SEQUENCE LISTING

<110> SuppreMol GmbH

<120> Novel anti-Fc-gamma receptor IIB antibodies and uses thereof

<130> 02043198PCT

<150> EP13004094.2
<151> 2013-08-16

<160> 34

<170> PatentIn version 3.5

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<213> Rattus norvegicus

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<223> VH r8A6

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

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

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

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

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

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

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

Ser

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<223> VL r8A6

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

Asp Arg Val Thr Met Asn Cys Lys Ala Ser Gln Asn Val Gly Thr Tyr
            20                  25                  30

Val Asp Trp Phe Gln Gln Lys Thr Gly Gln Ser Pro Thr Leu Leu Ile
        35                  40                  45

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

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

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

Thr Phe Gly Pro Gly Thr Thr Leu Glu Leu Lys Arg
            100                 105
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<223> VH hu8A6

<400> 3

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

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

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

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

Ser

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Gly Ser Tyr
20 25 30

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

Tyr Gly Ala Ser Thr Arg Tyr Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

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

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

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

<210> 5
<211> 181
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<213> Homo sapiens

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<223> human FcγRIIB

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Met Gly Thr Pro Ala Ala Pro Pro Lys Ala Val Leu Lys Leu Glu Pro
1               5                  10                  15

Gln Trp Ile Asn Val Leu Gln Glu Asp Ser Val Thr Leu Thr Cys Arg
            20                  25                  30

Gly Thr His Ser Pro Glu Ser Asp Ser Ile Gln Trp Phe His Asn Gly
        35                  40                  45

Asn Leu Ile Pro Thr His Thr Gln Pro Ser Tyr Arg Phe Lys Ala Asn
    50                  55                  60

Asn Asn Asp Ser Gly Glu Tyr Thr Cys Gln Thr Gly Gln Thr Ser Leu
65                  70                  75                  80

Ser Asp Pro Val His Leu Thr Val Leu Ser Glu Trp Leu Val Leu Gln
                85                  90                  95

Thr Pro His Leu Glu Phe Gln Glu Gly Glu Thr Ile Val Leu Arg Cys
            100                 105                 110

His Ser Trp Lys Asp Lys Pro Leu Val Lys Val Thr Phe Phe Gln Asn
        115                 120                 125

Gly Lys Ser Lys Lys Phe Ser Arg Ser Asp Pro Asn Phe Ser Ile Pro
    130                 135                 140

Gln Ala Asn His Ser His Ser Gly Asp Tyr His Cys Thr Gly Asn Ile
145                 150                 155                 160

Gly Tyr Thr Leu Tyr Ser Ser Lys Pro Val Thr Ile Thr Val Gln Ala
                165                 170                 175

Pro Ser Ser Ser Pro
            180
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Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
1               5                  10                  15

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
                245                 250                 255
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Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

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

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

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

Gln Lys Ser Leu Ser Leu Ser Pro Gly
325

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<213> Artificial

<220>
<223> humanized antibody

<220>
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<223> CL hu8A6_wt

<400> 7

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

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

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

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

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

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

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

<210> 8
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<220>
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<222> (1)..(339)
<223> VH hu8A6

<400> 8
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tcctgtgcag cctctggatt caccttcagt gactattaca tggcctgggt ccgccaggct 120

ccaggcaagg ggctggagtg ggtggcatcc atatcatacg atggaagcaa taagtactac 180

ggagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240

ctgcaaatga acagcctgag agctgaggac acggctgtgt attactgtgc gagaccggga 300

gactactggg gccaaggaac cctggtcacc gtcagctca 339

<210> 9
<211> 324
<212> DNA
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<220>
<223> humanized antibody

<220>
<221> misc_feature
<222> (1)..(324)
<223> VL hu8A6

<400> 9
cagatagtga tgacgcagtc tccagccacc ctgtctgtgt ctccagggga aagagccacc 60

ctctcctgca gggccagtca gtccgttggc tcctatgtcg actggtacca gcagaaacct 120

ggccaggctc ccaggctcct catctatggt gcatccacca ggtacactgg tatcccagcc 180

aggttcagtg gcagtgggtc tgggacagag ttcactctca ccatcagcag cctgcagtct 240

gaagattttg cagtttatta ctgtctgcag tataacaacc atccttacac ttttggccag 300

gggaccaagc tggagatcaa acgt 324

<210> 10
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<220>
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<220>
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<223> CH hu8A6_wt

<400> 10
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ggcacagcgg ccctgggctg cctggtcaag gactacttcc ccgaaccggt gacggtgtcg 120

tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca 180

ggactctact ccctcagcag cgtggtgacc gtgccctcca gcagcttggg cacccagacc 240

tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagaa ggttgagccc 300

aaatcttgtg acaaaactca cacatgccca ccgtgcccag cacctgaact cctgggggga 360

ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggacccct 420

gaggtcacat gcgtggtggt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg 480

tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac 540

agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag 600

gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc 660

aaagccaaag ggcagccccg agaaccacag gtgtacaccc tgcccccatc ccgggaggag 720

atgaccaaga accaggtcag cctgacctgc ctggtcaaag gcttctatcc cagcgacatc 780

gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg 840

ctggactccg acggctcctt cttcctctac agcaagctca ccgtggacaa gagcaggtgg 900

cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg 960

cagaagagcc tctccctgtc tccgggttaa 990

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<220>
<223> humanized antibody

<220>
<221> misc_feature
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<223> CL hu8A6_wt

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acggtggctg caccatcggt cttcatcttc ccgccatctg atgagcagtt gaaatctgga 60

actgcctctg ttgtgtgcct gctgaataac ttctatccca gagaggccaa agtacagtgg 120

aaggtggata acgccctcca atcgggtaac tcccaggaga gtgtcacaga gcaggacagc 180

aaggacagca cctacagcct cagcagcacc ctgacgctga gcaaagcaga ctacgagaaa 240

cacaaagtct acgcctgcga agtcacccat cagggcctga gctcgcccgt cacaaagagc 300

ttcaacaggg gagagtgtta g 321

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<213> Homo sapiens

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<223> hu soluble FCyRIIA

<400> 12

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Arg Phe Lys Ala Asn Asn Asn Asp Ser Gly Glu Tyr Thr Cys Gln Thr
1               5                   10                  15

Gly Gln Thr Ser Leu Ser Asp Pro Val His Leu Thr Val Leu Ser Glu
            20                  25                  30

Trp Leu Val Leu Gln Thr Pro His Leu Glu Phe Gln Glu Gly Glu Thr
        35                  40                  45

Ile Met Leu Arg Cys His Ser Trp Lys Asp Lys Pro Leu Val Lys Val
    50                  55                  60

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

Thr Phe Ser Ile Pro Gln Ala Asn His Ser His Ser Gly Asp Tyr His
                85                  90                  95

Cys Thr Gly Asn Ile Gly Tyr Thr Leu Phe Ser Ser Lys Pro Val Thr
            100                 105                 110

Ile Thr Val Gln Val Pro Ser Met Gly Ser Ser Ser Pro
        115                 120                 125
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<210> 13
<211> 179
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(179)
<223> soluble mutated human FCyRIIA

<400> 13

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Met Ala Pro Pro Lys Ala Val Leu Lys Leu Glu Pro Pro Trp Ile Asn
1               5                   10                  15

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

Pro Glu Ser Asp Ser Ile Gln Trp Phe His Asn Gly Asn Leu Ile Pro
        35                  40                  45

Thr His Thr Gln Pro Ser Tyr Arg Phe Lys Ala Asn Asn Asn Asp Ser
    50                  55                  60
```

Gly Glu Tyr Thr Cys Gln Thr Gly Gln Thr Ser Leu Ser Asp Pro Val
65 70 75 80

His Leu Thr Val Leu Ser Glu Trp Leu Val Leu Gln Thr Pro His Leu
85 90 95

Glu Phe Gln Glu Gly Glu Thr Ile Met Leu Arg Cys His Ser Trp Lys
100 105 110

Asp Lys Pro Leu Val Lys Val Thr Phe Phe Gln Asn Gly Lys Ser Lys
115 120 125

Lys Phe Ser Arg Ser Asp Pro Asn Phe Ser Ile Pro Gln Ala Asn His
130 135 140

Ser His Ser Gly Asp Tyr His Cys Thr Gly Asn Ile Gly Tyr Thr Leu
145 150 155 160

Phe Ser Ser Lys Pro Val Thr Ile Thr Val Gln Val Pro Ser Met Gly
165 170 175

Ser Ser Pro

<210> 14
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<220>
<223> heavy chain CDR1 from rat antibody 8A6

<400> 14

Asp Tyr Tyr Met Ala
1 5

<210> 15
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<400> 15

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

Gly

<210> 16
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<213> artificial

<220>
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<400> 16

Ala Arg Pro Gly Asp Tyr
1 5

<210> 17
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<213> artificial

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<400> 17

Lys Ala Ser Gln Asn Val Gly Thr Tyr Val Asp
1 5 10

<210> 18
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<220>
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<400> 18

Gly Ala Ser Asn Arg Tyr Thr
1 5

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<220>
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<400> 19

Leu Gln Tyr Asn Tyr His Pro Tyr Thr
1 5

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<400> 20

Asp Tyr Tyr Met Ala
1 5

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<212> PRT
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<400> 21

Ser Ile Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Gly Asp Ser Val Lys
1 5 10 15

Gly

<210> 22
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<400> 22

Ala Arg Pro Gly Asp Tyr
1 5

<210> 23
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<212> PRT
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<400> 23

Arg Ala Ser Gln Ser Val Gly Ser Tyr Val Asp
1 5 10

<210> 24
<211> 7
<212> PRT
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<220>
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<400> 24

Gly Ala Ser Thr Arg Tyr Thr
1 5

<210> 25
<211> 9
<212> PRT
<213> artificial

<220>
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<400> 25

Leu Gln Tyr Asn Asn His Pro Tyr Thr
1 5

<210> 26
<211> 104
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<213> artificial

<220>
<223> variable region of the heavy chain of antibody GB3

<400> 26

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

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

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

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

Asp Lys Ala Thr Leu Thr Ile Asp Arg Ser Ser Ser Thr Ala Tyr Met
65 70 75 80

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

Gly Pro Phe Ala Tyr Trp Gly Gln
100

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<212> PRT
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<400> 27

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

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

Leu Ser Trp Leu Gln Gln Lys Pro Asp Gly Thr Ile Lys Arg Leu Ile
35 40 45

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

Ser Gly Ser Gly Ser Asn Tyr Ser Leu Thr Ile Ser Ser Leu Glu Ser
65 70 75 80

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

Thr Phe Gly Gly Gly Thr Lys Leu
100

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<400> 28

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

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

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

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

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

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

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

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

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

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

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

Glu Gln Tyr Ala Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu

180 185 190

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

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

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

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

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

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

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

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

Gln Lys Ser Leu Ser Leu Ser Pro Gly
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<223> Xaa can be any amino acid

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<222> (3)..(3)
<223> Xaa can be any amino acid

<220>
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<223> Xaa can be any amino acid

<400> 29

Xaa Xaa Xaa Met Ala
1 5

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<220>
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<223> Xaa can be any amino acid

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<222> (2)..(2)
<223> Xaa can be any amino acid

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<223> Xaa can be any amino acid

<220>
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<222> (9)..(9)
<223> Xaa can K or T

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<222> (11)..(11)
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<223> Xaa can be any amino acid

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<222> (17)..(17)
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<400> 30

Ser Xaa Ser Tyr Asp Gly Ser Xaa Xaa Xaa Xaa Gly Asp Ser Val Xaa

1 5 10 15

Xaa

<210> 31
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<400> 31

Ala Arg Xaa Gly Xaa Xaa
1 5

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<223> Xaa can be S or T

<220>
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<223> Xaa can be any amino acid

<400> 32

Xaa Xaa Xaa Xaa Xaa Val Xaa Xaa Xaa Val Asp
1 5 10

<210> 33
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<212> PRT
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<220>
<223> CDR2 from light chain variable region

<220>
<221> misc
<222> (2)..(2)
<223> Xaa can be any amino acid

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<222> (3)..(3)
<223> Xaa can be any amino acid

<220>
<221> misc
<222> (4)..(4)
<223> Xaa can be T or N

<400> 33

Gly Xaa Xaa Xaa Arg Tyr Thr
1 5

<210> 34
<211> 9
<212> PRT
<213> artificial

<220>
<223> CDR3 from light chain variable region

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