

eolf-seq1
SEQUENCE LISTING

<110> F. Hoffmann-La Roche AG

<120> Bispecific T cell activating antigen binding molecules

<130> P32209

<150> EP 14179764.7

<151> 2014-08-04

<150> EP 15170866.6

<151> 2015-06-05

<160> 73

<170> PatentIn version 3.5

<210> 1

<211> 207

<212> PRT

<213> Homo sapiens

<400> 1

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

Val Gly Val Trp Gly Gln Asp Gly Asn Glu Glu Met Gly Gly Ile Thr
20 25 30

Gln Thr Pro Tyr Lys Val Ser Ile Ser Gly Thr Thr Val Ile Leu Thr
35 40 45

Cys Pro Gln Tyr Pro Gly Ser Glu Ile Leu Trp Gln His Asn Asp Lys
50 55 60

Asn Ile Gly Gly Asp Glu Asp Asp Lys Asn Ile Gly Ser Asp Glu Asp
65 70 75 80

His Leu Ser Leu Lys Glu Phe Ser Glu Leu Glu Gln Ser Gly Tyr Tyr
85 90 95

Val Cys Tyr Pro Arg Gly Ser Lys Pro Glu Asp Ala Asn Phe Tyr Leu
100 105 110

Tyr Leu Arg Ala Arg Val Cys Glu Asn Cys Met Glu Met Asp Val Met
115 120 125

Ser Val Ala Thr Ile Val Ile Val Asp Ile Cys Ile Thr Gly Gly Leu
130 135 140

Leu Leu Leu Val Tyr Tyr Trp Ser Lys Asn Arg Lys Ala Lys Ala Lys
145 150 155 160

Pro Val Thr Arg Gly Ala Gly Ala Gly Gly Arg Gln Arg Gly Gln Asn
165 170 175

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Lys Glu Arg Pro Pro Pro Val Pro Asn Pro Asp Tyr Glu Pro Ile Arg
 180 185 190

Lys Gly Gln Arg Asp Leu Tyr Ser Gly Leu Asn Gln Arg Arg Ile
 195 200 205

<210> 2

<211> 198

<212> PRT

<213> Macaca fascicularis

<400> 2

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

Ile Gly Val Trp Gly Gln Asp Gly Asn Glu Glu Met Gly Ser Ile Thr
 20 25 30

Gln Thr Pro Tyr Gln Val Ser Ile Ser Gly Thr Thr Val Ile Leu Thr
 35 40 45

Cys Ser Gln His Leu Gly Ser Glu Ala Gln Trp Gln His Asn Gly Lys
 50 55 60

Asn Lys Glu Asp Ser Gly Asp Arg Leu Phe Leu Pro Glu Phe Ser Glu
 65 70 75 80

Met Glu Gln Ser Gly Tyr Tyr Val Cys Tyr Pro Arg Gly Ser Asn Pro
 85 90

Glu Asp Ala Ser His His Leu Tyr Leu Lys Ala Arg Val Cys Glu Asn
 100 105 110

Cys Met Glu Met Asp Val Met Ala Val Ala Thr Ile Val Ile Val Asp
 115 120 125

Ile Cys Ile Thr Leu Gly Leu Leu Leu Val Tyr Tyr Trp Ser Lys
 130 135 140

Asn Arg Lys Ala Lys Ala Lys Pro Val Thr Arg Gly Ala Gly Ala Gly
 145 150 155 160

Gly Arg Gln Arg Gly Gln Asn Lys Glu Arg Pro Pro Pro Val Pro Asn
 165 170 175

Pro Asp Tyr Glu Pro Ile Arg Lys Gly Gln Gln Asp Leu Tyr Ser Gly
 180 185 190

Leu Asn Gln Arg Arg Ile
 195

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<210> 3
 <211> 125
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 VH

<400> 3

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

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

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

Ser Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
 50 55 60

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe
 100 105 110

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

<210> 4
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 HCDR1

<400> 4

Thr Tyr Ala Met Asn
 1 5

<210> 5
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 HCDR2

<400> 5

Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser
 1 5 10 15

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val Lys Gly

<210> 6
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 HCDR3

<400> 6

His Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe Ala Tyr
 1 5 10

<210> 7
 <211> 109
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 VL

<400> 7

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

Thr val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser
 20 25 30

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

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

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Leu Ser Gly Ala
 65 70 75 80

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

Leu Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
 100 105

<210> 8
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 LCDR1

<400> 8

Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn
 1 5 10 eolf-seq1

<210> 9
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 LCDR2

<400> 9

Gly Thr Asn Lys Arg Ala Pro
 1 5

<210> 10
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 LCDR3

<400> 10

Ala Leu Trp Tyr Ser Asn Leu Trp Val
 1 5

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

<220>
 <223> linker

<400> 11

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 1 5 10

<210> 12
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> linker

<400> 12

Asp Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 1 5 10

<210> 13
 <211> 225
 <212> PRT
 <213> Homo sapiens

<400> 13

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly

1 5 eo1f-seq1 15
10

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
20 25 30

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
35 40 45

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
50 55 60

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
65 70 75 80

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
85 90 95

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
100 105 110

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
115 120 125

Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser
130 135 140

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

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
165 170 175

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
180 185 190

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
195 200 205

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

Pro
225

<210> 14
<211> 690
<212> PRT
<213> Artificial Sequence

<220>
<223> CD20 VH-CH1-CD3 VH-CL-Fc (knob, P329G LALA)

<400> 14

eolf-seq1

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Ala Phe Ser Tyr Ser
 20 25 30
 Trp Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Arg Ile Phe Pro Gly Asp Gly Asp Thr Asp Tyr Asn Gly Lys Phe
 50 55 60
 Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala 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 Asn Val Phe Asp Gly Tyr Trp Leu Val Tyr Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe
 115 120 125
 Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu
 130 135 140
 Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
 145 150 155 160
 Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
 165 170 175
 Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
 180 185 190
 Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
 195 200 205
 Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Gly
 210 215 220
 Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Leu Glu Ser
 225 230 235 240
 Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala
 245 250 255
 Ala Ser Gly Phe Thr Phe Ser Thr Tyr Ala Met Asn Trp Val Arg Gln
 260 265 270

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Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Arg Ile Arg Ser Lys Tyr
 275 280 285
 Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr
 290 295 300
 Ile Ser Arg Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser
 305 310 315 320
 Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His Gly Asn
 325 330 335
 Phe Gly Asn Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly Thr
 340 345 350
 Leu Val Thr Val Ser Ser Ala Ser Val Ala Ala Pro Ser Val Phe Ile
 355 360 365
 Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val
 370 375 380
 Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys
 385 390 395 400
 Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu
 405 410 415
 Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu
 420 425 430
 Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr
 435 440 445
 His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu
 450 455 460
 Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala
 465 470 475 480
 Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu
 485 490 495
 Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser
 500 505 510
 His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu
 515 520 525
 Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr
 530 535 540

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Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn
545 550 555 560

Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro
565 570 575

Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln
580 585 590

Val Tyr Thr Leu Pro Pro Cys Arg Asp Glu Leu Thr Lys Asn Gln Val
595 600 605

Ser Leu Trp Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val
610 615 620

Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro
625 630 635 640

Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr
645 650 655

Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val
660 665 670

Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu
675 680 685

Ser Pro
690

<210> 15
<211> 447
<212> PRT
<213> Artificial Sequence

<220>
<223> CD20 VH-CH1-Fc (hole, P329G LALA)

<400> 15

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

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

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

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

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

65						70						75						80
Met	Glu	Leu	Ser	Ser ₈₅	Leu	Arg	Ser	Glu	Asp ₉₀	Thr	Ala	Val	Tyr	Tyr ₉₅	Cys			
Ala	Arg	Asn	Val ₁₀₀	Phe	Asp	Gly	Tyr	Trp ₁₀₅	Leu	Val	Tyr	Trp	Gly ₁₁₀	Gln	Gly			
Thr	Leu	Val ₁₁₅	Thr	Val	Ser	Ser	Ala ₁₂₀	Ser	Thr	Lys	Gly	Pro ₁₂₅	Ser	Val	Phe			
Pro	Leu ₁₃₀	Ala	Pro	Ser	Ser	Lys ₁₃₅	Ser	Thr	Ser	Gly	Gly ₁₄₀	Thr	Ala	Ala	Leu			
Gly ₁₄₅	Cys	Leu	Val	Lys	Asp ₁₅₀	Tyr	Phe	Pro	Glu	Pro ₁₅₅	Val	Thr	Val	Ser	Trp ₁₆₀			
Asn	Ser	Gly	Ala	Leu ₁₆₅	Thr	Ser	Gly	Val	His ₁₇₀	Thr	Phe	Pro	Ala	Val ₁₇₅	Leu			
Gln	Ser	Ser	Gly ₁₈₀	Leu	Tyr	Ser	Leu	Ser ₁₈₅	Ser	Val	Val	Thr	Val ₁₉₀	Pro	Ser			
Ser	Ser	Leu ₁₉₅	Gly	Thr	Gln	Thr	Tyr ₂₀₀	Ile	Cys	Asn	Val	Asn ₂₀₅	His	Lys	Pro			
Ser	Asn ₂₁₀	Thr	Lys	Val	Asp	Lys ₂₁₅	Lys	Val	Glu	Pro	Lys ₂₂₀	Ser	Cys	Asp	Lys			
Thr ₂₂₅	His	Thr	Cys	Pro	Pro ₂₃₀	Cys	Pro	Ala	Pro	Glu ₂₃₅	Ala	Ala	Gly	Gly	Pro ₂₄₀			
Ser	Val	Phe	Leu	Phe ₂₄₅	Pro	Pro	Lys	Pro	Lys ₂₅₀	Asp	Thr	Leu	Met	Ile ₂₅₅	Ser			
Arg	Thr	Pro	Glu ₂₆₀	Val	Thr	Cys	Val	Val ₂₆₅	Val	Asp	Val	Ser	His ₂₇₀	Glu	Asp			
Pro	Glu	Val ₂₇₅	Lys	Phe	Asn	Trp	Tyr ₂₈₀	Val	Asp	Gly	Val	Glu ₂₈₅	Val	His	Asn			
Ala	Lys ₂₉₀	Thr	Lys	Pro	Arg	Glu ₂₉₅	Glu	Gln	Tyr	Asn	Ser ₃₀₀	Thr	Tyr	Arg	Val			
Val ₃₀₅	Ser	Val	Leu	Thr	Val ₃₁₀	Leu	His	Gln	Asp	Trp ₃₁₅	Leu	Asn	Gly	Lys	Glu ₃₂₀			
Tyr	Lys	Cys	Lys	Val ₃₂₅	Ser	Asn	Lys	Ala	Leu ₃₃₀	Gly	Ala	Pro	Ile	Glu ₃₃₅	Lys			
Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Cys	Thr			

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

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Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe
 130 135 140

Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly
 145 150 155 160

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

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

Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys
 195 200 205

Val Glu Pro Lys Ser Cys
 210

<210> 17
 <211> 219
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD20 VL-CL

<400> 17

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

Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
 20 25 30

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

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Val Ser Gly Val Pro
 50 55 60

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

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
 85 90 95

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

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 115 120 125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe

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140

130

135

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
165 170 175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
180 185 190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
195 200 205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 18
<211> 672
<212> PRT
<213> Artificial Sequence

<220>
<223> CD20 VH-CH1(EF)-CD3 VL-CH1-Fc (knob, P329G LALA)

<400> 18

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

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

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

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

Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala 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 Asn Val Phe Asp Gly Tyr Trp Leu Val Tyr Trp Gly Gln Gly
100 105 110

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

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

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Gly Cys Leu Val Glu Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
 145 150 155 160
 Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
 165 170 175
 Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
 180 185 190
 Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
 195 200 205
 Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp Gly
 210 215 220
 Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln Glu
 225 230 235 240
 Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Gly
 245 250 255
 Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln
 260 265 270
 Glu Lys Pro Gly Gln Ala Phe Arg Gly Leu Ile Gly Gly Thr Asn Lys
 275 280 285
 Arg Ala Pro Gly Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly
 290 295 300
 Lys Ala Ala Leu Thr Leu Ser Gly Ala Gln Pro Glu Asp Glu Ala Glu
 305 310 315 320
 Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly
 325 330 335
 Thr Lys Leu Thr Val Leu Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
 340 345 350
 Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
 355 360 365
 Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
 370 375 380
 Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
 385 390 395 400
 Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
 405 410 415

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Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
 420 425 430

Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp
 435 440 445

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly
 450 455 460

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 465 470 475 480

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
 485 490 495

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 500 505 510

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
 515 520 525

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 530 535 540

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro Ile Glu
 545 550 555 560

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 565 570 575

Thr Leu Pro Pro Cys Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu
 580 585 590

Trp Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 595 600 605

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 610 615 620

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
 625 630 635 640

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
 645 650 655

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
 660 665 670

<210> 19
 <211> 447
 <212> PRT

eolf-seql

<213> Artificial Sequence

<220>

<223> CD20 VH-CH1(EE)-Fc (hole, P329G LALA)

<400> 19

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

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

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

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

Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala 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 Asn Val Phe Asp Gly Tyr Trp Leu Val Tyr Trp Gly Gln Gly
 100 105 110

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

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

Gly Cys Leu Val Glu Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
 145 150 155 160

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

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

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

Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp Lys
 210 215 220

Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly Pro
 225 230 235 240

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser

					245					250					255	
Arg	Thr	Pro	Glu 260	Val	Thr	Cys	Val	Val 265	Val	Asp	Val	Ser	His 270	Glu	Asp	
Pro	Glu	Val 275	Lys	Phe	Asn	Trp	Tyr 280	Val	Asp	Gly	Val	Glu 285	Val	His	Asn	
Ala	Lys 290	Thr	Lys	Pro	Arg	Glu 295	Glu	Gln	Tyr	Asn	Ser 300	Thr	Tyr	Arg	Val	
Val 305	Ser	Val	Leu	Thr	Val 310	Leu	His	Gln	Asp	Trp 315	Leu	Asn	Gly	Lys	Glu 320	
Tyr	Lys	Cys	Lys	Val 325	Ser	Asn	Lys	Ala	Leu 330	Gly	Ala	Pro	Ile	Glu 335	Lys	
Thr	Ile	Ser	Lys 340	Ala	Lys	Gly	Gln	Pro 345	Arg	Glu	Pro	Gln	Val 350	Cys	Thr	
Leu	Pro	Pro 355	Ser	Arg	Asp	Glu	Leu 360	Thr	Lys	Asn	Gln	Val 365	Ser	Leu	Ser	
Cys	Ala 370	Val	Lys	Gly	Phe	Tyr 375	Pro	Ser	Asp	Ile	Ala 380	Val	Glu	Trp	Glu	
Ser 385	Asn	Gly	Gln	Pro	Glu 390	Asn	Asn	Tyr	Lys	Thr 395	Thr	Pro	Pro	Val	Leu 400	
Asp	Ser	Asp	Gly	Ser 405	Phe	Phe	Leu	Val	Ser 410	Lys	Leu	Thr	Val	Asp 415	Lys	
Ser	Arg	Trp	Gln 420	Gln	Gly	Asn	Val	Phe 425	Ser	Cys	Ser	Val	Met 430	His	Glu	
Ala	Leu	His 435	Asn	His	Tyr	Thr	Gln 440	Lys	Ser	Leu	Ser	Leu 445	Ser	Pro		
<210>	20															
<211>	219															
<212>	PRT															
<213>	Artificial Sequence															
<220>																
<223>	CD20 VL-CL(RK)															
<400>	20															
Asp 1	Ile	Val	Met 20	Thr 5	Gln	Thr	Pro	Leu	Ser 10	Leu	Pro	Val	Thr	Pro 15	Gly	
Glu	Pro	Ala	Ser 20	Ile	Ser	Cys	Arg	Ser 25	Ser	Lys	Ser	Leu 30	Leu	His	Ser	

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

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Val Ser Gly Val Pro
 50 55 60

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

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
 85 90 95

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

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Arg
 115 120 125

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
 145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
 165 170 175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
 180 185 190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
 195 200 205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 210 215

<210> 21
 <211> 232
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 VH-CL

<400> 21

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

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

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val

eolf-seq1

35

40

45

Ser Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
 50 55 60

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe
 100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser 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> 22
 <211> 687
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> BCMA VH-CH1-CD3 VH-CL-Fc (knob, P329G LALA)

<400> 22

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

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

eolf-seq1

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

eolf-seql

Asp Asp Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala
 305 310 315 320
 Glu Asp Thr Ala Val Tyr Tyr Cys Val Arg His Gly Asn Phe Gly Asn
 325 330 335
 Ser Tyr Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
 340 345 350
 Val Ser Ser Ala Ser Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro
 355 360 365
 Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu
 370 375 380
 Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn
 385 390 395 400
 Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser
 405 410 415
 Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala
 420 425 430
 Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly
 435 440 445
 Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys Asp Lys
 450 455 460
 Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly Pro
 465 470 475 480
 Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
 485 490 495
 Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
 500 505 510
 Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
 515 520 525
 Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val
 530 535 540
 Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
 545 550 555 560
 Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro Ile Glu Lys
 565 570 575

eolf-seq1

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
580 585 590

Leu Pro Pro Cys Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Trp
595 600 605

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
610 615 620

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
625 630 635 640

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
645 650 655

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
660 665 670

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
675 680 685

<210> 23
<211> 444
<212> PRT
<213> Artificial Sequence

<220>
<223> BCMA VH-CH1-Fc (hole, P329G LALA)
<400> 23

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

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

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

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

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

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

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

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

eol-f-seq1

115		120		125											
Pro	Ser ₁₃₀	Ser	Lys	Ser	Thr	Ser ₁₃₅	Gly	Gly	Thr	Ala	Ala ₁₄₀	Leu	Gly	Cys	Leu
Val ₁₄₅	Lys	Asp	Tyr	Phe	Pro ₁₅₀	Glu	Pro	Val	Thr	Val ₁₅₅	Ser	Trp	Asn	Ser	Gly ₁₆₀
Ala	Leu	Thr	Ser	Gly ₁₆₅	Val	His	Thr	Phe	Pro ₁₇₀	Ala	Val	Leu	Gln	Ser ₁₇₅	Ser
Gly	Leu	Tyr	Ser ₁₈₀	Leu	Ser	Ser	Val	Val ₁₈₅	Thr	Val	Pro	Ser	Ser ₁₉₀	Ser	Leu
Gly	Thr	Gln ₁₉₅	Thr	Tyr	Ile	Cys	Asn ₂₀₀	Val	Asn	His	Lys	Pro ₂₀₅	Ser	Asn	Thr
Lys	Val ₂₁₀	Asp	Lys	Lys	Val	Glu ₂₁₅	Pro	Lys	Ser	Cys	Asp ₂₂₀	Lys	Thr	His	Thr
Cys ₂₂₅	Pro	Pro	Cys	Pro	Ala ₂₃₀	Pro	Glu	Ala	Ala	Gly ₂₃₅	Gly	Pro	Ser	Val	Phe ₂₄₀
Leu	Phe	Pro	Pro	Lys ₂₄₅	Pro	Lys	Asp	Thr	Leu ₂₅₀	Met	Ile	Ser	Arg	Thr ₂₅₅	Pro
Glu	Val	Thr	Cys ₂₆₀	Val	Val	Val	Asp	Val ₂₆₅	Ser	His	Glu	Asp	Pro ₂₇₀	Glu	Val
Lys	Phe	Asn ₂₇₅	Trp	Tyr	Val	Asp	Gly ₂₈₀	Val	Glu	Val	His	Asn ₂₈₅	Ala	Lys	Thr
Lys	Pro ₂₉₀	Arg	Glu	Glu	Gln	Tyr ₂₉₅	Asn	Ser	Thr	Tyr	Arg ₃₀₀	Val	Val	Ser	Val
Leu ₃₀₅	Thr	Val	Leu	His	Gln ₃₁₀	Asp	Trp	Leu	Asn	Gly ₃₁₅	Lys	Glu	Tyr	Lys	Cys ₃₂₀
Lys	Val	Ser	Asn	Lys ₃₂₅	Ala	Leu	Gly	Ala	Pro ₃₃₀	Ile	Glu	Lys	Thr	Ile ₃₃₅	Ser
Lys	Ala	Lys	Gly ₃₄₀	Gln	Pro	Arg	Glu	Pro ₃₄₅	Gln	Val	Cys	Thr	Leu ₃₅₀	Pro	Pro
Ser	Arg	Asp ₃₅₅	Glu	Leu	Thr	Lys	Asn ₃₆₀	Gln	Val	Ser	Leu	Ser ₃₆₅	Cys	Ala	Val
Lys	Gly ₃₇₀	Phe	Tyr	Pro	Ser	Asp ₃₇₅	Ile	Ala	Val	Glu	Trp ₃₈₀	Glu	Ser	Asn	Gly
Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp

eolf-seq1
395

385 390 400

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

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

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

<210> 24
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> CD3 VL-CH1

<400> 24

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

Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser
 20 25 30

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

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

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Leu Ser Gly Ala
65 70 75 80

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

Leu Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser Ser Ala
 100 105 110

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

Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe
130 135 140

Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly
145 150 155 160

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

eolf-seq1

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

Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys
 195 200 205

Val Glu Pro Lys Ser Cys
 210

<210> 25
 <211> 216
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> BCMA VL-CL

<400> 25

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 Tyr Pro Pro
 85 90 95

Asp Phe Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val
 100 105 110

Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys
 115 120 125

Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg
 130 135 140

Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn
 145 150 155 160

Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser
 165 170 175

Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys

eo1f-seq1

180

185

190

Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr
195 200 205

Lys Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 26
<211> 669
<212> PRT
<213> Artificial Sequence

<220>
<223> BCMA VH-CH1(EE)-CD3 VL-CH1-Fc (knob, P329G LALA)
<400> 26

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

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

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

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

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

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

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

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

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

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

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

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

eolf-seq1

Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr
 195 200 205
 Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp Gly Gly Gly Gly
 210 215 220
 Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln Glu Pro Ser Leu
 225 230 235 240
 Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Gly Ser Ser Thr
 245 250 255
 Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln Glu Lys Pro
 260 265 270
 Gly Gln Ala Phe Arg Gly Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro
 275 280 285
 Gly Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala
 290 295 300
 Leu Thr Leu Ser Gly Ala Gln Pro Glu Asp Glu Ala Glu Tyr Tyr Cys
 305 310 315 320
 Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly Thr Lys Leu
 325 330 335
 Thr Val Leu Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 340 345 350
 Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 355 360 365
 Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 370 375 380
 Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 385 390 395 400
 Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 405 410 415
 Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 420 425 430
 Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
 435 440 445
 Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly Pro Ser Val
 450 455 460

eolf-seq1

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
465 470 475 480

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
485 490 495

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
500 505 510

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
515 520 525

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
530 535 540

Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro Ile Glu Lys Thr Ile
545 550 555 560

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
565 570 575

Pro Cys Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Trp Cys Leu
580 585 590

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
595 600 605

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
610 615 620

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
625 630 635 640

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
645 650 655

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
660 665

<210> 27

<211> 444

<212> PRT

<213> Artificial Sequence

<220>

<223> BCMA VH-CH1(EE)-Fc (hole, P329G LALA)

<400> 27

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr

20							25							30						
Ala	Met	Ser ₃₅	Trp	Val	Arg	Gln	Ala ₄₀	Pro	Gly	Lys	Gly	Leu ₄₅	Glu	Trp	Val					
Ser	Ala ₅₀	Ile	Ser	Gly	Ser	Gly ₅₅	Gly	Ser	Thr	Tyr	Tyr ₆₀	Ala	Asp	Ser	Val					
Lys ₆₅	Gly	Arg	Phe	Thr	Ile ₇₀	Ser	Arg	Asp	Asn	Ser ₇₅	Lys	Asn	Thr	Leu	Tyr ₈₀					
Leu	Gln	Met	Asn	Ser ₈₅	Leu	Arg	Ala	Glu	Asp ₉₀	Thr	Ala	Val	Tyr	Tyr ₉₅	Cys					
Ala	Lys	Val	Leu ₁₀₀	Gly	Trp	Phe	Asp	Tyr ₁₀₅	Trp	Gly	Gln	Gly	Thr ₁₁₀	Leu	Val					
Thr	Val	Ser ₁₁₅	Ser	Ala	Ser	Thr	Lys ₁₂₀	Gly	Pro	Ser	Val	Phe ₁₂₅	Pro	Leu	Ala					
Pro	Ser ₁₃₀	Ser	Lys	Ser	Thr	Ser ₁₃₅	Gly	Gly	Thr	Ala	Ala ₁₄₀	Leu	Gly	Cys	Leu					
Val ₁₄₅	Glu	Asp	Tyr	Phe	Pro ₁₅₀	Glu	Pro	Val	Thr	Val ₁₅₅	Ser	Trp	Asn	Ser	Gly ₁₆₀					
Ala	Leu	Thr	Ser	Gly ₁₆₅	Val	His	Thr	Phe	Pro ₁₇₀	Ala	Val	Leu	Gln	Ser ₁₇₅	Ser					
Gly	Leu	Tyr	Ser ₁₈₀	Leu	Ser	Ser	Val	Val ₁₈₅	Thr	Val	Pro	Ser	Ser ₁₉₀	Ser	Leu					
Gly	Thr	Gln ₁₉₅	Thr	Tyr	Ile	Cys	Asn ₂₀₀	Val	Asn	His	Lys	Pro ₂₀₅	Ser	Asn	Thr					
Lys	Val ₂₁₀	Asp	Glu	Lys	Val	Glu ₂₁₅	Pro	Lys	Ser	Cys	Asp ₂₂₀	Lys	Thr	His	Thr					
Cys ₂₂₅	Pro	Pro	Cys	Pro	Ala ₂₃₀	Pro	Glu	Ala	Ala	Gly ₂₃₅	Gly	Pro	Ser	Val	Phe ₂₄₀					
Leu	Phe	Pro	Pro	Lys ₂₄₅	Pro	Lys	Asp	Thr	Leu ₂₅₀	Met	Ile	Ser	Arg	Thr ₂₅₅	Pro					
Glu	Val	Thr	Cys ₂₆₀	Val	Val	Val	Asp	Val ₂₆₅	Ser	His	Glu	Asp	Pro ₂₇₀	Glu	Val					
Lys	Phe	Asn ₂₇₅	Trp	Tyr	Val	Asp	Gly ₂₈₀	Val	Glu	Val	His	Asn ₂₈₅	Ala	Lys	Thr					
Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val					

eolf-seq1
300

290

295

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

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

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

Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Ser Cys Ala Val
355 360 365

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

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

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

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

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

<210> 28
<211> 232
<212> PRT
<213> Artificial Sequence

<220>
<223> CD3 VH-CL

<400> 28

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

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

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

Ser Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60

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

eolf-seql

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe
100 105 110

Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser 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> 29
<211> 216
<212> PRT
<213> Artificial Sequence

<220>
<223> BCMA VL-CL(RK)

<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

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

eo1f-seq1

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

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

Thr Leu Val Thr Val Ser Ser
115

<210> 31
<211> 115
<212> PRT
<213> Artificial Sequence

<220>
<223> CD20 VL

<400> 31

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

Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
20 25 30

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

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Val Ser Gly Val Pro
50 55 60

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

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
85 90 95

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

Arg Thr Val
115

<210> 32
<211> 672
<212> PRT
<213> Artificial Sequence

<220>
<223> CD3 VL-CH1-CD20 VH-CH1(EE)-Fc(knob, P329G LALA)

<400> 32

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

eolf-seq1

Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser
 20 25 30
 Asn Tyr Ala Asn Trp Val Gln Glu Lys Pro Gly Gln Ala Phe Arg Gly
 35 40 45
 Leu Ile Gly Gly Thr Asn Lys Arg Ala Pro Gly Thr Pro Ala Arg Phe
 50 55 60
 Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Leu Ser Gly Ala
 65 70 75 80
 Gln Pro Glu Asp Glu Ala Glu Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn
 85 90 95
 Leu Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser Ser Ala
 100 105 110
 Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser
 115 120 125
 Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe
 130 135 140
 Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly
 145 150 155 160
 Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu
 165 170 175
 Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr
 180 185 190
 Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys
 195 200 205
 Val Glu Pro Lys Ser Cys Asp Gly Gly Gly Gly Ser Gly Gly Gly Gly
 210 215 220
 Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly
 225 230 235 240
 Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Ala Phe Ser Tyr
 245 250 255
 Ser Trp Ile Asn Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp
 260 265 270
 Met Gly Arg Ile Phe Pro Gly Asp Gly Asp Thr Asp Tyr Asn Gly Lys
 275 280 285

eolf-seql

Phe Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala
 290 295 300
 Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr
 305 310 315 320
 Cys Ala Arg Asn Val Phe Asp Gly Tyr Trp Leu Val Tyr Trp Gly Gln
 325 330 335
 Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
 340 345 350
 Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
 355 360 365
 Leu Gly Cys Leu Val Glu Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
 370 375 380
 Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
 385 390 395 400
 Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
 405 410 415
 Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
 420 425 430
 Pro Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp
 435 440 445
 Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly
 450 455 460
 Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 465 470 475 480
 Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
 485 490 495
 Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 500 505 510
 Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
 515 520 525
 Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 530 535 540
 Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro Ile Glu
 545 550 555 560

e01f-seq1

Lys Thr Ile Ser Lys₅₆₅ Ala Lys Gly Gln Pro₅₇₀ Arg Glu Pro Gln Val₅₇₅ Tyr

Thr Leu Pro Pro₅₈₀ Cys Arg Asp Glu Leu₅₈₅ Thr Lys Asn Gln Val₅₉₀ Ser Leu

Trp Cys Leu₅₉₅ Val Lys Gly Phe Tyr₆₀₀ Pro Ser Asp Ile Ala₆₀₅ Val Glu Trp

Glu Ser Asn Gly Gln Pro Glu₆₁₅ Asn Asn Tyr Lys Thr₆₂₀ Thr Pro Pro Val

Leu Asp Ser Asp Gly Ser₆₃₀ Phe Phe Leu Tyr Ser₆₃₅ Lys Leu Thr Val Asp₆₄₀

Lys Ser Arg Trp Gln₆₄₅ Gln Gly Asn Val Phe₆₅₀ Ser Cys Ser Val Met₆₅₅ His

Glu Ala Leu His₆₆₀ Asn His Tyr Thr Gln₆₆₅ Lys Ser Leu Ser Leu₆₇₀ Ser Pro

<210> 33

<211> 672

<212> PRT

<213> Artificial Sequence

<220>

<223> CD20 VH-CH1-CD3 VL-CH1-Fc(knob, P329G LALA)

<400> 33

Gln Val Gln Leu₅ Val Gln Ser Gly Ala Glu₁₀ Val Lys Lys Pro Gly₁₅ Ser

Ser Val Lys Val₂₀ Ser Cys Lys Ala Ser₂₅ Gly Tyr Ala Phe Ser₃₀ Tyr Ser

Trp Ile Asn₃₅ Trp Val Arg Gln₄₀ Ala Pro Gly Gln Gly₄₅ Leu Glu Trp Met

Gly Arg Ile Phe Pro Gly₅₅ Asp Gly Asp Thr Asp₆₀ Tyr Asn Gly Lys Phe

Lys Gly Arg Val Thr₇₀ Ile Thr Ala Asp Lys Ser₇₅ Thr Ser Thr Ala Tyr₈₀

Met Glu Leu Ser Ser₈₅ Leu Arg Ser Glu Asp₉₀ Thr Ala Val Tyr Tyr₉₅ Cys

Ala Arg Asn Val₁₀₀ Phe Asp Gly Tyr Trp₁₀₅ Leu Val Tyr Trp Gly₁₁₀ Gln Gly

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

eolf-seq1

115		120		125											
Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu
	130					135					140				
Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp
145					150					155					160
Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu
				165					170					175	
Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser
			180					185					190		
Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro
		195					200					205			
Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	Gly
	210					215					220				
Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gln	Ala	Val	Val	Thr	Gln	Glu
225					230					235					240
Pro	Ser	Leu	Thr	Val	Ser	Pro	Gly	Gly	Thr	Val	Thr	Leu	Thr	Cys	Gly
				245					250					255	
Ser	Ser	Thr	Gly	Ala	Val	Thr	Thr	Ser	Asn	Tyr	Ala	Asn	Trp	Val	Gln
			260					265					270		
Glu	Lys	Pro	Gly	Gln	Ala	Phe	Arg	Gly	Leu	Ile	Gly	Gly	Thr	Asn	Lys
		275					280					285			
Arg	Ala	Pro	Gly	Thr	Pro	Ala	Arg	Phe	Ser	Gly	Ser	Leu	Leu	Gly	Gly
	290					295					300				
Lys	Ala	Ala	Leu	Thr	Leu	Ser	Gly	Ala	Gln	Pro	Glu	Asp	Glu	Ala	Glu
305					310					315					320
Tyr	Tyr	Cys	Ala	Leu	Trp	Tyr	Ser	Asn	Leu	Trp	Val	Phe	Gly	Gly	Gly
				325					330					335	
Thr	Lys	Leu	Thr	Val	Leu	Ser	Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val
			340					345					350		
Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala
		355					360					365			
Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser
	370					375					380				
Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val

385					390					395					400
Leu	Gln	Ser	Ser	Gly 405	Leu	Tyr	Ser	Leu	Ser 410	Ser	Val	Val	Thr	Val 415	Pro
Ser	Ser	Ser	Leu 420	Gly	Thr	Gln	Thr	Tyr 425	Ile	Cys	Asn	Val	Asn 430	His	Lys
Pro	Ser	Asn 435	Thr	Lys	Val	Asp	Lys 440	Lys	Val	Glu	Pro	Lys 445	Ser	Cys	Asp
Lys	Thr 450	His	Thr	Cys	Pro	Pro 455	Cys	Pro	Ala	Pro	Glu 460	Ala	Ala	Gly	Gly
Pro 465	Ser	Val	Phe	Leu	Phe 470	Pro	Pro	Lys	Pro	Lys 475	Asp	Thr	Leu	Met	Ile 480
Ser	Arg	Thr	Pro	Glu 485	Val	Thr	Cys	Val	Val 490	Val	Asp	Val	Ser	His 495	Glu
Asp	Pro	Glu	Val 500	Lys	Phe	Asn	Trp	Tyr 505	Val	Asp	Gly	Val	Glu 510	Val	His
Asn	Ala	Lys 515	Thr	Lys	Pro	Arg	Glu 520	Glu	Gln	Tyr	Asn	Ser 525	Thr	Tyr	Arg
Val	Val 530	Ser	Val	Leu	Thr	Val 535	Leu	His	Gln	Asp	Trp 540	Leu	Asn	Gly	Lys
Glu 545	Tyr	Lys	Cys	Lys	Val 550	Ser	Asn	Lys	Ala	Leu 555	Gly	Ala	Pro	Ile	Glu 560
Lys	Thr	Ile	Ser	Lys 565	Ala	Lys	Gly	Gln	Pro 570	Arg	Glu	Pro	Gln	Val 575	Tyr
Thr	Leu	Pro	Pro 580	Cys	Arg	Asp	Glu	Leu 585	Thr	Lys	Asn	Gln	Val 590	Ser	Leu
Trp	Cys	Leu 595	Val	Lys	Gly	Phe	Tyr 600	Pro	Ser	Asp	Ile	Ala 605	Val	Glu	Trp
Glu	Ser 610	Asn	Gly	Gln	Pro	Glu 615	Asn	Asn	Tyr	Lys	Thr 620	Thr	Pro	Pro	Val
Leu 625	Asp	Ser	Asp	Gly	Ser 630	Phe	Phe	Leu	Tyr	Ser 635	Lys	Leu	Thr	Val	Asp 640
Lys	Ser	Arg	Trp	Gln 645	Gln	Gly	Asn	Val	Phe 650	Ser	Cys	Ser	Val	Met 655	His
Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro

e01f-seq1

660

665

670

<210> 34
 <211> 676
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD20 VH-CH1 CD3 VL-CL-Fc(knob, P329G LALA)
 <400> 34

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

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

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

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

Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala 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 Asn Val Phe Asp Gly Tyr Trp Leu Val Tyr Trp Gly Gln Gly
 100 105 110

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

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

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

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

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

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

Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Gly
 210 215 220

eolf-seq1

Gly 225 Gly Gly Ser Gly 230 Gly Gly Ser Gln 235 Ala Val Val Thr Gln 240
 Pro Ser Leu Thr 245 Val Ser Pro Gly Gly Thr 250 Val Thr Leu Thr Cys 255 Gly
 Ser Ser Thr 260 Gly Ala Val Thr Thr 265 Ser Asn Tyr Ala Asn Trp 270 Val Gln
 Glu Lys 275 Pro Gly Gln Ala Phe 280 Arg Gly Leu Ile Gly 285 Gly Thr Asn Lys
 Arg 290 Ala Pro Gly Thr Pro 295 Ala Arg Phe Ser Gly 300 Ser Leu Leu Gly Gly
 Lys 305 Ala Ala Leu Thr 310 Leu Ser Gly Ala Gln 315 Pro Glu Asp Glu Ala Glu 320
 Tyr Tyr Cys Ala 325 Leu Trp Tyr Ser Asn 330 Leu Trp Val Phe Gly 335 Gly Gly
 Thr Lys 340 Leu Thr Val Leu Ser Ser 345 Ala Ser Val Ala Ala 350 Pro Ser Val
 Phe Ile 355 Phe Pro Pro Ser Asp 360 Glu Gln Leu Lys Ser 365 Gly Thr Ala Ser
 Val 370 Val Cys Leu Leu Asn 375 Asn Phe Tyr Pro Arg 380 Glu Ala Lys Val Gln
 Trp 385 Lys Val Asp Asn 390 Ala Leu Gln Ser Gly 395 Asn Ser Gln Glu Ser Val 400
 Thr Glu Gln Asp 405 Ser Lys Asp Ser Thr 410 Tyr Ser Leu Ser Ser Thr 415 Leu
 Thr Leu Ser 420 Lys Ala Asp Tyr Glu 425 Lys His Lys Val Tyr 430 Ala Cys Glu
 Val 435 Thr His Gln Gly Leu Ser 440 Ser Pro Val Thr Lys 445 Ser Phe Asn Arg
 Gly 450 Glu Cys Asp Lys Thr 455 His Thr Cys Pro Pro 460 Cys Pro Ala Pro Glu
 Ala 465 Ala Gly Gly Pro 470 Ser Val Phe Leu Phe 475 Pro Pro Lys Pro Lys Asp 480
 Thr Leu Met Ile 485 Ser Arg Thr Pro Glu 490 Val Thr Cys Val Val 495 Val Asp

eolf-seq1

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
500 505 510

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
515 520 525

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
530 535 540

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly
545 550 555 560

Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
565 570 575

Pro Gln Val Tyr Thr Leu Pro Pro Cys Arg Asp Glu Leu Thr Lys Asn
580 585 590

Gln Val Ser Leu Trp Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
595 600 605

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
610 615 620

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
625 630 635 640

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
645 650 655

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
660 665 670

Ser Leu Ser Pro
675

<210> 35
<211> 228
<212> PRT
<213> Artificial Sequence

<220>
<223> CD3 VH-CH1

<400> 35

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

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

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val

eo1f-seq1

35 40 45

Ser Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60

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

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

Tyr Cys Val Arg His Gly Asn Phe Gly Asn Ser Tyr Val Ser Trp Phe
100 105 110

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

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

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

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

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

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

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

Pro Lys Ser Cys
225

<210> 36
<211> 681
<212> PRT
<213> Artificial Sequence

<220>
<223> CD20 VL-CH1-CD3 VH-CH1(EE)-Fc(knob, P329G LALA)

<400> 36

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

Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
20 25 30

eolf-seq1

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

eol-f-seq1

Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
 305 310 315 320
 Thr Ala Val Tyr Tyr Cys Val Arg His Gly Asn Phe Gly Asn Ser Tyr
 325 330 335
 Val Ser Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
 340 345 350
 Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser
 355 360 365
 Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Glu Asp
 370 375 380
 Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr
 385 390 395 400
 Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr
 405 410 415
 Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln
 420 425 430
 Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp
 435 440 445
 Glu Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro
 450 455 460
 Cys Pro Ala Pro Glu Ala Ala Gly Gly Pro Ser Val Phe Leu Phe Pro
 465 470 475 480
 Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr
 485 490 495
 Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn
 500 505 510
 Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg
 515 520 525
 Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val
 530 535 540
 Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser
 545 550 555 560
 Asn Lys Ala Leu Gly Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys
 565 570 575

eolf-seql

Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Cys Arg Asp
580 585 590

Glu Leu Thr Lys Asn Gln Val Ser Leu Trp Cys Leu Val Lys Gly Phe
595 600 605

Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu
610 615 620

Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe
625 630 635 640

Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly
645 650 655

Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr
660 665 670

Thr Gln Lys Ser Leu Ser Leu Ser Pro
675 680

<210> 37

<211> 442

<212> PRT

<213> Artificial Sequence

<220>

<223> CD20 VL-CH1-Fc(hole, P329G LALA)

<400> 37

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

Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
20 25 30

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

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Val Ser Gly Val Pro
50 55 60

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

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
85 90 95

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

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

eolf-seq1

115 120 125
 Ser Lys₁₃₀ Ser Thr Ser Gly Gly₁₃₅ Thr Ala Ala Leu Gly₁₄₀ Cys Leu Val Lys
 Asp Tyr Phe Pro Glu Pro₁₅₀ Val Thr Val Ser Trp₁₅₅ Asn Ser Gly Ala Leu₁₆₀
 Thr Ser Gly Val His₁₆₅ Thr Phe Pro Ala Val₁₇₀ Leu Gln Ser Ser Gly₁₇₅ Leu
 Tyr Ser Leu Ser₁₈₀ Ser Val Val Thr Val₁₈₅ Pro Ser Ser Ser Leu₁₉₀ Gly Thr
 Gln Thr Tyr₁₉₅ Ile Cys Asn Val Asn₂₀₀ His Lys Pro Ser Asn₂₀₅ Thr Lys Val
 Asp Lys₂₁₀ Lys Val Glu Pro Lys₂₁₅ Ser Cys Asp Lys Thr₂₂₀ His Thr Cys Pro
 Pro Cys Pro Ala Pro Glu₂₃₀ Ala Ala Gly Gly Pro₂₃₅ Ser Val Phe Leu Phe₂₄₀
 Pro Pro Lys Pro Lys₂₄₅ Asp Thr Leu Met Ile₂₅₀ Ser Arg Thr Pro Glu₂₅₅ Val
 Thr Cys Val Val₂₆₀ Val Asp Val Ser His₂₆₅ Glu Asp Pro Glu Val₂₇₀ Lys Phe
 Asn Trp Tyr₂₇₅ Val Asp Gly Val Glu₂₈₀ Val His Asn Ala Lys₂₈₅ Thr Lys Pro
 Arg Glu₂₉₀ Glu Gln Tyr Asn Ser₂₉₅ Thr Tyr Arg Val Val₃₀₀ Ser Val Leu Thr
 Val₃₀₅ Leu His Gln Asp Trp₃₁₀ Leu Asn Gly Lys Glu₃₁₅ Tyr Lys Cys Lys Val₃₂₀
 Ser Asn Lys Ala Leu₃₂₅ Gly Ala Pro Ile Glu₃₃₀ Lys Thr Ile Ser Lys₃₃₅ Ala
 Lys Gly Gln Pro₃₄₀ Arg Glu Pro Gln Val₃₄₅ Cys Thr Leu Pro Pro₃₅₀ Ser Arg
 Asp Glu₃₅₅ Leu Thr Lys Asn Gln Val₃₆₀ Ser Leu Ser Cys Ala Val₃₆₅ Lys Gly
 Phe Tyr₃₇₀ Pro Ser Asp Ile Ala₃₇₅ Val Glu Trp Glu Ser₃₈₀ Asn Gly Gln Pro
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser

Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala
165 170 175

eolf-seq1

Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg
 180 185 190

Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr
 195 200 205

Val Ala Pro Thr Glu Cys Ser
 210 215

<210> 39
 <211> 226
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD20 VH-CL

<400> 39

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

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

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

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

Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala 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 Asn Val Phe Asp Gly Tyr Trp Leu Val Tyr Trp Gly Gln Gly
 100 105 110

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

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

Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp
 145 150 155 160

Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr
 165 170 175

Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr

eolf-seq1

180

185

190

Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val
 195 200 205

Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly
 210 215 220

Glu Cys
 225

<210> 40
 <211> 672
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD20 VH-CH1(EE)-CD3 VL-CH1-Fc(DD, P329G LALA)

<400> 40

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

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

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

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

Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala 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 Asn Val Phe Asp Gly Tyr Trp Leu Val Tyr Trp Gly Gln Gly
 100 105 110

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

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

Gly Cys Leu Val Glu Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
 145 150 155 160

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

eolf-seq1

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

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

Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp Gly
 210 215 220

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln Glu
 225 230 235 240

Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Gly
 245 250 255

Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln
 260 265 270

Glu Lys Pro Gly Gln Ala Phe Arg Gly Leu Ile Gly Gly Thr Asn Lys
 275 280 285

Arg Ala Pro Gly Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly
 290 295 300

Lys Ala Ala Leu Thr Leu Ser Gly Ala Gln Pro Glu Asp Glu Ala Glu
 305 310 315 320

Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly
 325 330 335

Thr Lys Leu Thr Val Leu Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
 340 345 350

Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
 355 360 365

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

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
 385 390 395 400

Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
 405 410 415

Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
 420 425 430

Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp
 435 440 445

eolf-seq1

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly
 450 455 460
 Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 465 470 475 480
 Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
 485 490 495
 Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 500 505 510
 Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
 515 520 525
 Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 530 535 540
 Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro Ile Glu
 545 550 555 560
 Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 565 570 575
 Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu
 580 585 590
 Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 595 600 605
 Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Asp Thr Thr Pro Pro Val
 610 615 620
 Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Asp Leu Thr Val Asp
 625 630 635 640
 Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
 645 650 655
 Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
 660 665 670
 <210> 41
 <211> 447
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> CD20 VH-CH1(EE)-Fc(KK, P329G LALA)
 <400> 41
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser

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1		5		10		15
Ser	Val	Lys	Val ₂₀	Ser	Cys	Lys
				Ser ₂₅	Gly	Tyr
					Ala	Phe
					Ser ₃₀	Tyr
						Ser
Trp	Ile	Asn ₃₅	Trp	Val	Arg	Gln
					Ala ₄₀	Pro
					Gly	Gln
					Gly	Leu
					Glu	Trp
					Met	
Gly	Arg ₅₀	Ile	Phe	Pro	Gly	Asp
					Gly ₅₅	Thr
					Asp	Tyr ₆₀
					Asn	Gly
					Lys	Phe
Lys	Gly	Arg	Val	Thr	Ile ₇₀	Thr
₆₅					Ala	Asp
					Lys	Ser ₇₅
					Thr	Ser
					Thr	Ala
					Tyr	Tyr ₈₀
Met	Glu	Leu	Ser	Ser ₈₅	Leu	Arg
					Ser	Glu
					Asp ₉₀	Thr
					Ala	Val
					Tyr	Tyr ₉₅
					Cys	
Ala	Arg	Asn	Val ₁₀₀	Phe	Asp	Gly
					Tyr	Trp ₁₀₅
					Leu	Val
					Tyr	Trp
					Gly ₁₁₀	Gln
					Gly	
Thr	Leu	Val ₁₁₅	Thr	Val	Ser	Ser
					Ala ₁₂₀	Ser
					Thr	Lys
					Gly	Gly
					Pro ₁₂₅	Ser
					Val	Phe
Pro	Leu ₁₃₀	Ala	Pro	Ser	Ser	Lys ₁₃₅
					Ser	Thr
					Ser	Gly
					Gly ₁₄₀	Thr
					Ala	Ala
					Leu	
Gly	Cys	Leu	Val	Glu	Asp ₁₅₀	Tyr
₁₄₅					Phe	Pro
					Glu	Pro ₁₅₅
					Val	Thr
					Val	Ser
					Trp ₁₆₀	
Asn	Ser	Gly	Ala	Leu ₁₆₅	Thr	Ser
					Gly	Val
					His ₁₇₀	Thr
					Phe	Pro
					Ala	Val ₁₇₅
					Leu	
Gln	Ser	Ser	Gly ₁₈₀	Leu	Tyr	Ser
					Leu	Ser ₁₈₅
					Ser	Val
					Val	Thr
					Val ₁₉₀	Pro
					Ser	
Ser	Ser	Leu ₁₉₅	Gly	Thr	Gln	Thr
					Tyr ₂₀₀	Ile
					Cys	Asn
					Val	Asn ₂₀₅
					His	Lys
					Pro	
Ser	Asn ₂₁₀	Thr	Lys	Val	Asp	Glu
					Lys ₂₁₅	Val
					Glu	Pro
					Lys ₂₂₀	Ser
					Cys	Asp
					Lys	
Thr	His	Thr	Cys	Pro	Pro ₂₃₀	Cys
₂₂₅					Pro	Ala
					Pro	Glu
					Ala ₂₃₅	Ala
					Gly	Gly
					Pro ₂₄₀	
Ser	Val	Phe	Leu	Phe ₂₄₅	Pro	Pro
					Lys	Pro
					Lys ₂₅₀	Asp
					Thr	Leu
					Met	Ile ₂₅₅
					Ser	
Arg	Thr	Pro	Glu ₂₆₀	Val	Thr	Cys
					Val	Val ₂₆₅
					Val	Asp
					Val	Ser
					His ₂₇₀	Glu
					Asp	
Pro	Glu	Val	Lys	Phe	Asn	Trp
					Tyr	Val
					Asp	Gly
					Val	Glu
					Val	His
					Asn	

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275

280

285

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

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

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

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

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

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

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

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

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

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

<210> 42

<211> 447

<212> PRT

<213> Artificial Sequence

<220>

<223> CD20 VH-CH1(EE)-Fc(hole, N297G)

<400> 42

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

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

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

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

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

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

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

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

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

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

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

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

<210> 43
 <211> 439
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 VL-CH1-Fc(knob, N297G)

<400> 43

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

Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser
 20 25 30

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

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

Ser Gly Ser Leu Leu Gly Gly Lys Ala Ala Leu Thr Leu Ser Gly Ala
 65 70 75 80

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

Leu Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser Ser Ala
 100 105 110

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

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115 120 125

Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe
130 135 140

Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly
145 150 155 160

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

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

Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys
195 200 205

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

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
225 230 235 240

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

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
260 265 270

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
275 280 285

Gln Tyr Gly Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
290 295 300

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
305 310 315 320

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
325 330 335

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Cys Arg Asp Glu Leu
340 345 350

Thr Lys Asn Gln Val Ser Leu Trp Cys Leu Val Lys Gly Phe Tyr Pro
355 360 365

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
370 375 380

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu

385					390					395						400
Tyr	Ser	Lys	Leu	Thr 405	Val	Asp	Lys	Ser	Arg 410	Trp	Gln	Gln	Gly	Asn 415	Val	
Phe	Ser	Cys	Ser 420	Val	Met	His	Glu	Ala 425	Leu	His	Asn	His	Tyr 430	Thr	Gln	
Lys	Ser	Leu 435	Ser	Leu	Ser	Pro										
<210>	44															
<211>	450															
<212>	PRT															
<213>	Artificial Sequence															
<220>																
<223>	CD20 VH-CH1(EE)-Fc(hole, N297G)															
<400>	44															
Glu 1	Val	Gln	Leu 5	Val	Glu	Ser	Gly	Gly	Gly 10	Leu	Val	Gln	Pro	Gly 15	Gly	
Ser	Leu	Arg	Leu 20	Ser	Cys	Ala	Ala	Ser 25	Gly	Tyr	Thr	Phe	Thr 30	Ser	Tyr	
Asn	Met	His 35	Trp	Val	Arg	Gln	Ala 40	Pro	Gly	Lys	Gly	Leu 45	Glu	Trp	Val	
Gly	Ala 50	Ile	Tyr	Pro	Gly	Asn 55	Gly	Asp	Thr	Ser	Tyr 60	Asn	Gln	Lys	Phe	
Lys 65	Gly	Arg	Phe	Thr	Ile 70	Ser	Val	Asp	Lys	Ser 75	Lys	Asn	Thr	Leu	Tyr 80	
Leu	Gln	Met	Asn	Ser 85	Leu	Arg	Ala	Glu	Asp 90	Thr	Ala	Val	Tyr	Tyr 95	Cys	
Ala	Arg	Val	Val 100	Tyr	Tyr	Ser	Asn	Ser 105	Tyr	Trp	Tyr	Phe	Asp 110	Val	Trp	
Gly	Gln	Gly 115	Thr	Leu	Val	Thr	Val 120	Ser	Ser	Ala	Ser	Thr 125	Lys	Gly	Pro	
Ser	Val 130	Phe	Pro	Leu	Ala	Pro 135	Ser	Ser	Lys	Ser	Thr 140	Ser	Gly	Gly	Thr	
Ala 145	Ala	Leu	Gly	Cys	Leu 150	Val	Glu	Asp	Tyr	Phe 155	Pro	Glu	Pro	Val	Thr 160	
Val	Ser	Trp	Asn	Ser 165	Gly	Ala	Leu	Thr	Ser 170	Gly	Val	His	Thr	Phe 175	Pro	

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Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr
 180 185 190
 Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn
 195 200 205
 His Lys Pro Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser
 210 215 220
 Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu
 225 230 235 240
 Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu
 245 250 255
 Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser
 260 265 270
 His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu
 275 280 285
 Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Gly Ser Thr
 290 295 300
 Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn
 305 310 315 320
 Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro
 325 330 335
 Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln
 340 345 350
 Val Cys Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val
 355 360 365
 Ser Leu Ser Cys Ala Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val
 370 375 380
 Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro
 385 390 395 400
 Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Val Ser Lys Leu Thr
 405 410 415
 Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val
 420 425 430
 Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu
 435 440 445

eolf-seq1

Ser Pro
450

<210> 45
<211> 213
<212> PRT
<213> Artificial Sequence

<220>
<223> CD20 VL-CL(RK)
<400> 45

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Ser Ser Val Ser Tyr Met
20 25 30

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

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

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

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

Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro
100 105 110

Ser Val Phe Ile Phe Pro Pro Ser Asp Arg Lys Leu Lys Ser Gly Thr
115 120 125

Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys
130 135 140

Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu
145 150 155 160

Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser
165 170 175

Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala
180 185 190

Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe
195 200 205

Asn Arg Gly Glu Cys

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210

<210> 46
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD20 HCDR1

<400> 46

Tyr Ser Trp Ile Asn
 1 5

<210> 47
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD20 HCDR2

<400> 47

Arg Ile Phe Pro Gly Asp Gly Asp Thr Asp Tyr Asn Gly Lys Phe Lys
 1 5 10 15

Gly

<210> 48
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD20 HCDR3

<400> 48

Asn Val Phe Asp Gly Tyr Trp Leu Val Tyr
 1 5 10

<210> 49
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD20 LCDR1

<400> 49

Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Leu Tyr
 1 5 10 15

<210> 50
 <211> 7
 <212> PRT
 <213> Artificial Sequence

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<220>

<223> CD20 LCDR2

<400> 50

Gln Met Ser Asn Leu Val Ser
 1 5

<210> 51

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> CD20 LCDR3

<400> 51

Ala Gln Asn Leu Glu Leu Pro Tyr Thr
 1 5

<210> 52

<211> 673

<212> PRT

<213> Artificial Sequence

<220>

<223> Her2 VH-CH1(EF)-CD3 VL-CH1-Fc(knob, P329G LALA)

<400> 52

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30

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

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

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

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

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

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

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

eolf-seq1

Leu Gly Cys Leu Val Glu Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
 145 150 155 160
 Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
 165 170 175
 Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
 180 185 190
 Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
 195 200 205
 Pro Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp
 210 215 220
 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln
 225 230 235 240
 Glu Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys
 245 250 255
 Gly Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val
 260 265 270
 Gln Glu Lys Pro Gly Gln Ala Phe Arg Gly Leu Ile Gly Gly Thr Asn
 275 280 285
 Lys Arg Ala Pro Gly Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly
 290 295 300
 Gly Lys Ala Ala Leu Thr Leu Ser Gly Ala Gln Pro Glu Asp Glu Ala
 305 310 315 320
 Glu Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly
 325 330 335
 Gly Thr Lys Leu Thr Val Leu Ser Ser Ala Ser Thr Lys Gly Pro Ser
 340 345 350
 Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala
 355 360 365
 Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val
 370 375 380
 Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala
 385 390 395 400
 Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val
 405 410 415

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Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His
 420 425 430
 Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys
 435 440 445
 Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly
 450 455 460
 Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
 465 470 475 480
 Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
 485 490 495
 Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
 500 505 510
 His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
 515 520 525
 Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
 530 535 540
 Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro Ile
 545 550 555 560
 Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
 565 570 575
 Tyr Thr Leu Pro Pro Cys Arg Asp Glu Leu Thr Lys Asn Gln Val Ser
 580 585 590
 Leu Trp Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
 595 600 605
 Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
 610 615 620
 Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
 625 630 635 640
 Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
 645 650 655
 His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
 660 665 670
 Pro

eolf-seql

<210> 53
 <211> 448
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Her2 VH-CH1(EF)-Fc(hole, P329G LALA)

<400> 53

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30

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

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

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

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

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

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

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

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

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

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

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

Pro Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp
 210 215 220

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly

225					230				235				240			
Pro	Ser	Val	Phe	Leu 245	Phe	Pro	Pro	Lys	Pro 250	Lys	Asp	Thr	Leu	Met 255	Ile	
Ser	Arg	Thr	Pro 260	Glu	Val	Thr	Cys	Val 265	Val	Val	Asp	Val	Ser 270	His	Glu	
Asp	Pro	Glu 275	Val	Lys	Phe	Asn	Trp 280	Tyr	Val	Asp	Gly	Val 285	Glu	Val	His	
Asn	Ala 290	Lys	Thr	Lys	Pro	Arg 295	Glu	Glu	Gln	Tyr	Asn 300	Ser	Thr	Tyr	Arg	
Val 305	Val	Ser	Val	Leu	Thr 310	Val	Leu	His	Gln	Asp 315	Trp	Leu	Asn	Gly	Lys 320	
Glu	Tyr	Lys	Cys	Lys 325	Val	Ser	Asn	Lys	Ala 330	Leu	Gly	Ala	Pro	Ile 335	Glu	
Lys	Thr	Ile	Ser 340	Lys	Ala	Lys	Gly	Gln 345	Pro	Arg	Glu	Pro	Gln 350	Val	Cys	
Thr	Leu	Pro 355	Pro	Ser	Arg	Asp	Glu 360	Leu	Thr	Lys	Asn	Gln 365	Val	Ser	Leu	
Ser	Cys 370	Ala	Val	Lys	Gly	Phe 375	Tyr	Pro	Ser	Asp	Ile 380	Ala	Val	Glu	Trp	
Glu 385	Ser	Asn	Gly	Gln	Pro 390	Glu	Asn	Asn	Tyr	Lys 395	Thr	Thr	Pro	Pro	Val 400	
Leu	Asp	Ser	Asp	Gly 405	Ser	Phe	Phe	Leu	Val 410	Ser	Lys	Leu	Thr	Val 415	Asp	
Lys	Ser	Arg	Trp 420	Gln	Gln	Gly	Asn	Val 425	Phe	Ser	Cys	Ser	Val 430	Met	His	
Glu	Ala	Leu 435	His	Asn	His	Tyr	Thr 440	Gln	Lys	Ser	Leu	Ser 445	Leu	Ser	Pro	
<210>	54															
<211>	214															
<212>	PRT															
<213>	Artificial Sequence															
<220>																
<223>	Her2 VL-CL(RK)															
<400>	54															
Asp 1	Ile	Gln	Met	Thr 5	Gln	Ser	Pro	Ser	Ser 10	Leu	Ser	Ala	Ser	Val 15	Gly	

eolf-seq1

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Val Asn Thr Ala
 20 25 30
 Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ser Ala Ser Phe Leu Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Arg 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 His Tyr Thr Thr Pro Pro
 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 Arg Lys 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> 55
 <211> 673
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 VL-CH1-Her3 VH-CH1(EE)- Fc(knob, P329G LALA)

<400> 55

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

Thr Val Thr Leu Thr Cys Gly Ser Ser Thr Gly Ala Val Thr Thr Ser

Leu Gln Gly Arg Val Thr Met Thr Thr Asp Thr Ser Thr Ser Thr Ala

	290					295					300				
Tyr 305	Met	Glu	Leu	Arg	Ser 310	Leu	Arg	Ser	Asp	Asp 315	Thr	Ala	Val	Tyr	Tyr 320
Cys	Ala	Arg	His	Arg 325	Asp	Tyr	Tyr	Ser	Asn 330	Ser	Leu	Thr	Tyr	Trp 335	Gly
Gln	Gly	Thr	Leu 340	Val	Thr	Val	Ser	Ser 345	Ala	Ser	Thr	Lys	Gly 350	Pro	Ser
Val	Phe	Pro 355	Leu	Ala	Pro	Ser	Ser 360	Lys	Ser	Thr	Ser	Gly 365	Gly	Thr	Ala
Ala	Leu 370	Gly	Cys	Leu	Val	Glu 375	Asp	Tyr	Phe	Pro	Glu 380	Pro	Val	Thr	Val
Ser 385	Trp	Asn	Ser	Gly	Ala 390	Leu	Thr	Ser	Gly	Val 395	His	Thr	Phe	Pro	Ala 400
Val	Leu	Gln	Ser	Ser 405	Gly	Leu	Tyr	Ser	Leu 410	Ser	Ser	Val	Val	Thr 415	Val
Pro	Ser	Ser	Ser 420	Leu	Gly	Thr	Gln	Thr 425	Tyr	Ile	Cys	Asn	Val 430	Asn	His
Lys	Pro	Ser 435	Asn	Thr	Lys	Val	Asp 440	Glu	Lys	Val	Glu	Pro 445	Lys	Ser	Cys
Asp	Lys 450	Thr	His	Thr	Cys	Pro 455	Pro	Cys	Pro	Ala	Pro 460	Glu	Ala	Ala	Gly
Gly 465	Pro	Ser	Val	Phe	Leu 470	Phe	Pro	Pro	Lys	Pro 475	Lys	Asp	Thr	Leu	Met 480
Ile	Ser	Arg	Thr	Pro 485	Glu	Val	Thr	Cys	Val 490	Val	Val	Asp	Val	Ser 495	His
Glu	Asp	Pro	Glu 500	Val	Lys	Phe	Asn	Trp 505	Tyr	Val	Asp	Gly	Val 510	Glu	Val
His	Asn	Ala 515	Lys	Thr	Lys	Pro	Arg 520	Glu	Glu	Gln	Tyr	Asn 525	Ser	Thr	Tyr
Arg	Val 530	Val	Ser	Val	Leu	Thr 535	Val	Leu	His	Gln	Asp 540	Trp	Leu	Asn	Gly
Lys 545	Glu	Tyr	Lys	Cys	Lys 550	Val	Ser	Asn	Lys	Ala 555	Leu	Gly	Ala	Pro	Ile 560
Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val

<210>	56
<211>	448
<212>	PRT
<213>	Artificial Sequence
<220>	
<223>	Her3 VH-CH1(EE)-Fc(hole, P329G LALA)
<400>	56

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

eolf-seql

Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
 115 120 125
 Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
 130 135 140
 Leu Gly Cys Leu Val Glu Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
 145 150 155 160
 Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
 165 170 175
 Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
 180 185 190
 Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
 195 200 205
 Pro Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp
 210 215 220
 Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala 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 His Glu
 260 265 270
 Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 275 280 285
 Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr 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 Ala Leu Gly Ala Pro Ile Glu
 325 330 335
 Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Cys
 340 345 350
 Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu
 355 360 365
 Ser Cys Ala Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 370 375 380

eolf-seq1

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 Val Ser Lys Leu Thr Val Asp
405 410 415

Lys Ser Arg Trp Gln Gln 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 Pro
435 440 445

<210> 57

<211> 220

<212> PRT

<213> Artificial Sequence

<220>

<223> Her3 VL-CL

<400> 57

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

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

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

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

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

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

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

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
115 120 125

Arg Lys Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
130 135 140

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu
145 150 155 160

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp

				165					170					175		
Ser	Thr	Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	
			180					185					190			
Glu	Lys	His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser	
		195					200					205				
Ser	Pro	Val	Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	Cys					
	210					215					220					
<210>	58															
<211>	664															
<212>	PRT															
<213>	Artificial Sequence															
<220>																
<223>	MCSP	VH-CH1(EE)-MCSP				VH-CH1(EE)-CD3					VL-CH1					
<400>	58															
Glu	Val	Gln	Leu	Gln	Glu	Ser	Gly	Pro	Gly	Leu	Val	Lys	Pro	Ser	Gln	
1			5						10					15		
Ser	Leu	Ser	Leu	Thr	Cys	Ser	Val	Thr	Gly	Tyr	Ser	Ile	Thr	Ser	Gly	
			20					25					30			
Tyr	Tyr	Trp	Asn	Trp	Ile	Arg	Gln	Phe	Pro	Gly	Asn	Lys	Leu	Glu	Trp	
		35					40					45				
Met	Gly	Tyr	Ile	Thr	Tyr	Asp	Gly	Ser	Asn	Asn	Tyr	Asn	Pro	Ser	Leu	
	50					55					60					
Lys	Asn	Arg	Ile	Ser	Ile	Thr	Arg	Asp	Thr	Ser	Lys	Asn	Gln	Phe	Phe	
65					70					75					80	
Leu	Lys	Leu	Asn	Ser	Val	Thr	Thr	Glu	Asp	Thr	Ala	Thr	Tyr	Tyr	Cys	
				85					90					95		
Ala	Asp	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr	Leu	Thr	Val	Ser	Ser	
			100					105					110			
Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	
		115					120					125				
Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Glu	Asp	Tyr	
	130					135					140					
Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	
145					150					155					160	
Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	
				165					170					175		

eolf-seq1

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
 180 185 190
 Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Glu
 195 200 205
 Lys Val Glu Pro Lys Ser Cys Asp Gly Gly Gly Gly Ser Gly Gly Gly
 210 215 220
 Gly Ser Glu Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro
 225 230 235 240
 Ser Gln Ser Leu Ser Leu Thr Cys Ser Val Thr Gly Tyr Ser Ile Thr
 245 250 255
 Ser Gly Tyr Tyr Trp Asn Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu
 260 265 270
 Glu Trp Met Gly Tyr Ile Thr Tyr Asp Gly Ser Asn Asn Tyr Asn Pro
 275 280 285
 Ser Leu Lys Asn Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln
 290 295 300
 Phe Phe Leu Lys Leu Asn Ser Val Thr Thr Glu Asp Thr Ala Thr Tyr
 305 310 315 320
 Tyr Cys Ala Asp Phe Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val
 325 330 335
 Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser
 340 345 350
 Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Glu
 355 360 365
 Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu
 370 375 380
 Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu
 385 390 395 400
 Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr
 405 410 415
 Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val
 420 425 430
 Asp Glu Lys Val Glu Pro Lys Ser Cys Asp Gly Gly Gly Gly Ser Gly
 435 440 445

eolf-seq1

Gly Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser
 450 455 460

Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp
 465 470 475 480

Ile Arg Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro
 485 490 495

Lys Leu Leu Ile Tyr Tyr Thr Ser Arg Leu Glu Ser Gly Val Pro Ser
 500 505 510

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser
 515 520 525

Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Gly Asn
 530 535 540

Thr Leu Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Ser
 545 550 555 560

Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser
 565 570 575

Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp
 580 585 590

Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr
 595 600 605

Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr
 610 615 620

Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln
 625 630 635 640

Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp
 645 650 655

Lys Lys Val Glu Pro Lys Ser Cys
 660

<210> 59
 <211> 229
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 VH-CL

<400> 59

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

1 5 eolf-seql 15
 10
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Ser Phe Thr Gly Tyr
 20 25 30
 Thr Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Leu Ile Asn Pro Tyr Lys Gly Val Ser Thr Tyr Asn Gln Lys Phe
 50 55 60
 Lys Asp Arg Phe Thr Ile Ser Val Asp Lys Ser Lys Asn Thr Ala 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 Ser Gly Tyr Tyr Gly Asp Ser Asp Trp Tyr Phe Asp Val Trp
 100 105 110
 Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Val Ala Ala Pro
 115 120 125
 Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr
 130 135 140
 Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys
 145 150 155 160
 Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu
 165 170 175
 Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser
 180 185 190
 Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala
 195 200 205
 Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe
 210 215 220
 Asn Arg Gly Glu Cys
 225

<210> 60
 <211> 214
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> MCSP VL-CL(RK)

<400> 60

eolf-seq1

Asp Ile Val Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Leu Gly
 1 5 10 15
 Asp Arg Val Thr Ile Ser Cys Ser Ala Ser Gln Gly Ile Arg Asn Tyr
 20 25 30
 Leu Asn Trp Tyr Gln Gln Arg Pro Asp Gly Thr Val Lys Leu Leu Ile
 35 40 45
 Tyr Tyr Thr Ser Ser Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn Leu Glu Pro
 65 70 75 80
 Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Lys Leu Pro Trp
 85 90 95
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala
 100 105 110
 Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Arg Lys 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> 61
 <211> 120
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Her2 VH

<400> 61

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

eolf-seq1

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

<210> 62
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Her2 VL

<400> 62

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

eolf-seq1

<210> 63
 <211> 120
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Her3 VH

<400> 63

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 Arg Ser Ser
 20 25 30
 Tyr Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Trp Ile Tyr Ala Gly Thr Gly Ser Pro Ser Tyr Asn Gln Lys Leu
 50 55 60
 Gln Gly Arg Val Thr Met Thr Thr Asp Thr Ser Thr Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg His Arg Asp Tyr Tyr Ser Asn Ser Leu Thr Tyr Trp Gly Gln
 100 105 110
 Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 64
 <211> 113
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Her3 VL

<400> 64

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

eolf-seq1

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

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

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

Lys

<210> 65
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> MCSP VH

<400> 65

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

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

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

Met Gly Tyr Ile Thr Tyr Asp Gly Ser Asn Asn Tyr Asn Pro Ser Leu
50 55 60

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

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

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

<210> 66
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> MCSP VL

<400> 66

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

e01f-seq1

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

<210> 67
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 HCDR2

<400> 67

Arg Ile Arg Ser Lys Tyr Asn Asn Tyr Ala Thr Tyr Tyr Ala Asp Ser
 1 5 10 15

Val Lys Asp

<210> 68
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD3 LCDR1

<400> 68

Arg Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn
 1 5 10

<210> 69
 <211> 672
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CD20 VH-CH1(E)-CD3 VL-CH1-Fc(knob, P329G LALA)

<400> 69

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

eol-f-seq1

1		5		10		15
Ser	Val	Lys	Val ₂₀	Ser	Cys	Lys
				Ala	Ser ₂₅	Gly
						Tyr
						Ala
						Phe
						Ser ₃₀
						Tyr
						Ser
Trp	Ile	Asn ₃₅	Trp	Val	Arg	Gln
						Ala ₄₀
						Pro
						Gly
						Gln
						Gly ₄₅
						Leu
						Glu
						Trp
						Met
Gly	Arg ₅₀	Ile	Phe	Pro	Gly	Asp ₅₅
						Gly
						Asp
						Thr
						Asp
						Tyr ₆₀
						Asn
						Gly
						Lys
						Phe
Lys	Gly	Arg	Val	Thr	Ile ₇₀	Thr
₆₅						Ala
						Asp
						Lys
						Ser ₇₅
						Thr
						Ser
						Thr
						Ala
						Tyr ₈₀
Met	Glu	Leu	Ser	Ser ₈₅	Leu	Arg
						Ser
						Glu
						Asp ₉₀
						Thr
						Ala
						Val
						Tyr
						Tyr ₉₅
						Cys
Ala	Arg	Asn	Val ₁₀₀	Phe	Asp	Gly
						Tyr
						Trp ₁₀₅
						Leu
						Val
						Tyr
						Trp
						Gly ₁₁₀
						Gln
						Gly
Thr	Leu	Val ₁₁₅	Thr	Val	Ser	Ser
						Ala ₁₂₀
						Ser
						Thr
						Lys
						Gly
						Pro ₁₂₅
						Ser
						Val
						Thr
						Ala
						Ala
						Leu
Pro	Leu ₁₃₀	Ala	Pro	Ser	Ser	Lys ₁₃₅
						Ser
						Thr
						Ser
						Gly
						Gly ₁₄₀
						Thr
						Ala
						Ala
						Leu
Gly	Cys	Leu	Val	Lys	Asp ₁₅₀	Tyr
₁₄₅						Phe
						Pro
						Glu
						Pro ₁₅₅
						Val
						Thr
						Val
						Ser
						Trp ₁₆₀
Asn	Ser	Gly	Ala	Leu ₁₆₅	Thr	Ser
						Gly
						Val ₁₇₀
						His
						Thr
						Phe
						Pro
						Ala
						Val ₁₇₅
						Leu
Gln	Ser	Ser	Gly ₁₈₀	Leu	Tyr	Ser
						Leu
						Ser ₁₈₅
						Ser
						Val
						Val
						Thr
						Val ₁₉₀
						Pro
						Ser
Ser	Ser	Leu ₁₉₅	Gly	Thr	Gln	Thr
						Tyr ₂₀₀
						Ile
						Cys
						Asn
						Val
						Asn ₂₀₅
						His
						Lys
						Pro
Ser	Asn ₂₁₀	Thr	Lys	Val	Asp	Glu ₂₁₅
						Lys
						Val
						Glu
						Pro
						Lys ₂₂₀
						Ser
						Cys
						Asp
						Gly
Gly	Gly	Gly	Ser	Gly	Gly ₂₃₀	Gly
₂₂₅						Gly
						Ser
						Gln
						Ala ₂₃₅
						Val
						Val
						Thr
						Gln
						Glu ₂₄₀
Pro	Ser	Leu	Thr	Val ₂₄₅	Ser	Pro
						Gly
						Gly
						Thr ₂₅₀
						Val
						Thr
						Leu
						Thr
						Cys ₂₅₅
						Gly
Ser	Ser	Thr	Gly ₂₆₀	Ala	Val	Thr
						Thr
						Ser ₂₆₅
						Asn
						Tyr
						Ala
						Asn
						Trp ₂₇₀
						Val
						Gln
Glu	Lys	Pro	Gly	Gln	Ala	Phe
						Arg
						Gly
						Leu
						Ile
						Gly
						Gly
						Thr
						Asn
						Lys

eolf-seql

275 280 285

Arg Ala Pro Gly Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly
 290 295 300

Lys Ala Ala Leu Thr Leu Ser Gly Ala Gln Pro Glu Asp Glu Ala Glu
 305 310 315 320

Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly
 325 330 335

Thr Lys Leu Thr Val Leu Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
 340 345 350

Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
 355 360 365

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

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
 385 390 395 400

Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
 405 410 415

Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
 420 425 430

Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp
 435 440 445

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly
 450 455 460

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 465 470 475 480

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
 485 490 495

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 500 505 510

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
 515 520 525

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 530 535 540

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro Ile Glu

545					550					555					560
Lys	Thr	Ile	Ser	Lys 565	Ala	Lys	Gly	Gln	Pro 570	Arg	Glu	Pro	Gln	Val 575	Tyr
Thr	Leu	Pro	Pro 580	Cys	Arg	Asp	Glu	Leu 585	Thr	Lys	Asn	Gln	Val 590	Ser	Leu
Trp	Cys	Leu 595	Val	Lys	Gly	Phe	Tyr 600	Pro	Ser	Asp	Ile	Ala 605	Val	Glu	Trp
Glu	Ser 610	Asn	Gly	Gln	Pro	Glu 615	Asn	Asn	Tyr	Lys	Thr 620	Thr	Pro	Pro	Val
Leu 625	Asp	Ser	Asp	Gly	Ser 630	Phe	Phe	Leu	Tyr	Ser 635	Lys	Leu	Thr	Val	Asp 640
Lys	Ser	Arg	Trp	Gln 645	Gln	Gly	Asn	Val	Phe 650	Ser	Cys	Ser	Val	Met 655	His
Glu	Ala	Leu	His 660	Asn	His	Tyr	Thr	Gln 665	Lys	Ser	Leu	Ser	Leu 670	Ser	Pro
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<211>	447														
<212>	PRT														
<213>	Artificial Sequence														
<220>															
<223>	CD20 VH-CH1(E)-Fc(hole, P329G LALA)														
<400>	70														
Gln 1	Val	Gln	Leu 5	Val	Gln	Ser	Gly	Ala	Glu 10	Val	Lys	Lys	Pro	Gly 15	Ser
Ser	Val	Lys	Val 20	Ser	Cys	Lys	Ala	Ser 25	Gly	Tyr	Ala	Phe	Ser 30	Tyr	Ser
Trp	Ile	Asn 35	Trp	Val	Arg	Gln	Ala 40	Pro	Gly	Gln	Gly	Leu 45	Glu	Trp	Met
Gly	Arg 50	Ile	Phe	Pro	Gly	Asp 55	Gly	Asp	Thr	Asp	Tyr 60	Asn	Gly	Lys	Phe
Lys 65	Gly	Arg	Val	Thr	Ile 70	Thr	Ala	Asp	Lys	Ser 75	Thr	Ser	Thr	Ala	Tyr 80
Met	Glu	Leu	Ser	Ser 85	Leu	Arg	Ser	Glu	Asp 90	Thr	Ala	Val	Tyr	Tyr 95	Cys
Ala	Arg	Asn	Val 100	Phe	Asp	Gly	Tyr	Trp 105	Leu	Val	Tyr	Trp	Gly 110	Gln	Gly

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Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe
 115 120 125
 Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu
 130 135 140
 Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
 145 150 155 160
 Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
 165 170 175
 Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
 180 185 190
 Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
 195 200 205
 Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp Lys
 210 215 220
 Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly Pro
 225 230 235 240
 Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
 245 250 255
 Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
 260 265 270
 Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
 275 280 285
 Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val
 290 295 300
 Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
 305 310 315 320
 Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro Ile Glu Lys
 325 330 335
 Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Cys Thr
 340 345 350
 Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Ser
 355 360 365
 Cys Ala Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
 370 375 380

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

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

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

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

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<212> PRT
<213> Artificial Sequence

<220>
<223> CD20 VL-CL(R)

<400> 71

Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Thr Pro Gly
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Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
20 25 30

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

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Val Ser Gly Val Pro
50 55 60

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

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
85 90 95

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

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Arg
115 120 125

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser

				165					170					175		
Thr	Tyr	Ser	Leu 180	Ser	Ser	Thr	Leu	Thr 185	Leu	Ser	Lys	Ala	Asp 190	Tyr	Glu	
Lys	His	Lys 195	Val	Tyr	Ala	Cys	Glu 200	Val	Thr	His	Gln	Gly 205	Leu	Ser	Ser	
Pro	Val 210	Thr	Lys	Ser	Phe	Asn 215	Arg	Gly	Glu	Cys						
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<212>	PRT															
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Gln 1	Val	Gln	Leu 5	Val	Gln	Ser	Gly	Ala	Glu 10	Val	Lys	Lys	Pro	Gly 15	Ser	
Ser	Val	Lys	Val 20	Ser	Cys	Lys	Ala	Ser 25	Gly	Tyr	Ala	Phe	Ser 30	Tyr	Ser	
Trp	Ile	Asn 35	Trp	Val	Arg	Gln	Ala 40	Pro	Gly	Gln	Gly	Leu 45	Glu	Trp	Met	
Gly	Arg 50	Ile	Phe	Pro	Gly	Asp 55	Gly	Asp	Thr	Asp	Tyr 60	Asn	Gly	Lys	Phe	
Lys 65	Gly	Arg	Val	Thr	Ile 70	Thr	Ala	Asp	Lys	Ser 75	Thr	Ser	Thr	Ala	Tyr 80	
Met	Glu	Leu	Ser	Ser 85	Leu	Arg	Ser	Glu	Asp 90	Thr	Ala	Val	Tyr	Tyr 95	Cys	
Ala	Arg	Asn	Val 100	Phe	Asp	Gly	Tyr	Trp 105	Leu	Val	Tyr	Trp	Gly 110	Gln	Gly	
Thr	Leu	Val 115	Thr	Val	Ser	Ser	Ala 120	Ser	Thr	Lys	Gly	Pro 125	Ser	Val	Phe	
Pro	Leu 130	Ala	Pro	Ser	Ser	Lys 135	Ser	Thr	Ser	Gly	Gly 140	Thr	Ala	Ala	Leu	
Gly 145	Cys	Leu	Val	Lys	Asp 150	Tyr	Phe	Pro	Glu	Pro 155	Val	Thr	Val	Ser	Trp 160	
Asn	Ser	Gly	Ala	Leu 165	Thr	Ser	Gly	Val	His 170	Thr	Phe	Pro	Ala	Val 175	Leu	

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Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
 180 185 190
 Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
 195 200 205
 Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Gly
 210 215 220
 Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Ala Val Val Thr Gln Glu
 225 230 235 240
 Pro Ser Leu Thr Val Ser Pro Gly Gly Thr Val Thr Leu Thr Cys Gly
 245 250 255
 Ser Ser Thr Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln
 260 265 270
 Glu Lys Pro Gly Gln Ala Phe Arg Gly Leu Ile Gly Gly Thr Asn Lys
 275 280 285
 Arg Ala Pro Gly Thr Pro Ala Arg Phe Ser Gly Ser Leu Leu Gly Gly
 290 295 300
 Lys Ala Ala Leu Thr Leu Ser Gly Ala Gln Pro Glu Asp Glu Ala Glu
 305 310 315 320
 Tyr Tyr Cys Ala Leu Trp Tyr Ser Asn Leu Trp Val Phe Gly Gly Gly
 325 330 335
 Thr Lys Leu Thr Val Leu Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
 340 345 350
 Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
 355 360 365
 Leu Gly Cys Leu Val Glu Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
 370 375 380
 Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
 385 390 395 400
 Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
 405 410 415
 Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
 420 425 430
 Pro Ser Asn Thr Lys Val Asp Glu Lys Val Glu Pro Lys Ser Cys Asp
 435 440 445

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Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly
 450 455 460
 Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
 465 470 475 480
 Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
 485 490 495
 Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
 500 505 510
 Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
 515 520 525
 Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
 530 535 540
 Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Gly Ala Pro Ile Glu
 545 550 555 560
 Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 565 570 575
 Thr Leu Pro Pro Cys Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu
 580 585 590
 Trp Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 595 600 605
 Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 610 615 620
 Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
 625 630 635 640
 Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
 645 650 655
 Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
 660 665 670
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 <223> CD3 VH-CL(RK)
 <400> 73
 Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

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