtg ggatctactg ctgccggatc caaatcccag	600
gcataatgaa tgatgaaaaa tttaacctga agttggtcac caaaccagcc aaggtcaccc	660
ctgcaccgac tcggcagaga gacttcactg cagcctttcc aaggatgctt accaccaggg	720
gacatggccc agcagagaca cagacactgg ggagcctccc tgatataaat ctaacacaaa	780
tatccacatt ggccaatgag ttacgggact ctagattggc caatgactta cgggactctg	840
gagcaaccat cagaataggc atctacatcg gagcagggat ctgtgctggg ctggctctgg	900
ctcttatctt cggcgcttta attttcaa at ggtattctca tagcaaagag aagatacaga	960
atttaagcct catctctttg gccaacctcc ctccctcagg attggcaa at gcagtagcag	1020
agggaattcg ctcagaagaa aacatctata ccattgaaga gaacgtatat gaagtggagg	1080
agcccaatga gtattattgc tatgtcagca gcaggcagca accctcacia cttttgggtt	1140
gtcgttttgc aatgccatag atccaaccac cttatttttg agcttgggtg tttgtctttt	1200
tcagaaacta tgagctgtgt cacctgactg gttttggagg ttctgtccac tgctatggag	1260
cagagttttc ccattttcag aagataatga ctacatggg aattgaactg ggacctgcac	1320
tgaacttaaa caggcatgtc attgcctctg tatttaagcc aacagagtta cccaaccag	1380
agactgttaa tcatggatgt tagagctcaa acgggctttt atatacacta ggaattcttg	1440
acgtgggggtc tctggagctc caggaaattc gggcacatca tatgtccatg aaacttcaga	1500
taaactaggg aaaactgggt gctgaggtga aagcataact tttttggcac agaaagtcta	1560
aaggggccac tgattttcaa agagatctgt gatccctttt tgttttttgt ttttgagatg	1620
gagtcttgct ctgttgccca ggctggagtg caatggcaca atctcggctc actgcaagct	1680

ccgcctcctg ggttcaagcg attctcctgc ctcagcctcc tgagtggctg ggattacagg	1740
catgcaccac catgcccagc taatttggtg tatttttagt agagacaggg tttcaccatg	1800
ttggccagtg tgggtctcaa ctcctgacct catgatttgc ctgcctcggc ctcccaaagc	1860
actgggatta caggcgtgag ccaccacatc cagccagtga tccttaaaaag attaagagat	1920
gactggacca ggtctacctt gatcttgaag attcccttgg aatgttgaga tttaggctta	1980
tttgagcact gcctgcccac ctgtcagtgc cagtgcatag cccttctttt gtctccctta	2040
tgaagactgc cctgcagggc tgagatgtgg caggagctcc cagggaaaaa cgaagtgc	2100
ttgattgggtg tgtattggcc aagttttgct tgttgtgtgc ttgaaagaaa atatctctga	2160
ccaacttctg tattcgtgga ccaaactgaa gctatatattt tcacagaaga agaagcagt	2220
acggggacac aaattctgtt gcctgggtgga aagaaggcaa aggccttcag caatctatat	2280
taccagcgct ggatcctttg acagagagtg gtccctaacc ttaaatttca agacggtata	2340
ggcttgatct gtcttgctta ttgttgcccc ctgcgcctag cacaattctg acacacaatt	2400
ggaacttact aaaaattttt ttttactgtt aaaaaaaaaa aaaaaaaaaa	2448

<210> 289
 <211> 1012
 <212> DNA
 <213> Homo sapiens

<400> 289	
actgctcatg tgattgtgga gtagacagtt ggaagaagta cccagtccat ttggagagtt	60
aaaactgtgc ctaacagagg tgtcctctga cttttcttct gcaagctcca tgttttcaca	120
tcttcccttt gactgtgtcc tgctgtgtgct gctgtacta cttacaaggt cctcagaagt	180
ggaatacaga gcggaggtcg gtcagaatgc ctatctgccc tgcttctaca cccagccgc	240
cccagggaaac ctcgtgcccc tctgctgggg caaaggagcc tgtcctgtgt ttgaatgtgg	300
caacgtgggtg ctcaggactg atgaaaggga tgtgaattat tggacatcca gatactggct	360
aaatggggat ttccgcaaag gagatgtgtc cctgaccata gagaatgtga ctctagcaga	420
cagtgggatc tactgtgtcc ggatccaaat cccaggcata atgaatgatg aaaaatttaa	480
cctgaagtgt gtcacaaac caggtgagtg gacatttgca tgccatcttt atgaataaga	540
tttatctgtg gatcatatta aagggtactga ttgttctcat ctctgacttc cctaattata	600
gccctggagg agggccacta agacctaaag tttaacaggc cccattgggt atgctcagt	660

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atattttaaca ctttctctct gttttaaaac tcatgggtgt gcctgggcgt ggtggctcgc      720
gcctctgggtc ccagcacttt gggaggctga ggccggtgga tcatgaggtc aggaattcga      780
gaccagcctg gccaacatgg taaaaccttg tctccactaa aaatacaaaa aattagccag      840
gcatggttac gggagcctgt aattctagct acttgggggg ctgaagcagg agaatcactt      900
gaacctggaa gtcggagggtt gcggtaaagcc aagatctcgc cattgtactc cagcctggct      960
gacaagagtg aaactctgtc ccaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa      1012

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<210> 290

<211> 179

<212> PRT

<213> Homo sapiens

<400> 290

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

```

```

Cys Phe Tyr Thr Pro Ala Ala Pro Gly Asn Leu Val Pro Val Cys Trp
                20              25              30

```

```

Gly Lys Gly Ala Cys Pro Val Phe Glu Cys Gly Asn Val Val Leu Arg
35              40              45

```

```

Thr Asp Glu Arg Asp Val Asn Tyr Trp Thr Ser Arg Tyr Trp Leu Asn
50              55              60

```

```

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

```

```

Leu Ala Asp Ser Gly Ile Tyr Cys Cys Arg Ile Gln Ile Pro Gly Ile
                85              90              95

```

```

Met Asn Asp Glu Lys Phe Asn Leu Lys Leu Val Ile Lys Pro Ala Lys
100             105             110

```

```

Val Thr Pro Ala Pro Thr Arg Gln Arg Asp Phe Thr Ala Ala Phe Pro
115              120              125

```

```

Arg Met Leu Thr Thr Arg Gly His Gly Pro Ala Glu Thr Gln Thr Leu

```


130

135

140

Gly Ser Leu Pro Asp Ile Asn Leu Thr Gln Ile Ser Thr Leu Ala Asn
 145 150 155 160

Glu Leu Arg Asp Ser Arg Leu Ala Asn Asp Leu Arg Asp Ser Gly Ala
 165 170 175

Thr Ile Arg

<210> 291
 <211> 330
 <212> PRT
 <213> Homo sapiens

<400> 291

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 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

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 Lys
 325 330

<210> 292

<211> 327

<212> PRT
<213> Homo sapiens

<400> 292

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

Ser Thr Ser Glu Ser 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 Lys Thr
65 70 75 80

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

Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro
100 105 110

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

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

Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
145 150 155 160

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

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

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu

195

200

205

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

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys
225 230 235 240

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

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

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

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

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

Leu Ser Leu Ser Leu Gly Lys
325

<210> 293
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 9F6 VK2 IgG1 light chain

<400> 293

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> 294

<211> 330

<212> PRT

<213> Artificial Sequence

<220>

<223> IgG1.1 constant domain (used in anti-TIM3 antibodies)

<400> 294

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

Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys

100	105	110		
Pro Ala Pro Glu Ala Glu Gly Ala 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 Ser Ser 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 Glu Glu	225	230	235	240
Met 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 Lys
325 330

<210> 295
<211> 330
<212> PRT
<213> Artificial Sequence

<220>
<223> IgG1.3 constant domain (used in anti-TIM3 antibodies)

<400> 295

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

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

Pro Ala Pro Glu Ala Glu Gly Ala 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 Glu Glu
225 230 235 240

Met 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 Lys
325 330

<210> 296
<211> 7
<212> PRT
<213> Homo sapiens

<400> 296

Cys Pro Val Phe Glu Cys Gly
1 5

<210> 297
 <211> 12
 <212> PRT
 <213> Homo sapiens

<400> 297

Trp Thr Ser Arg Tyr Trp Leu Asn Gly Asp Phe Arg
 1 5 10

<210> 298
 <211> 10
 <212> PRT
 <213> Homo sapiens

<400> 298

Arg Ile Gln Ile Pro Gly Ile Met Asn Asp
 1 5 10

<210> 299
 <211> 99
 <212> PRT
 <213> Homo sapiens

<400> 299

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

Cys Phe Tyr Thr Pro Ala Ala Pro Gly Asn Leu Val Pro Val Cys Trp
 20 25 30

Gly Lys Gly Ala Cys Pro Val Phe Glu Cys Gly Asn Val Val Leu Arg
 35 40 45

Thr Asp Glu Arg Asp Val Asn Tyr Trp Thr Ser Arg Tyr Trp Leu Asn
 50 55 60

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

Leu Ala Asp Ser Gly Ile Tyr Cys Cys Arg Ile Gln Ile Pro Gly Ile
 85 90 95

Met Asn Asp

<210> 300
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Linker

<400> 300

Pro Val Gly Val Val
 1 5

<210> 301
 <211> 450
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 13A3 hIgG4 HC

<400> 301

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro

100	105	110
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly		
115	120	125
Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser		
130	135	140
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val		
145	150	155
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe		
	165	170
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val		
	180	185
Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val		
	195	200
Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys		
	210	215
Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly Gly		
225	230	235
Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile		
	245	250
Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu		
	260	265
Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His		
	275	280
Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg		
	290	295
Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys		
305	310	315
		320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 302
<211> 449
<212> PRT
<213> Artificial Sequence

<220>
<223> 13A3 hIgG4 HC (without C-terminal K)

<400> 302

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile

245

250

255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
 405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
 435 440 445

Gly

<210> 303
 <211> 450
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody TIM3.5 13A3 IgG4P HC

<400> 303

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

<220>
<223> Antibody TIM3.5 13A3 IgG4P HC (without C-terminal K)

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro

100	105	110
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly		
115	120	125
Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser		
130	135	140
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val		
145	150	155
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe		
	165	170
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val		
	180	185
Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val		
	195	200
Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys		
	210	215
Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly		
225	230	235
Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile		
	245	250
Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu		
	260	265
Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His		
	275	280
Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg		
	290	295
Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys		
305	310	315
		320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly

<210> 305
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody TIM3.10 13A3 (N60Q) IgG4P HC

<400> 305

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile

245

250

255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
 405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
 435 440 445

Gly Lys
 450

<210> 306
 <211> 449
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody TIM3.10 13A3 (N60Q) IgG4P HC (without C-terminal K)

<400> 306

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

<400> 307

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro

100	105	110
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly		
115	120	125
Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser		
130	135	140
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val		
145	150	155
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe		
	165	170
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val		
	180	185
Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val		
	195	200
Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys		
	210	215
Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly		
225	230	235
Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile		
	245	250
Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu		
	260	265
Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His		
	275	280
Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg		
	290	295
Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys		
305	310	315
		320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 308

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody TIM3.11 13A3 (N60S) IgG4P HC (without C-terminal K)

<400> 308

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ser Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile

245

250

255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
 405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
 435 440 445

Gly

<210> 309
 <211> 450
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody TIM3.12 13A3 (N60A) IgG4P HC

<400> 309

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Ala Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro

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

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly

<210> 311
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody TIM3.13 13A3 (D101E) IgG4P HC

<400> 311

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile

255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 312
 <211> 449
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody TIM3.13 13A3 (D101E) IgG4P HC (without C-terminal K)

<400> 312

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

$\langle 210 \rangle$	313
$\langle 211 \rangle$	450
$\langle 212 \rangle$	PRT
$\langle 213 \rangle$	Artificial Sequence

<220>
<223> Antibody TIM3.14 13A3 (P102V) IgG4P HC

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Val

100	105	110
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly		
115	120	125
Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser		
130	135	140
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val		
145	150	155
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe		
	165	170
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val		
	180	185
Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val		
	195	200
Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys		
	210	215
Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly		
225	230	235
Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile		
	245	250
Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu		
	260	265
Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His		
	275	280
Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg		
	290	295
Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys		
305	310	315
		320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 314

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody TIM3.14 13A3 (P102V) IgG4P HC (without C-terminal K)

<400> 314

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Val
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile

245

250

255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
 405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
 435 440 445

Gly

<210> 315
 <211> 450
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody TIM3.15 13A3 (P102Y) IgG4P HC

<400> 315

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val

385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

$\langle 210 \rangle$	316
$\langle 211 \rangle$	449
$\langle 212 \rangle$	PRT
$\langle 213 \rangle$	Artificial Sequence

<220>
<223> Antibody TIM3.15 13A3 (P102Y) IgG4P HC (without C-terminal K)

<400> 316

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr

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

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly

<210> 317
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody TIM3.16 13A3 (P102L) IgG4P HC

<400> 317

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Leu
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile

245																250																255															
Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	Gln	Glu																																
			260				265													270																											
Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His																																
			275				280													285																											
Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Phe	Asn	Ser	Thr	Tyr	Arg																																
			290				295													300																											
Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys																																
			305				310						315																																		
Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Gly	Leu	Pro	Ser	Ser	Ile	Glu																																
			325							330													335																								
Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr																																
			340							345													350																								
Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu																																
			355							360													365																								
Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp																																
			370				375						380																																		
Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val																																
			385				390						395																																		
Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Arg	Leu	Thr	Val	Asp																																
			405							410													415																								
Lys	Ser	Arg	Trp	Gln	Glu	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His																																
			420							425													430																								
Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Leu																																
			435							440						445																															
Gly	Lys																																														
			450																																												

<210> 318

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody TIM3.16 13A3 (P102L) IgG4P HC (without C-terminal K)

<400> 318

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Leu
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

<400> 319

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr

100	105	110
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly		
115	120	125
Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser		
130	135	140
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val		
145	150	155
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe		
	165	170
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val		
	180	185
Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val		
	195	200
Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys		
	210	215
Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly		
225	230	235
Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile		
	245	250
Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu		
	260	265
Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His		
	275	280
Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg		
	290	295
Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys		
305	310	315
		320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 320

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody TIM3.17 13A3 (N60Q, P102Y) IgG4P HC (without C-terminal K)

<400> 320

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Tyr
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly

<210> 321
 <211> 447
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 IgG1za HC

<400> 321

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
 20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Ser Ser Leu Lys
 50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
 385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
 405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
 420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 435 440 445

<210> 322
 <211> 446
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 8B9 IgG1za HC (without C-terminal K)

<400> 322

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
 20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Ser Ser Leu Lys
 50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 195 200 205

Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
 210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
 225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
 325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
435 440 445

<210> 323
<211> 444
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8B9 IgG4P HC

<400> 323

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Ser Ser Leu Lys
50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
115 120 125

Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys
130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro
210 215 220

Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe
225 230 235 240

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

Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe
260 265 270

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 275 280 285

Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
 290 295 300

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 305 310 315 320

Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala
 325 330 335

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln
 340 345 350

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 355 360 365

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 370 375 380

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
 385 390 395 400

Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu
 405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
 435 440

<210> 324

<211> 443

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8B9 IgG4P HC (without C-terminal K)

<400> 324

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Ser Ser Leu Lys
50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
115 120 125

Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys
130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro
210 215 220

Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe
225 230 235 240

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

Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe
260 265 270

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
275 280 285

Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
290 295 300

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
305 310 315 320

Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala
325 330 335

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln
340 345 350

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
355 360 365

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
370 375 380

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
385 390 395 400

Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu
405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly
435 440

<210> 325
<211> 444
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody TIM3.8 8B9 (S61P) IgG4P HC

<400> 325

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
115 120 125

Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys
130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro
210 215 220

Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe
225 230 235 240

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

Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe
260 265 270

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
275 280 285

Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
290 295 300

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
305 310 315 320

Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala
325 330 335

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln
340 345 350

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
355 360 365

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
370 375 380

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
385 390 395 400

Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu
405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
435 440

<210> 326

<211> 443

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody TIM3.8 8B9 (S61P) IgG4P HC (without C-terminal K)

<400> 326

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg His
20 25 30

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

Gly Tyr Ile His Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60

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

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

Arg Asp Thr Gly Tyr Tyr Gly Met Asp Ile Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
115 120 125

Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys
130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro
210 215 220

Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe
225 230 235 240

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

Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe
260 265 270

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
275 280 285

Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
290 295 300

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
305 310 315 320

Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala
325 330 335

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln
340 345 350

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
355 360 365

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
370 375 380

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
385 390 395 400

Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu
405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly
435 440

<210> 327
<211> 447
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 8C4 IgG1za HC

<400> 327

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
20 25 30

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

Gly Tyr Ile His Tyr Thr Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60

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

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

Thr Asp Thr Gly Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 195 200 205

Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
 210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
 225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 328

<211> 446

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 8C4 IgG1za HC (without C-terminal K)

<400> 328

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
 20 25 30

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

Gly Tyr Ile His Tyr Thr Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60

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

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

Thr Asp Thr Gly Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 195 200 205

Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
 210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
 225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 305 310 315 320

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
 325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
 340 345 350

Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
 355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
 370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
 385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
 405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
 420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
 435 440 445

<210> 329
 <211> 367
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody TIM3.6 8C4 IgG4P HC

<400> 329

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
 20 25 30

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

Gly Tyr Ile His Tyr Thr Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60

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

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

Thr Asp Thr Gly Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys
 115 120 125

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro
 130 135 140

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

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
165 170 175

Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu
180 185 190

Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
195 200 205

Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser
210 215 220

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
225 230 235 240

Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile
245 250 255

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
260 265 270

Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
275 280 285

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
290 295 300

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
305 310 315 320

Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg
325 330 335

Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
340 345 350

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
355 360 365

<210> 330
 <211> 366
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody TIM3.6 8C4 IgG4P HC (without C-terminal K)

<400> 330

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Arg Tyr
 20 25 30

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

Gly Tyr Ile His Tyr Thr Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60

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

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

Thr Asp Thr Gly Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
 100 105 110

Val Thr Val Ser Ser Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys
 115 120 125

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro
 130 135 140

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

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 165 170 175

Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu
180 185 190

Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
195 200 205

Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser
210 215 220

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
225 230 235 240

Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile
245 250 255

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
260 265 270

Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
275 280 285

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
290 295 300

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
305 310 315 320

Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg
325 330 335

Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
340 345 350

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly
355 360 365

<210> 331

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 17C3 IgG1za HC

<400> 331

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

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

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80

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

Ala Arg Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

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

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly Lys
 450

<210> 332
 <211> 452
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 17C3 IgG1za HC (without C-terminal K)

<400> 332

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

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

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
 65 70 75 80

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

Ala Arg Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
 100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
225 230 235 240

Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 333
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody TIM3.2 17C3 IgG4P HC

<400> 333

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

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

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80

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

Ala Arg Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 334

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody TIM3.2 17C3 IgG4P HC (without C-terminal K)

<400> 334

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

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

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

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

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr
65 70 75 80

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

Ala Arg Asp Phe Tyr Gly Ser Gly Asn Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
 405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly

<210> 335
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 IgG1za HC

<400> 335

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Ala Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
225 230 235 240

Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 336
<211> 452
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 IgG1za HC (without C-terminal K)

<400> 336

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Ala Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
225 230 235 240

Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 337

<211> 450

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 9F6 IgG4P HC

<400> 337

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
 100 105 110

Trp Gly Gln Gly Thr Ala Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 338
<211> 449
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 9F6 IgG4P HC (without C-terminal K)

<400> 338

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Ala Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly

<210> 339
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody TIM3.7 9F6 (A108T) IgG4P HC

<400> 339

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 340

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody TIM3.7 9F6 (A108T) IgG4P HC (without C-terminal K)

<400> 340

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

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

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

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

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Tyr Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
 405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
 435 440 445

Gly

<210> 341
 <211> 454
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 3G4 IgG1za HC

<400> 341

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

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

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

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

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

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

Ala Arg Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp
 100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys
 115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
 130 135 140

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
 195 200 205

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro
 210 215 220

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
 225 230 235 240

Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
 245 250 255

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 260 265 270

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 275 280 285

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 290 295 300

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 305 310 315 320

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
 325 330 335

Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 340 345 350

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn
355 360 365

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
370 375 380

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
385 390 395 400

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
405 410 415

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
420 425 430

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
435 440 445

Ser Leu Ser Pro Gly Lys
450

<210> 342
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 3G4 IgG1za HC (without C-terminal K)

<400> 342

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

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

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

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

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

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

Ala Arg Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp
100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys
115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
130 135 140

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
195 200 205

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro
210 215 220

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
225 230 235 240

Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
245 250 255

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
260 265 270

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
275 280 285

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
290 295 300

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
305 310 315 320

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
325 330 335

Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
340 345 350

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn
355 360 365

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
370 375 380

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
385 390 395 400

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
405 410 415

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
420 425 430

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
435 440 445

Ser Leu Ser Pro Gly
450

<210> 343

<211> 451

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody TIM3.4 3G4 IgG4P HC

<400> 343

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

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

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

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

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

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

Ala Arg Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp
100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys
115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu
130 135 140

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

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
180 185 190

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

Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser
 210 215 220

Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly
 225 230 235 240

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
 245 250 255

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

Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val
 275 280 285

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr
 290 295 300

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
 305 310 315 320

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile
 325 330 335

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
 340 345 350

Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser
 355 360 365

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
 370 375 380

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
 385 390 395 400

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val
 405 410 415

Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met
 420 425 430

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
 435 440 445

Leu Gly Lys
 450

<210> 344
 <211> 450
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody TIM3.4 3G4 IgG4P HC (without C-terminal K)

<400> 344

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

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

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

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

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

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

Ala Arg Glu Gly Tyr Ser Ser Ser Trp Ser Tyr Tyr Tyr Gly Met Asp
 100 105 110

Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys
 115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu
130 135 140

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

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
180 185 190

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

Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser
210 215 220

Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly
225 230 235 240

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
245 250 255

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

Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val
275 280 285

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr
290 295 300

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
305 310 315 320

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile
325 330 335

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
340 345 350

Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser
355 360 365

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
370 375 380

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
385 390 395 400

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val
405 410 415

Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met
420 425 430

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
435 440 445

Leu Gly
450

<210> 345
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 17C8 IgG4 HC

<400> 345

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

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

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

Ser Phe Ile Ser Ser Ser Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 346

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 17C8 IgG4 HC (without C-terminal K)

<400> 346

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

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

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

Ser Phe Ile Ser Ser Ser Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
 405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
 435 440 445

Gly

<210> 347
 <211> 450
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody TIM3.9 17C8 IgG4P HC

<400> 347

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

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

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

Ser Phe Ile Ser Ser Ser Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
 50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
 100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly Lys
450

<210> 348
<211> 449
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody TIM3.9 17C8 IgG4P HC (without C-terminal K)

<400> 348

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

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

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

Ser Phe Ile Ser Ser Ser Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Arg Asp Gly Tyr Ser Ser Gly Trp Glu Tyr Tyr Gly Met Asp Val
100 105 110

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly

<210> 349

<211> 453

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q, D101E) IgG1.1f HC

<400> 349

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
 325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 435 440 445

Leu Ser Pro Gly Lys
 450

<210> 350

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q, D101E) IgG1.1f HC (no C-terminal K)

<400> 350

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
 50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ser
 325 330 335

Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 351
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody 13A3 (N60Q, D101E) IgG1.3f HC

<400> 351

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly Lys
450

<210> 352

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q, D101E) IgG1.3f HC (no C-terminal K)

<400> 352

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala
 225 230 235 240

Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 275 280 285

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 290 295 300

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 305 310 315 320

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 325 330 335

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 340 345 350

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 355 360 365

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 370 375 380

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 385 390 395 400

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 405 410 415

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
420 425 430

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435 440 445

Leu Ser Pro Gly
450

<210> 353
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody TIM3.18 13A3 (N60Q, D101E) IgG4P HC

<400> 353

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
 290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
 325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
 355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
 405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
 420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
 435 440 445

Gly Lys
 450

<210> 354

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody TIM3.18 13A3 (N60Q, D101E) IgG4P HC (without C-terminal K)

<400> 354

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
 20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser

50

55

60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 115 120 125

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

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 180 185 190

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

Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys
 210 215 220

Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly
 225 230 235 240

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 245 250 255

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

Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg
290 295 300

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320

Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu
325 330 335

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350

Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu
435 440 445

Gly

<210> 355
<211> 1362
<212> DNA
<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q, D101E) IgG1.1f HC

<400> 355

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccactggttc gaaccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtctttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaaat ga	1362

<210> 356

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q, D101E) IgG1.1f HC (no C-terminal K)

<400> 356

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccaactggtc gaaccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tccaagcag catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 357

<211> 1362

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody 13A3 (N60Q, D101E) IgG1.3f HC

<400> 357

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc cacttggttc gaaccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaaggggccc cgtcagtcctt cctcttcccc ccaaaaccca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccacg	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcagaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggtaa at ga	1362

<210> 358
 <211> 1359
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60Q, D101E) IgG1.3f HC (no C-terminal K)

<400> 358
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gaaccctggg gccagggaac cctggtcacc 360
 gtctcctcag ctagcaccaa gggcccatcg gtcttcccc tggcacccctc ctccaagagc 420
 acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg 480
 acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 540
 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
 acccagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga 660
 gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc 720
 gaaggggccc cgtcagtctt cctcttcccc caaaaacca aggacaccct catgatctcc 780
 cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagacc tgaggtcaag 840
 ttcaactggt acgtggacgg cgtggaggtg cataatgcca agacaaagcc gcgggaggag 900
 cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
 aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa 1020
 accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc 1080
 cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc 1140
 agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag 1200
 cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag 1260
 agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac 1320

cactacacgc agaagagcct ctccctgtcc ccgggttga 1359

<210> 359
 <211> 369
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60Q, D101E) VH

<400> 359
 cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggatccgc 120
 cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac 180
 taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tcctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg 300
 gggccctacg gtgactacgc ccactggttc gaaccctggg gccagggaac cctggtcacc 360
 gtctcctca 369

<210> 360
 <211> 294
 <212> PRT
 <213> Macaca fascicularis

<400> 360

Met Phe Ser His Leu Pro Phe Asp Cys Val Leu Leu Leu Leu Leu Leu
 1 5 10 15

Leu Leu Thr Arg Ser Ser Glu Val Glu Tyr Ile Ala Glu Val Gly Gln
 20 25 30

Asn Ala Tyr Leu Pro Cys Ser Tyr Thr Pro Ala Pro Pro Gly Asn Leu
 35 40 45

Val Pro Val Cys Trp Gly Lys Gly Ala Cys Pro Val Phe Asp Cys Ser
 50 55 60

Asn Val Val Leu Arg Thr Glu Asn Arg Asp Val Asn Asp Arg Thr Ser
 65 70 75 80

Gly Arg Tyr Trp Leu Lys Gly Asp Phe His Lys Gly Asp Val Ser Leu
85 90 95

Thr Ile Glu Asn Val Thr Leu Ala Asp Ser Gly Val Tyr Cys Cys Arg
100 105 110

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

Val Val Ile Lys Pro Ala Lys Val Thr Pro Ala Pro Thr Leu Gln Arg
130 135 140

Asp Leu Thr Ser Ala Phe Pro Arg Met Leu Thr Thr Gly Glu His Gly
145 150 155 160

Pro Ala Glu Thr Gln Thr Pro Gly Ser Leu Pro Asp Val Asn Leu Thr
165 170 175

Gln Ile Phe Thr Leu Thr Asn Glu Leu Arg Asp Ser Gly Ala Thr Ile
180 185 190

Arg Thr Ala Ile Tyr Ile Ala Ala Gly Ile Ser Ala Gly Leu Ala Leu
195 200 205

Ala Leu Ile Phe Gly Ala Leu Ile Phe Lys Trp Tyr Ser His Ser Lys
210 215 220

Glu Lys Thr Gln Asn Leu Ser Leu Ile Ser Leu Ala Asn Ile Pro Pro
225 230 235 240

Ser Gly Leu Ala Asn Ala Val Ala Glu Gly Ile Arg Ser Glu Glu Asn
245 250 255

Ile Tyr Thr Ile Glu Glu Asp Val Tyr Glu Val Glu Glu Pro Asn Glu
260 265 270

Tyr Tyr Cys Tyr Val Ser Ser Gly Gln Gln Pro Ser Gln Pro Leu Gly
275 280 285

Cys Arg Phe Ala Met Pro
290

<210> 361
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Signal Peptide (TIM3.2-TIM3.18)

<400> 361

Met	Arg	Ala	Trp	Ile	Phe	Phe	Leu	Leu	Cys	Leu	Ala	Gly	Arg	Ala	Leu
1				5					10					15	

Ala

<210> 362
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Signal Peptide (TIM3.2-TIM3.18 HC)

<400> 362
 atgagggcctt ggatcttctt tctgctctgc ctggccggga gagcgctcgc a 51

<210> 363
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Signal Peptide (TIM3.2-TIM3.18 LC)

<400> 363
 atgagggcctt ggatcttctt tctgctctgc ctggccgggc gcgccttggc c 51

<210> 364
 <211> 123
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody 13A3 (N60Q, D101E) VH

<400> 364

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 365
<211> 234
<212> PRT
<213> Artificial Sequence

<220>
<223> 13A3 HC Fab 6x His

<400> 365

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Asp Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
210 215 220

Ser Cys Gly Gly His His His His His His
225 230

<210> 366

<211> 234

<212> PRT

<213> Artificial Sequence

<220>

<223> 13A3 (N60Q, D101E) HC Fab 6x His

<400> 366

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Arg
20 25 30

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

Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu Pro
100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
115 120 125

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
130 135 140

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
145 150 155 160

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
180 185 190

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
195 200 205

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 210 215 220

Ser Cys Gly Gly His His His His His His
 225 230

<210> 367
 <211> 14
 <212> PRT
 <213> Homo sapiens

<400> 367

Val Pro Val Cys Trp Gly Lys Gly Ala Cys Pro Val Phe Glu
 1 5 10

<210> 368
 <211> 17
 <212> PRT
 <213> Homo sapiens

<400> 368

Arg Ile Gln Ile Pro Gly Ile Met Asn Asp Glu Lys Phe Asn Leu Lys
 1 5 10 15

Leu

<210> 369
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 369

Tyr Thr Pro Ala Ala Pro Gly Asn Leu Val Pro Val Cys Trp Gly Lys
 1 5 10 15

Gly Ala Cys Pro Val Phe Glu
 20

<210> 370
 <211> 12
 <212> PRT

<213> Homo sapiens

<400> 370

Val	Val	Leu	Arg	Thr	Asp	Glu	Arg	Asp	Val	Asn	Tyr
1				5					10		

<210> 371

<211> 18

<212> PRT

<213> Homo sapiens

<400> 371

Trp	Thr	Ser	Arg	Tyr	Trp	Leu	Asn	Gly	Asp	Phe	Arg	Lys	Gly	Asp	Val
1				5					10					15	

Ser Leu

<210> 372

<211> 18

<212> PRT

<213> Homo sapiens

<400> 372

Cys	Arg	Ile	Gln	Ile	Pro	Gly	Ile	Met	Asn	Asp	Glu	Lys	Phe	Asn	Leu
1				5					10					15	

Lys Leu

<210> 373

<211> 9

<212> PRT

<213> Homo sapiens

<400> 373

Asn	Asp	Glu	Lys	Phe	Asn	Leu	Lys	Leu
1					5			

<210> 374

<211> 1359

<212> DNA

<213> Artificial Sequence

<220>

<223> TIM3.18 (13A3) IgG1.3f (T168C)

<400> 374

cagctgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc	60
acctgcactg tctctggtgg ctccatcagc agtagaagtt actactgggg ctggattcgc	120
cagccccag ggaaggggct ggagtggatt gggagtatct attatagtgg gttcacctac	180
taccaaccgt ccctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc	240
tccctgaagc tgagctctgt gaccgccgca gacacggctg tgtattattg tgcgacaggg	300
gggccctacg gtgactacgc ccactggttc gaaccctggg gccagggaac cctggtcacc	360
gtctcctcag ctagcaccaa gggcccatcg gtctttcccc tggcaccctc ctccaagagc	420
acctctgggg gcacagcggc cctgggctgc ctggtcaagg actacttccc cgaaccggtg	480
acggtgtcgt ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta	540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc	600
accagacct acatctgcaa cgtgaatcac aagcccagca acaccaaggt ggacaagaga	660
gttgagccca aatcttgtga caaaactcac acatgcccac cgtgcccagc acctgaagcc	720
gaagggggccc cgtcagtctt cctcttcccc ccaaaacca aggacaccct catgatctcc	780
cggacccctg aggtcacatg cgtggtggtg gacgtgagcc acgaagaccc tgaggtcaag	840
ttcaactggt acgtggacgg cgtggagggtg cataatgcca agacaaagcc gcgggaggag	900
cagtacaaca gcacgtaccg tgtggtcagc gtcctcaccg tcctgcacca ggactggctg	960
aatggcaagg agtacaagtg caaggtctcc aacaaagccc tcccagcccc catcgagaaa	1020
accatctcca aagccaaagg gcagccccga gaaccacagg tgtacaccct gccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat gggcagccgg agaacaacta caagaccag	1200
cctcccgtgc tggactccga cggctccttc ttcctctata gcaagctcac cgtggacaag	1260
agcaggtggc agcaggggaa cgtcttctca tgctccgtga tgcatgaggc tctgcacaac	1320
cactacacgc agaagagcct ctccctgtcc ccgggttga	1359

<210> 375

<211> 410

<212> PRT

<213> Artificial Sequence

<220>

<223> hTIM3-mFc

<400> 375

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

Cys Phe Tyr Thr Pro Ala Ala Pro Gly Asn Leu Val Pro Val Cys Trp
20 25 30

Gly Lys Gly Ala Cys Pro Val Phe Glu Cys Gly Asn Val Val Leu Arg
35 40 45

Thr Asp Glu Arg Asp Val Asn Tyr Trp Thr Ser Arg Tyr Trp Leu Asn
50 55 60

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

Leu Ala Asp Ser Gly Ile Tyr Cys Cys Arg Ile Gln Ile Pro Gly Ile
85 90 95

Met Asn Asp Glu Lys Phe Asn Leu Lys Leu Val Ile Lys Pro Ala Lys
100 105 110

Val Thr Pro Ala Pro Thr Arg Gln Arg Asp Phe Thr Ala Ala Phe Pro
115 120 125

Arg Met Leu Thr Thr Arg Gly His Gly Pro Ala Glu Thr Gln Thr Leu
130 135 140

Gly Ser Leu Pro Asp Ile Asn Leu Thr Gln Ile Ser Thr Leu Ala Asn
145 150 155 160

Glu Leu Arg Asp Ser Arg Leu Ala Asn Asp Leu Arg Asp Ser Gly Ala
165 170 175

Thr Ile Arg Ile Gly Ala Ser Val Pro Arg Asp Cys Gly Cys Lys Pro
180 185 190

Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro
 195 200 205

Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys
 210 215 220

Val Val Val Ala Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp
 225 230 235 240

Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu
 245 250 255

Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met
 260 265 270

His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser
 275 280 285

Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly
 290 295 300

Arg Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln
 305 310 315 320

Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe
 325 330 335

Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu
 340 345 350

Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe
 355 360 365

Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn
 370 375 380

Thr Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr
 385 390 395 400

Glu Lys Ser Leu Ser His Ser Pro Gly Lys

405

410

<210> 376
 <211> 154
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> cynoTIM3-MycHisAvi

<400> 376

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

Cys Phe Tyr Thr Pro Ala Ala Pro Gly Asn Leu Val Pro Val Cys Trp
 20 25 30

Gly Lys Gly Ala Cys Pro Val Phe Glu Cys Gly Asn Val Val Leu Arg
 35 40 45

Thr Asp Glu Arg Asp Val Asn Tyr Trp Thr Ser Arg Tyr Trp Leu Asn
 50 55 60

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

Leu Ala Asp Ser Gly Ile Tyr Cys Cys Arg Ile Gln Ile Pro Gly Ile
 85 90 95

Met Asn Asp Glu Lys Phe Asn Leu Lys Leu Val Ile Lys Pro Ala Lys
 100 105 110

Ser Pro Gly Gly Gly Ser Gly Gly Gly Ser Glu Gln Lys Leu Ile Ser
 115 120 125

Glu Glu Asp Leu Gly His His His His His His Gly Leu Asn Asp Ile
 130 135 140

Phe Glu Ala Gln Lys Ile Glu Trp His Glu
 145 150

<210> 377

<211> 129
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> hTIM3_IgV

<400> 377

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

Pro Gly Ser Glu Val Glu Tyr Arg Ala Glu Val Gly Gln Asn Ala Tyr
 20 25 30

Leu Pro Cys Phe Tyr Thr Pro Ala Ala Pro Gly Asn Leu Val Pro Val
 35 40 45

Cys Trp Gly Lys Gly Ala Cys Pro Val Phe Glu Cys Gly Asn Val Val
 50 55 60

Leu Arg Thr Asp Glu Arg Asp Val Asn Tyr Trp Thr Ser Arg Tyr Trp
 65 70 75 80

Leu Asn Gly Asp Phe Arg Lys Gly Asp Val Ser Leu Thr Ile Glu Asn
 85 90 95

Val Thr Leu Ala Asp Ser Gly Ile Tyr Cys Cys Arg Ile Gln Ile Pro
 100 105 110

Gly Ile Met Asn Asp Glu Lys Phe Asn Leu Lys Leu Val Ile Lys Pro
 115 120 125

Ala

<210> 378
 <211> 470
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> TIM3.18 (13A3) (N60Q, D101E) IgG1.3f HC with signal peptide

<220>

<221> SIGNAL

<222> (1)..(17)

<400> 378

Met Arg Ala Trp Ile Phe Phe Leu Leu Cys Leu Ala Gly Arg Ala Leu
 1 5 10 15

Ala Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser
 20 25 30

Glu Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser
 35 40 45

Arg Ser Tyr Tyr Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu
 50 55 60

Glu Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro
 65 70 75 80

Ser Leu Lys Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln
 85 90 95

Phe Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr
 100 105 110

Tyr Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu
 115 120 125

Pro Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys
 130 135 140

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
 145 150 155 160

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 165 170 175

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 180 185 190

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 195 200 205

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
 210 215 220

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro
 225 230 235 240

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
 245 250 255

Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
 260 265 270

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 275 280 285

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 290 295 300

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 305 310 315 320

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 325 330 335

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
 340 345 350

Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 355 360 365

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
 370 375 380

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
 385 390 395 400

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
 405 410 415

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
 420 425 430

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
 435 440 445

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 450 455 460

Ser Leu Ser Pro Gly Lys
 465 470

<210> 379
 <211> 469
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> TIM3.18 (13A3) (N60Q, D101E) IgG1.3f HC (no C-terminal K) with signal peptide

<220>
 <221> SIGNAL
 <222> (1)..(17)

<400> 379

Met Arg Ala Trp Ile Phe Phe Leu Leu Cys Leu Ala Gly Arg Ala Leu
 1 5 10 15

Ala Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser
 20 25 30

Glu Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser
 35 40 45

Arg Ser Tyr Tyr Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu
 50 55 60

Glu Trp Ile Gly Ser Ile Tyr Tyr Ser Gly Phe Thr Tyr Tyr Gln Pro
 65 70 75 80

Ser Leu Lys Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln
85 90 95

Phe Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr
100 105 110

Tyr Cys Ala Thr Gly Gly Pro Tyr Gly Asp Tyr Ala His Trp Phe Glu
115 120 125

Pro Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys
130 135 140

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
145 150 155 160

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
165 170 175

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
180 185 190

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
195 200 205

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
210 215 220

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro
225 230 235 240

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
245 250 255

Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
260 265 270

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
275 280 285

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
290 295 300

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
305 310 315 320

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
325 330 335

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
340 345 350

Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
355 360 365

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
370 375 380

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
385 390 395 400

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
405 410 415

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
420 425 430

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
435 440 445

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
450 455 460

Ser Leu Ser Pro Gly
465

<210> 380
<211> 1413
<212> DNA
<213> Artificial Sequence

<220>
<223> TIM3.18 (13A3) (N60Q, D101E) IgG1.3f HC with signal peptide

<220>

<221> sig_peptide

<222> (1)..(51)

<400> 380

atgagggc	ttggatctt	cttctt	tctgctctgc	ctggccggga	gagcgctcgc	acagctgcag	60
ctgcaggagt	cgggcccagg	actggtgaag	ccttcggaga	ccctgtccct	cacctgcact		120
gtctctggtg	gtccatcag	cagtagaagt	tactactggg	gctggatccg	ccagccccc		180
gggaaggggc	tggagtggat	tgggagtatc	tattatagtg	ggttcaccta	ctaccaaccg		240
tccctcaaga	gtcgagtcac	catatccgtt	gacacgtcca	agaaccagtt	ctccctgaag		300
ctgagctctg	tgaccgccgc	agacacggct	gtgtattatt	gtgcgacagg	ggggccctac		360
ggtgactacg	cccactgggt	cgaaccctgg	ggccagggaa	ccctgggtcac	cgtctcctca		420
gctagcacca	agggcccatc	ggtcttcccc	ctggcaccct	cctccaagag	cacctctggg		480
ggcacagcgg	ccctgggctg	cctgggtcaag	gactacttcc	ccgaaccggt	gacggtgtcg		540
tggaaactcag	gcgccctgac	cagcggcgtg	cacaccttcc	cggctgtcct	acagtcctca		600
ggactctact	ccctcagcag	cgtgggtgacc	gtgccctcca	gcagcttggg	caccagacc		660
tacatctgca	acgtgaatca	caagcccagc	aacaccaagg	tggacaagag	agttgagccc		720
aaatcttgtg	acaaaactca	cacatgcccc	ccgtgcccag	cacctgaagc	cgaagggggc		780
ccgtcagtct	tcctcttccc	cccaaaaccc	aaggacaccc	tcatgatctc	ccggaccct		840
gaggtcacat	gcgtgggtgg	ggacgtgagc	cacgaagacc	ctgaggtcaa	gttcaactgg		900
tacgtggacg	gcgtggaggt	gcataatgcc	aagacaaagc	cgcgggagga	gcagtacaac		960
agcacgtacc	gtgtgggtcag	cgtcctcacc	gtcctgcacc	aggactggct	gaatggcaag		1020
gagtacaagt	gcaaggtctc	caacaaagcc	ctcccagccc	ccatcgagaa	aaccatctcc		1080
aaagccaaag	ggcagccccg	agaaccacag	gtgtacaccc	tgcccccatc	ccgggaggag		1140
atgaccaaga	accaggtcag	cctgacctgc	ctgggtcaaag	gcttctatcc	cagcgacatc		1200
gccgtggagt	gggagagcaa	tgggcagccg	gagaacaact	acaagaccac	gcctcccgtg		1260
ctggactccg	acggctcctt	cttcctctat	agcaagctca	ccgtggacaa	gagcaggtgg		1320
cagcagggga	acgtcttctc	atgctccgtg	atgcatgagg	ctctgcacaa	ccactacacg		1380
cagaagagcc	tctccctgtc	cccgggtaaa	tga				1413

<210> 381
 <211> 1410
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> TIM3.18 (13A3) (N60Q, D101E) IgG1.3f HC (no C-terminal K) with signal peptide

<220>
 <221> sig_peptide
 <222> (1)..(51)

<400> 381
 atgagggcctt ggatcttctt tctgctctgc ctggccggga gagcgctcgc acagctgcag 60
 ctgcaggagt cgggcccagg actggtgaag ccttcggaga ccctgtccct cacctgcact 120
 gtctctggtg gctccatcag cagtagaagt tactactggg gctggatccg ccagccccca 180
 gggaaggggc tggagtggat tgggagtatc tattatagtg gggtcaccta ctaccaaccg 240
 tccctcaaga gtcgagtcac catatccgtt gacacgtcca agaaccagtt ctccctgaag 300
 ctgagctctg tgaccgccgc agacacggct gtgtattatt gtgcgacagg ggggccctac 360
 ggtgactacg cccactgggt cgaaccctgg ggccaggga ccctgggtcac cgtctcctca 420
 gctagcacca agggcccatc ggtcttcccc ctggcaccct cctccaagag cacctctggg 480
 ggcacagcgg ccctgggctg cctggtcaag gactacttcc ccgaaccggt gacgggtgtcg 540
 tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca 600
 ggactctact ccctcagcag cgtggtgacc gtgccctcca gcagcttggg caccagacc 660
 tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagag agttgagccc 720
 aaatcttgtg aaaaaactca cacatgcccc ccgtgcccag cacctgaagc cgaaggggcc 780
 ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggaccctt 840
 gaggtcacat gcgtgggtgg ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg 900
 tacgtggacg gcgtggagggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac 960
 agcacgtacc gtgtgggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag 1020
 gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc 1080
 aaagccaaag ggcagccccg agaaccacag gtgtacaccc tgcccccatc ccgggaggag 1140

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atgaccaaga accaggtcag cctgacctgc ctggtcaaag gcttctatcc cagcgacatc      1200
gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg      1260
ctggactccg acggctcctt cttcctctat agcaagctca ccgtggacaa gagcaggtgg      1320
cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg      1380
cagaagagcc tctccctgtc cccgggttga                                     1410

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<210> 382
<211> 1413
<212> DNA
<213> Artificial Sequence

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<220>
<223> TIM3.18 (13A3) (N60Q, D101E) IgG1.3f HC (T168C) with signal sequence

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<220>
<221> sig_peptide
<222> (1)..(51)

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<400> 382
atgagggcctt ggatcttctt tctgctctgc ctggccggga gagcgctcgc acagctgcag      60
ctgcaggagt cgggcccagg actggtgaag ctttcggaga ccctgtccct cacctgcact      120
gtctctggtg gtcctatcag cagtagaagt tactactggg gctggattcg ccagccccca      180
gggaaggggc tggagtggat tgggagtatc tattatagtg gggtcaccta ctaccaaccg      240
tccctcaaga gtcgagtcac catatccgtt gacacgtcca agaaccagtt ctccctgaag      300
ctgagctctg tgaccgccgc agacacggct gtgtattatt gtgcgacagg ggggccctac      360
ggtgactacg cccactgggt cgaaccctgg ggccaggga ccctgggtcac cgtctcctca      420
gctagcacca agggcccatc ggtcttcccc ctggcaccct cctccaagag cacctctggg      480
ggcacagcgg ccctgggctg cctggtcaag gactacttcc ccgaaccggt gacggtgtcg      540
tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggtgtcct acagtcctca      600
ggactctact ccctcagcag cgtggtgacc gtgccctcca gcagcttggg caccagacc      660
tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagag agttgagccc      720
aaatcttgtg aaaaaactca cacatgcccc ccgtgcccag cacctgaagc cgaaggggcc      780
ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggaccctt      840
gaggtcacat gcgtggtggt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg      900

```

```

tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgaggagga gcagtacaac      960
agcacgtacc gtgtgggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag      1020
gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc      1080
aaagccaaag ggcagccccg agaaccacag gtgtacaccc tgcccccatc ccgggaggag      1140
atgaccaaga accaggtcag cctgacctgc ctgggtcaaag gcttctatcc cagcgacatc      1200
gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg      1260
ctggactccg acggctcctt cttcctctat agcaagctca ccgtggacaa gagcagggtg      1320
cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg      1380
cagaagagcc tctccctgtc cccgggtaaa tga                                     1413

```

```

<210> 383
<211> 1410
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> TIM3.18 (13A3) (N60Q, D101E) IgG1.3f HC (T168C) (no C-terminal K) with
signal sequence

```

```

<220>
<221> sig_peptide
<222> (1)..(51)

```

```

<400> 383
atgagggcctt ggatcttctt tctgctctgc ctggccggga gagcgctcgc acagctgcag      60
ctgcaggagt cgggcccagg actggtgaag ccttcggaga ccctgtccct cacctgcact      120
gtctctggtg gtcctcatcag cagtagaagt tactactggg gctggattcg ccagccccca      180
gggaaggggc tggagtggat tgggagtatc tattatagtg ggttcaccta ctaccaaccg      240
tccctcaaga gtcgagtcac catatccgtt gacacgtcca agaaccagtt ctccctgaag      300
ctgagctctg tgaccgccgc agacacggct gtgtattatt gtgcgacagg ggggccctac      360
ggtgactacg cccactgggt cgaaccctgg ggccaggga ccctgggtcac cgtctcctca      420
gctagcacca agggcccatc ggtcttcccc ctggcaccct cctccaagag cacctctggg      480
ggcacagcgg ccctgggctg cctgggtcaag gactacttcc ccgaaccggt gacgggtgtcg      540
tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca      600

```



```

ggactctact ccctcagcag cgtggtgacc gtgccctcca gcagcttggg caccagacc      660
tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagag agttgagccc      720
aaatcttgtg acaaaactca cacatgcccc ccgtgcccag cacctgaagc cgaagggggcc      780
ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggaccacct      840
gaggtcacat gcgtgggtgt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg      900
tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac      960
agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag     1020
gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc     1080
aaagccaaag ggagccccg agaaccacag gtgtacaccc tgcccccatc ccgggaggag     1140
atgaccaaga accaggtcag cctgacctgc ctggtcaaag gcttctatcc cagcgacatc     1200
gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccggtg     1260
ctggactccg acggctcctt cttcctctat agcaagctca ccgtggacaa gagcaggtgg     1320
cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg     1380
cagaagagcc tctccctgtc cccgggttga                                     1410

```

```

<210> 384
<211> 232
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> TIM3.18 (13A3) (N60Q, D101E) LC with signal sequence

```

```

<220>
<221> SIGNAL
<222> (1)..(17)

```

```

<400> 384

```

```

Met Arg Ala Trp Ile Phe Phe Leu Leu Cys Leu Ala Gly Arg Ala Leu
1           5           10          15

```

```

Ala Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro
20           25           30

```

```

Gly Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser

```

35

40

45

Ser Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu
 50 55 60

Leu Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe
 65 70 75 80

Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu
 85 90 95

Glu Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser
 100 105 110

Pro Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Arg Thr Val
 115 120 125

Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys
 130 135 140

Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg
 145 150 155 160

Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn
 165 170 175

Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser
 180 185 190

Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys
 195 200 205

Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr
 210 215 220

Lys Ser Phe Asn Arg Gly Glu Cys
 225 230

<210> 385

<211> 699

<212> DNA

<213> Artificial Sequence

<220>

<223> TIM3.18 (13A3) (N60Q, D101E) LC with signal sequence

<220>

<221> sig_peptide

<222> (1)..(51)

<400> 385

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ttgacgcagt ctccaggcac cctgtctttg tctccagggg aaagagccac cctctcctgc	120
agggccagtc agagtgttag cagcagctac ttagcctggg accagcagaa acctggccag	180
gctcccaggc tcctcatcta tgggtgcatcc agcagggcca ctggcatccc agacagggtc	240
agtggcagtg ggtctgggac agacttcact ctcaccatca gcagactgga gcctgaagat	300
tttgacgtgt attactgtca gcagtatggg agctcaccga tcaccttcgg ccaagggaca	360
cgactggaga ttaaactgtac ggtggctgca ccatctgtct tcatcttccc gccatctgat	420
gagcagttga aatctggaac tgcctctgtt gtgtgcctgc tgaataactt ctatcccaga	480
gaggccaaag tacagtggaa ggtggataac gccctccaat cgggtaactc ccaggagagt	540
gtcacagagc aggacagcaa ggacagcacc tacagcctca gcagcaccct gacgctgagc	600
aaagcagact acgagaaaca caaagtctac gcctgcgaag tcacccatca gggcctgagc	660
tcgcccgtca caaagagctt caacagggga gagtgttag	699