SEQUENCE LISTING

<110> EISAI R&D MANAGEMENT CO., LTD.

<120> ANTI-HUMAN XCR1 ANTIBODIES

<130> P12-035

<150> US 61/530194
<151> 2011-09-01

<150> US 61/659637
<151> 2012-06-14

<160> 119

<170> PatentIn version 3.4

<210> 1
<211> 121
<212> PRT
<213> Artificial

<220>
<223> Mouse Anti-Human XCR1 Antibody (2H6) Heavy chain variable region

<400> 1

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

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

Asn Met His Trp Ile Lys Gln Thr Leu Arg Gln Gly Leu Glu Trp Ile
35 40 45

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

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

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

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

Thr Gly Thr Thr Val Thr Val Ser Ser
115 120

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

Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30

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

Pro Lys Leu Leu Ile Tyr Arg Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60

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

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

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

<210> 3
<211> 363
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<223> Mouse Anti-Human XCR1 Antibody (2H6) Heavy chain variable region

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120

cttagacagg gcctggaatg gataggagct atttatccag gaaaaggtaa tacttcctac
180

aatcagaagt tcaagggcaa ggccacactg actgtagaca aatcctccag cacagcctac
240

atgcagctca gcagcctgac atctgaagac tctgcggtct atttctgtgc aagatggggt
300

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363

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120

tacctgcaga agccaggcca gtctccaaag ctcctgatct acagagtttc caatcgattt
180

tctggggtcc cagacaggtt cagtggcagt ggattaggga gagatttcac actcaagatc
240

agcagagtgg aggctgagga tctgggagtt tatttctgct ctcaaagtac atttgttccg
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336

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<211> 121
<212> PRT
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<220>
<223> Mouse Anti-Human XCR1 Antibody (5G7) Heavy chain variable region

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

Asn Leu His Trp Val Lys Gln Thr Pro Arg Gln Gly Leu Gln Trp Ile
35 40 45

Gly Ala Ile Tyr Pro Gly Asn Gly Asn Thr Ala Tyr Asn Gln Lys Phe
50 55 60

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

Met Gln Leu Ser Ser Leu Thr Ser Asp Asp Ser Ala Val Tyr Phe Cys
85 90 95

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

Thr Gly Thr Thr Val Thr Val Ser Ser
115 120

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<212> PRT
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<220>
<223> Mouse Anti-Human XCR1 Antibody (5G7) Light chain variable region

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

Asn Gln Ala Ser Ile Phe Cys Arg Ser Ser Leu Gly Leu Val His Arg
20 25 30

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

Pro Lys Leu Leu Ile Tyr Lys Val Ser His Arg Phe 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 Leu Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95

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

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<211> 363
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<220>
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120

cctagacagg gcctgcaatg gattggagct atttatccag gaaatggtaa tactgcctac
180

aatcagaagt tcaagggcaa ggccacgctg actgtagaca aatcctccag tacagcctac
240

atgcagctca gcagcctgac atctgatgac tctgcggtct acttctgtgc aagatggggt
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tca
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<220>
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120

tacctgcaga agccaggcca gtctccaaag ctcctgatct acaaagtttc ccaccgattt
180

tctggggtcc cagacaggtt cagtggcagt ggctcaggga cagatttcac actcaagatc
240

agcagagtgg aggctgagga tctgggggtt tatttctgct ctcaaagtac ccatgttccg
300

tggacgttcg gtggaggcac caagctggaa atcaaa
336

<210> 9
<211> 122
<212> PRT
<213> Artificial

<220>
<223> Mouse Anti-Human XCR1 Antibody (11H2) Heavy chain variable region

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

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

Tyr Val Asn Trp Val Lys Gln Ser His Gly Ala Ser Leu Glu Trp Ile
35 40 45

Gly Val Ser Asn Pro Lys Asn Gly Asp Lys Ser Tyr Asn Gln Lys Phe
50 55 60

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

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

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

Gly Thr Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 10
<211> 107
<212> PRT
<213> Artificial

<220>
<223> Mouse Anti-Human XCR1 Antibody (11H2) Light chain variable region

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

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

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

Tyr Tyr Thr Ser Arg Leu His Ser Gly Val Pro Ser Arg Phe Arg Gly

50 55 60

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

Glu Asp Ile Ala Thr Tyr Phe Cys Gln Gln Gly Lys Thr Leu Pro Arg
85 90 95

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

<210> 11
<211> 366
<212> DNA
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120

catggagcga gccttgagtg gattggagtt agtaatccta agaacggtga taaaagttac
180

aaccagaagt tcaagggcaa ggccacattg actgttgaca agtcctccag tacagcctac
240

atggagctca acagcctgac atctgaggac tctgctgtct attactgtgc aagagggctt
300

tactacgctg gtacctacgg gtacttcgat gtctggggca cggggaccac ggtcaccgtc
360

tcctca
366

<210> 12
<211> 321
<212> DNA
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<223> Mouse Anti-Human XCR1 Antibody (11H2) Light chain variable region

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gatggaactg ttaaactcct gatctactac acatcaagat tacactcagg tgtcccatca 180

aggttcagag gcagtgggtc tgggacagat ttctctctca ccattagcaa cctggagcaa 240

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ggcaccaagc tggaaatcaa a 321

<210> 13
<211> 447
<212> PRT
<213> Artificial

<220>
<223> Chimeric Anti-Human XCR1 Antibody Heavy chain

<400> 13

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

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

Asn Leu His Trp Val Lys Gln Thr Pro Arg Gln Gly Leu Gln Trp Ile
35 40 45

Gly Ala Ile Tyr Pro Gly Asn Gly Asn Thr Ala Tyr Asn Gln Lys Phe
50 55 60

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

Met Gln Leu Ser Ser Leu Thr Ser Asp Asp Ser Ala Val Tyr Phe Cys
85 90 95

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

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

Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala
130 135 140

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

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

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

Pro Ser Ser Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His
195 200 205

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

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

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

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

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

Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser

290 295 300

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

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

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

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

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

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

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

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

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

<210> 14
<211> 219
<212> PRT
<213> Artificial

<220>
<223> Chimeric Anti-Human XCR1 Antibody Light chain

<400> 14

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Asn Gln Ala Ser Ile Phe Cys Arg Ser Ser Leu Gly Leu Val His Arg
20 25 30

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

Pro Lys Leu Leu Ile Tyr Lys Val Ser His Arg Phe 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 Leu Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95

Thr His Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu 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
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> 15

<211> 1344
<212> DNA
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<220>
<223> Chimeric Anti-Human XCR1 Antibody Heavy chain

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120

cctagacagg gcctgcaatg gattggagct atttatccag gaaatggtaa tactgcctac
180

aatcagaagt tcaagggcaa ggccacgctg actgtagaca aatcctccag tacagcctac
240

atgcagctca gcagcctgac atctgatgac tctgcggtct acttctgtgc aagatggggt
300

tcggttgtag gagactggta cttcgacgtc tggggcacag ggaccacggt caccgtctcc
360

tcagctagca ccaagggccc atcggtcttc cccctggcgc cctgctccag gagcacctcc
420

gagagcacag cggccctggg ctgcctggtc aaggactact tccccgaacc ggtgacggtg
480

tcgtggaact caggcgctct gaccagcggc gtgcacacct tcccggctgt cctacagtcc
540

tcaggactct actccctcag cagcgtggtg accgtgccct ccagcaactt cggcacccag
600

acctacacct gcaacgtaga tcacaagccc agcaacacca aggtggacaa gacagttgag
660

cgcaaatgtt gtgtcgagtg cccaccgtgc ccagcaccac ctgccgcagc cccgtcagtc
720

ttcctgttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcacg
780

tgcgtggtgg tggacgtgag ccacgaagac cccgaggtcc agttcaactg gtacgtggac
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ggcgtggagg tgcataatgc caagacaaag ccacgggagg agcagttcaa cagcacgttc
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cgtgtggtca gcgtcctcac cgtcgtgcac caggactggc tgaacggcaa ggagtacaag
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tgcaaggtct ccaacaaagg cctcccagcc cccatcgaga aaaccatctc caaaaccaaa
1020

gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggagga gatgaccaag
1080

aaccaggtca gcctgacctg cctggtcaaa ggcttctacc ccagcgacat cgccgtggag
1140

tgggagagca atgggcagcc ggagaacaac tacaagacca cacctcccat gctggactcc
1200

gacggctcct tcttcctcta cagcaagctc accgtggaca agagcaggtg gcagcagggg
1260

aacgtcttct catgctccgt gatgcatgag gctctgcaca accactacac acagaagagc
1320

ctctccctgt ctccgggtaa atga
1344

<210> 16
<211> 660
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<220>
<223> Chimeric Anti-Human XCR1 Antibody Light chain

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120

tacctgcaga agccaggcca gtctccaaag ctcctgatct acaaagtttc ccaccgattt
180

tctggggtcc cagacaggtt cagtggcagt ggctcaggga cagatttcac actcaagatc
240

agcagagtgg aggctgagga tctgggggtt tatttctgct ctcaaagtac ccatgttccg
300

tggacgttcg gtggaggcac caagctggaa atcaaacgta cggtggctgc accatctgtc
360

ttcatcttcc cgccatctga tgagcagttg aaatctggaa ctgcctctgt tgtgtgcctg

420

ctgaataact tctatcccag agaggccaaa gtacagtgga aggtggataa cgccctccaa
480

tcgggtaact cccaggagag tgtcacagag caggacagca aggacagcac ctacagcctc
540

agcagcaccc tgacgctgag caaagcagac tacgagaaac acaaagtcta cgcctgcgaa
600

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<210> 17
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<220>
<223> Heavy chain CDR 1 of 5G7

<400> 17

Ser His Asn Leu His
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<210> 18
<211> 17
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<223> Heavy chain CDR 2 of 5G7

<400> 18

Ala Ile Tyr Pro Gly Asn Gly Asn Thr Ala Tyr Asn Gln Lys Phe Lys
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Gly

<210> 19
<211> 12
<212> PRT
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<223> Heavy chain CDR 3 of 5G7

<400> 19

Trp Gly Ser Val Val Gly Asp Trp Tyr Phe Asp Val
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<210> 20
<211> 16
<212> PRT
<213> Artificial

<220>
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<400> 20

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1 5 10 15

<210> 21
<211> 7
<212> PRT
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<220>
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<400> 21

Lys Val Ser His Arg Phe Ser
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<210> 22
<211> 9
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<400> 22

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<210> 23
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<220>
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<210> 24
<211> 51
<212> DNA
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<220>
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51

<210> 25
<211> 36
<212> DNA
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<220>
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<210> 28
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<400> 28
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<210> 29
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<400> 29

Ser His Asn Met His
1 5

<210> 30
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<220>
<223> Heavy chain CDR 2 of 2H6

<400> 30

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1 5 10 15

Gly

<210> 31
<211> 12
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<220>
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<400> 31

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1 5 10

<210> 32
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<400> 32

Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Asn Thr Tyr Leu His
1 5 10 15

<210> 33
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<400> 33

Arg Val Ser Asn Arg Phe Ser
1 5

<210> 34
<211> 9
<212> PRT
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<220>
<223> Light chain CDR 3 of 2H6

<400> 34

Ser Gln Ser Thr Phe Val Pro Trp Thr
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<210> 35
<211> 15
<212> DNA
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<220>
<223> Heavy chain CDR 1 of 2H6

<400> 35
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<210> 36
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<400> 36
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51

<210> 37
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<400> 37
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<400> 39
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21

<210> 40
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<400> 40
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<210> 41
<211> 5
<212> PRT
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<220>
<223> Heavy chain CDR 1 of 11H2

<400> 41

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<210> 42
<211> 17
<212> PRT
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<220>
<223> Heavy chain CDR 2 of 11H2

<400> 42

Val Ser Asn Pro Lys Asn Gly Asp Lys Ser Tyr Asn Gln Lys Phe Lys
1 5 10 15

Gly

<210> 43
<211> 13
<212> PRT
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<220>
<223> Heavy chain CDR 3 of 11H2

<400> 43

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1 5 10

<210> 44
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<400> 44

Arg Ala Ser Gln Asp Ile Ser Asn Tyr Leu Asn
1 5 10

<210> 45
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<400> 45

Tyr Thr Ser Arg Leu His Ser
1 5

<210> 46
<211> 9
<212> PRT

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<400> 46

Gln Gln Gly Lys Thr Leu Pro Arg Thr
1 5

<210> 47
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<212> DNA
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<220>
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<400> 47
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15

<210> 48
<211> 51
<212> DNA
<213> Artificial

<220>
<223> Heavy chain CDR 2 of 11H2

<400> 48
gttagtaatc ctaagaacgg tgataaaagt tacaaccaga agttcaaggg c
51

<210> 49
<211> 39
<212> DNA
<213> Artificial

<220>
<223> Heavy chain CDR 3 of 11H2

<400> 49
gggctttact acgctggtac ctacgggtac ttcgatgtc
39

<210> 50
<211> 33
<212> DNA

<213> Artificial

<220>
<223> Light chain CDR 1 of 11H2

<400> 50
agggcaagtc aggacattag caattattta aac
33

<210> 51
<211> 21
<212> DNA
<213> Artificial

<220>
<223> Light chain CDR 2 of 11H2

<400> 51
tacacatcaa gattacactc a
21

<210> 52
<211> 27
<212> DNA
<213> Artificial

<220>
<223> Light chain CDR 3 of 11H2

<400> 52
caacagggta aaacgcttcc tcggacg
27

<210> 53
<211> 5
<212> PRT
<213> Artificial

<220>
<223> Generalized Amino Acid Sequences of Complementary Determining
Regions of 5G7 and 2H6 (Heavy chain CDR 1)

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> X is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu, Lys,
Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<400> 53

Ser His Asn Xaa His
1 5

<210> 54
<211> 17
<212> PRT
<213> Artificial

<220>
<223> Generalized Amino Acid Sequences of Complementary Determining
Regions of 5G7 and 2H6 (Heavy chain CDR 2)

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> Xaa is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Xaa is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<400> 54

Ala Ile Tyr Pro Gly Xaa Gly Asn Thr Xaa Tyr Asn Gln Lys Phe Lys
1 5 10 15

Gly

<210> 55
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Generalized Amino Acid Sequences of Complementary Determining
Regions of 5G7 and 2H6 (Heavy chain CDR 3)

<400> 55

Trp Gly Ser Val Val Gly Asp Trp Tyr Phe Asp Val
1 5 10

<210> 56
<211> 16
<212> PRT
<213> Artificial

<220>
<223> Generalized Amino Acid Sequences of Complementary Determining
Regions of 5G7 and 2H6 (Light chain CDR 1)

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<220>
<221> MISC_FEATURE
<222> (9)..(9)
<223> Xaa is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<400> 56

Arg Ser Ser Xaa Xaa Leu Val His Xaa Asn Gly Asn Thr Tyr Leu His
1 5 10 15

<210> 57
<211> 7
<212> PRT

<213> Artificial

<220>
<223> Generalized Amino Acid Sequences of Complementary Determining
Regions of 5G7 and 2H6 (Light chain CDR 2)

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<400> 57

Xaa Val Ser Xaa Arg Phe Ser
1 5

<210> 58
<211> 9
<212> PRT
<213> Artificial

<220>
<223> Generalized Amino Acid Sequences of Complementary Determining
Regions of 5G7 and 2H6 (Light chain CDR 3)

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa is Ala, Arg, Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu,
Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, or Val.

<400> 58

Ser Gln Ser Thr Xaa Val Pro Trp Thr
1 5

<210> 59

<211> 447
<212> PRT
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Heavy Chain (HK1)

<400> 59

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

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

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

Gly Ala Ile Tyr Pro Gly Asn Gly Asn Thr Ala Tyr Asn Gln Lys Phe
50 55 60

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

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

Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala
130 135 140

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

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

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

Pro Ser Ser Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His
        195                 200                 205

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

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

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

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

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

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

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

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

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

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

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

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser
```

385 390 395 400

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

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

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

<210> 60
<211> 121
<212> PRT
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Heavy Chain (HK1) variable region

<400> 60

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

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

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

Gly Ala Ile Tyr Pro Gly Asn Gly Asn Thr Ala Tyr Asn Gln Lys Phe
50 55 60

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

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 61
<211> 1344
<212> DNA
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Heavy Chain (HK1)

<400> 61
caggtgcagc tggtgcagtc tggagccgaa gtgaagaaac caggggcctc tgtcaaggtg
60

agttgcaagg cctccggtta cactttcacc tcccacaacc tgcattgggt gagacaggct
120

cctggacagc gactggagtg gatgggagca atctacccag gcaacggaaa tactgcctat
180

aatcagaagt ttaaaggcag ggtgacaatt actcgggaca cttccgcaag caccgcctac
240

atggagctgt ccagcctgag gagtgaagat accgctgtgt actattgtgc acgatgggga
300

tccgtggtcg gagactggta tttcgatgtg tgggggcagg gtaccctggt cacagtgtct
360

agtgcctcca caaagggccc cagcgtgttt ccactggctc cctgctctag gagtacatca
420

gagtccactg ccgctctggg atgtctggtg aaggactatt tccctgaacc agtcaccgtg
480

agttggaact caggggctct gacatctggt gtccacactt ttcctgcagt gctgcagtca
540

tccggcctgt actccctgag ctctgtggtc acagtcccaa gttcaaattt cggaacccag
600

acatatactt gcaacgtgga ccataagccc agcaatacca aggtcgataa aacagtggag
660

cgaaagtgct gtgtcgaatg cccaccttgt ccagctccac cagcagcagc tccttctgtg
720

ttcctgtttc ctccaaagcc aaaagacact ctgatgatca gccggacccc cgaggtcaca
780

tgtgtggtcg tggacgtgtc tcacgaggat cctgaagtcc agtttaactg gtacgtggat
840

ggggtcgaag tgcataatgc aaagacaaaa ccacgagagg aacagttcaa ctctacattt
900

cgtgtcgtga gtgtgctgac tgtcgtgcac caggattggc tgaacggcaa ggagtataag
960

tgcaaagtgt ccaataaggg actgcccgcc cctatcgaga aaactattag caagaccaaa
1020

ggccagccta gagaaccaca ggtgtacacc ctgccccta gtcgcgagga aatgactaag
1080

aaccaggtct cactgacctg tctggtgaaa gggttctatc ccagcgacat tgccgtggag
1140

tgggaatcta atggtcagcc tgagaacaat tacaagacca caccacccat gctggactcc
1200

gatgggagct tctttctgta ttcaaagctg accgtggata aatccaggtg gcagcagggt
1260

aatgtcttta gctgctctgt gatgcacgaa gccctgcaca accattacac tcagaagtcc
1320

ctgtccctgt cacctggaaa gtga
1344

<210> 62
<211> 363
<212> DNA
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Heavy Chain (HK1)
variable
region

<400> 62
caggtgcagc tggtgcagtc tggagccgaa gtgaagaaac caggggcctc tgtcaaggtg
60

agttgcaagg cctccggtta cactttcacc tcccacaacc tgcattgggt gagacaggct
120

cctggacagc gactggagtg gatgggagca atctacccag gcaacggaaa tactgcctat
180

aatcagaagt ttaaaggcag ggtgacaatt actcgggaca cttccgcaag caccgcctac

240

atggagctgt ccagcctgag gagtgaagat accgctgtgt actattgtgc acgatgggga
300

tccgtggtcg gagactggta tttcgatgtg tgggggcagg gtaccctggt cacagtgtct
360

agt
363

<210> 63
<211> 447
<212> PRT
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Heavy Chain (HK5)

<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 Thr Ser His
20 25 30

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

Gly Ala Ile Tyr Pro Gly Asn Gly Asn Thr Ala Tyr Asn Gln Lys Phe
50 55 60

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

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

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

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

```
Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala
    130                 135                 140

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

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

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

Pro Ser Ser Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp His
        195                 200                 205

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

<210> 64
<211> 121
<212> PRT
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Heavy Chain (HK5) variable
region

<400> 64

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

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

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

Gly Ala Ile Tyr Pro Gly Asn Gly Asn Thr Ala Tyr Asn Gln Lys Phe

50 55 60

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

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

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

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 65
<211> 1344
<212> DNA
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Heavy Chain (HK5)

<400> 65
caggtgcagc tggtgcagtc tggggccgaa gtgaagaaac caggggcttc tgtcaaggtg
60

agttgcaaag catcaggtta cactttcacc tcccacaacc tgcattgggt gcgacaggct
120

cctggacagg gactggagtg gatgggagca atctacccag ggaacggtaa taccgcttat
180

aatcagaagt ttaaaggcag ggtcacaatg actcgggaca cctccacaag cactgtgtac
240

atggagctgt ccagcctgcg aagtgaagat acagcagtgt actattgtgc acgttgggga
300

tccgtggtcg gtgactggta tttcgatgtg tggggccagg gaaccctggt cacagtgtct
360

agtgcttcca ctaaggggcc cagcgtgttt ccactggcac cctgctctcg gagtacttca
420

gagtccaccg ccgctctggg ctgtctggtg aaggactatt tccctgaacc agtcacagtg
480

agttggaact caggcgcact gacttctgga gtccacacct ttcctgccgt gctgcagtca

540

tccggcctgt actccctgag ctctgtggtc actgtcccaa gttcaaattt cggaacccag
600

acatatactt gcaacgtgga ccataagccc agcaatacaa aggtcgataa aactgtggag
660

agaaagtgct gtgtggaatg cccaccttgt ccagcaccac cagcagcagc tccttctgtg
720

ttcctgtttc ctccaaagcc aaaagacaca ctgatgatca gccgcacacc cgaggtcact
780

tgtgtggtcg tggacgtgtc tcacgaggat cctgaagtcc agtttaactg gtacgtggat
840

ggcgtcgaag tgcataatgc caagaccaaa ccaagagagg aacagttcaa ctctactttt
900

cgcgtcgtga gtgtgctgac cgtcgtgcac caggattggc tgaacggcaa ggagtataag
960

tgcaaagtgt ccaataaggg actgcccgct cctatcgaga aaaccattag caagacaaaa
1020

ggacagccta gggaaccaca ggtgtacacc ctgccccta gtcgggagga aatgaccaag
1080

aaccaggtct cactgacatg tctggtgaaa gggttctatc ccagcgacat tgccgtggag
1140

tgggaatcta atggtcagcc tgagaacaat tacaagacca caccacccat gctggactcc
1200

gatggcagct tctttctgta ttcaaagctg accgtggata aatccaggtg gcagcaggga
1260

aatgtcttta gctgctctgt gatgcacgaa gcactgcata atcactacac tcagaagagc
1320

ctgtccctgt cacctggtaa atga
1344

<210> 66
<211> 363
<212> DNA
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Heavy Chain (HK5)
variable

region

<400> 66
caggtgcagc tggtgcagtc tggggccgaa gtgaagaaac caggggcttc tgtcaaggtg
60

agttgcaaag catcaggtta cactttcacc tcccacaacc tgcattgggt gcgacaggct
120

cctggacagg gactggagtg gatgggagca atctacccag ggaacggtaa taccgcttat
180

aatcagaagt ttaaaggcag ggtcacaatg actcgggaca cctccacaag cactgtgtac
240

atggagctgt ccagcctgcg aagtgaagat acagcagtgt actattgtgc acgttgggga
300

tccgtggtcg gtgactggta tttcgatgtg tggggccagg gaaccctggt cacagtgtct
360

agt
363

<210> 67
<211> 219
<212> PRT
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Light Chain (L2)

<400> 67

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

Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Leu Gly Leu Val His Arg
20 25 30

Asn Gly Asn Thr Tyr Leu His Trp Phe Gln Gln Arg Pro Gly Gln Ser
35 40 45

Pro Arg Leu Leu Ile Tyr Lys Val Ser His Arg Phe 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 Ser Gln Ser
85 90 95

Thr His Val Pro Trp Thr Phe Gly Gln 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
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> 68
<211> 112
<212> PRT
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Light Chain (L2) variable region

<400> 68

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

Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Leu Gly Leu Val His Arg
20 25 30

Asn Gly Asn Thr Tyr Leu His Trp Phe Gln Gln Arg Pro Gly Gln Ser
35 40 45

Pro Arg Leu Leu Ile Tyr Lys Val Ser His Arg Phe 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 Ser Gln Ser
85 90 95

Thr His Val Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 69
<211> 660
<212> DNA
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Light Chain (L2)

<400> 69
gatgtcgtga tgacccagtc tcctctgagc ctgcctgtga ctctgggcca gccagcatca
60

atctcctgcc gatccagcct gggactggtg caccgtaacg ggaataccta cctgcattgg
120

ttccagcaga ggcctggtca gagtccccgg ctgctgatct ataaggtgtc tcacagattc
180

agtggcgtcc cagaccgctt tagcggctct ggaagtggga ctgatttcac cctgaaaatt
240

tcccgagtgg aggcagaaga cgtgggagtc tactattgct cacagtccac acatgtgccc
300

tggacttttg gtcagggcac caaggtcgag atcaaacgca ccgtggccgc tcctagcgtc
360

ttcatttttc ccccttctga cgaacagctg aagtcaggaa cagcttccgt ggtctgtctg

420

ctgaacaatt tttaccccag agaggcaaag gtgcagtgga aagtcgataa cgccctgcag
480

agcggcaact cccaggagag tgtgacagaa caggactcaa aggattccac ttatagcctg
540

tctagtaccc tgacactgtc taaagctgat tacgagaagc acaaagtgta tgcatgtgaa
600

gtcacccacc aggggctgtc atcacccgtc accaagtcct ttaatagagg ggagtgttga
660

<210> 70
<211> 336
<212> DNA
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Light Chain (L2)
variable
region

<400> 70
gatgtcgtga tgacccagtc tcctctgagc ctgcctgtga ctctgggcca gccagcatca
60

atctcctgcc gatccagcct gggactggtg caccgtaacg ggaataccta cctgcattgg
120

ttccagcaga ggcctggtca gagtccccgg ctgctgatct ataaggtgtc tcacagattc
180

agtggcgtcc cagaccgctt tagcggctct ggaagtggga ctgatttcac cctgaaaatt
240

tcccgagtgg aggcagaaga cgtgggagtc tactattgct cacagtccac acatgtgccc
300

tggacttttg gtcagggcac caaggtcgag atcaaa
336

<210> 71
<211> 219
<212> PRT
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Light Chain (L5)

<400> 71

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

Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Leu Gly Leu Val His Arg
            20                  25                  30

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

Pro Gln Leu Leu Ile Tyr Lys Val Ser His Arg Phe 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 Ser Gln Ser
                85                  90                  95

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

<210> 72
<211> 112
<212> PRT
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Light Chain (L5) variable
Region

<400> 72

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

Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Leu Gly Leu Val His Arg
20 25 30

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

Pro Gln Leu Leu Ile Tyr Lys Val Ser His Arg Phe 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 Ser Gln Ser
85 90 95

Thr His Val Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 73
<211> 660
<212> DNA
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Light Chain (L5)

<400> 73
gatattgtga tgactcagac tccactgagc ctgccagtga ctcccggcca gcctgcatca
60

atctcctgca gatccagcct gggactggtg caccgcaacg ggaataccta cctgcattgg
120

tatctgcaga agcctggtca gagtccccag ctgctgatct acaaagtgtc tcacaggttc
180

agtggcgtcc ccgaccggtt tagcggctct ggaagtggga ctgatttcac cctgaagatt
240

tcccgagtgg aggccgaaga cgtgggcgtc tactattgct cacagtccac acatgtgcct
300

tggacttttg gtcagggcac caaggtcgag atcaaaagga ccgtggccgc tccaagcgtc
360

ttcatttttc ccccttctga cgaacagctg aagtcaggaa cagcttccgt ggtctgtctg
420

ctgaacaatt tctaccccag agaggcaaag gtgcagtgga aagtcgataa cgccctgcag
480

agcggcaact cccaggagag tgtgacagaa caggactcaa aggattccac ttatagcctg
540

tctagtaccc tgacactgtc taaagctgat tacgagaagc acaaagtgta tgcatgtgaa
600

gtcacacacc agggtctgag ttcccccgtc accaaatcct ttaatcgtgg agagtgctga
660

<210> 74
<211> 336
<212> DNA
<213> Artificial

<220>
<223> Humanized Anti-Human XCR1 Antibody Light Chain (L5)
variable
Region

<400> 74
gatattgtga tgactcagac tccactgagc ctgccagtga ctcccggcca gcctgcatca
60

atctcctgca gatccagcct gggactggtg caccgcaacg ggaataccta cctgcattgg
120

tatctgcaga agcctggtca gagtccccag ctgctgatct acaaagtgtc tcacaggttc

180

agtggcgtcc ccgaccggtt tagcggctct ggaagtggga ctgatttcac cctgaagatt
240

tcccgagtgg aggccgaaga cgtgggcgtc tactattgct cacagtccac acatgtgcct
300

tggacttttg gtcagggcac caaggtcgag atcaaa
336

<210> 75
<211> 57
<212> DNA
<213> Artificial

<220>
<223> Signal sequence

<400> 75
atgggattca gcaggatctt tctcttcctc ctgtcagtaa ctacaggtgt ccactcc
57

<210> 76
<211> 57
<212> DNA
<213> Artificial

<220>
<223> Signal sequence

<400> 76
atgaagttgc ctgttaggct gttggtgctg ctgttctggt ttcctgcttc caacact
57

<210> 77
<211> 57
<212> DNA
<213> Artificial

<220>
<223> Signal sequence

<400> 77
atggaatggt catgggtctt tctgttcttt ctgagtgtca caaccggggt gcatagc
57

<210> 78
<211> 57

<212> DNA
<213> Artificial

<220>
<223> Signal sequence

<400> 78
atggaatggt cttgggtctt tctgttcttt ctgtccgtca ctaccggggt ccactct
57

<210> 79
<211> 60
<212> DNA
<213> Artificial

<220>
<223> Signal sequence

<400> 79
atgtccgtgc ctactcaggt gctggggctg ctgctgctgt ggctgaccga tgctcgttgc
60

<210> 80
<211> 60
<212> DNA
<213> Artificial

<220>
<223> Signal sequence

<400> 80
atgtccgtgc ctactcaggt gctggggctg ctgctgctgt ggctgaccga tgctcgttgt
60

<210> 81
<211> 12
<212> DNA
<213> Artificial

<220>
<223> 5' adaptor ad29S

<400> 81
acatcactcc gt
12

<210> 82
<211> 50
<212> DNA

<213> Artificial

<220>
<223> 5' adaptor obtained 29AS

<400> 82
acggagtgat gtccgtcgac gtatctctgc gttgatactt cagcgtagct
50

<210> 83
<211> 26
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 83
agctacgctg aagtatcaac gcagag
26

<210> 84
<211> 21
<212> DNA
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<220>
<223> Primer

<400> 84
aggacagggg ttgattgttg a
21

<210> 85
<211> 26
<212> DNA
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<220>
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<400> 85
ctcaagtttt ttgtccaccg tggtgc
26

<210> 86
<211> 26
<212> DNA
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<220>
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<400> 86
ctcaattttc ttgtccacct tggtgc
26

<210> 87
<211> 19
<212> DNA
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<220>
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<400> 87
gccagtggat agactgatg
19

<210> 88
<211> 27
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 88
ctcattcctg ttgaagctct tgacaat
27

<210> 89
<211> 21
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 89
gatggataca gttggtgcag c
21

<210> 90
<211> 24
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 90
cagatcctca gcctccactc tgct
24

<210> 91
<211> 333
<212> PRT
<213> Abramis brama

<400> 91

Met Glu Ser Ser Gly Asn Pro Glu Ser Thr Thr Phe Phe Tyr Tyr Asp
1 5 10 15

Leu Gln Ser Gln Pro Cys Glu Asn Gln Ala Trp Val Phe Ala Thr Leu
20 25 30

Ala Thr Thr Val Leu Tyr Cys Leu Val Phe Leu Leu Ser Leu Val Gly
35 40 45

Asn Ser Leu Val Leu Trp Val Leu Val Lys Tyr Glu Ser Leu Glu Ser
50 55 60

Leu Thr Asn Ile Phe Ile Leu Asn Leu Cys Leu Ser Asp Leu Val Phe
65 70 75 80

Ala Cys Leu Leu Pro Val Trp Ile Ser Pro Tyr His Trp Gly Trp Val
85 90 95

Leu Gly Asp Phe Leu Cys Lys Leu Leu Asn Met Ile Phe Ser Ile Ser
100 105 110

Leu Tyr Ser Ser Ile Phe Phe Leu Thr Ile Met Thr Ile His Arg Tyr
115 120 125

Leu Ser Val Val Ser Pro Leu Ser Thr Leu Arg Val Pro Thr Leu Arg
130 135 140

Cys Arg Val Leu Val Thr Met Ala Val Trp Val Ala Ser Ile Leu Ser
145 150 155 160

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Ser Ile Leu Asp Thr Ile Phe His Lys Val Leu Ser Ser Gly Cys Asp
                165                 170                 175

Tyr Ser Glu Leu Thr Trp Tyr Leu Thr Ser Val Tyr Gln His Asn Leu
            180                 185                 190

Phe Phe Leu Leu Ser Leu Gly Ile Ile Leu Phe Cys Tyr Val Glu Ile
        195                 200                 205

Leu Arg Thr Leu Phe Arg Ser Arg Ser Lys Arg Arg His Arg Thr Val
    210                 215                 220

Lys Leu Ile Phe Ala Ile Val Val Ala Tyr Phe Leu Ser Trp Gly Pro
225                 230                 235                 240

Tyr Asn Phe Thr Leu Phe Leu Gln Thr Leu Phe Arg Thr Gln Ile Ile
                245                 250                 255

Arg Ser Cys Glu Ala Lys Gln Gln Leu Glu Tyr Ala Leu Leu Ile Cys
            260                 265                 270

Arg Asn Leu Ala Phe Ser His Cys Cys Phe Asn Pro Val Leu Tyr Val
        275                 280                 285

Phe Val Gly Val Lys Phe Arg Thr His Leu Lys His Val Leu Arg Gln
    290                 295                 300

Phe Trp Phe Cys Arg Leu Gln Ala Pro Ser Pro Ala Ser Ile Pro His
305                 310                 315                 320

Ser Pro Gly Ala Phe Ala Tyr Glu Gly Ala Ser Phe Tyr
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<210> 92
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<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 92

Met Glu Ser Ser Gly Asn Pro Glu Ser Thr Thr Phe
1 5 10

<210> 93
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 93

Ser Ser Gly Asn Pro Glu Ser Thr Thr Phe Phe Tyr
1 5 10

<210> 94
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 94

Gly Asn Pro Glu Ser Thr Thr Phe Phe Tyr Tyr Asp
1 5 10

<210> 95
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 95

Pro Glu Ser Thr Thr Phe Phe Tyr Tyr Asp Leu Gln
1 5 10

<210> 96
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 96

Ser Thr Thr Phe Phe Tyr Tyr Asp Leu Gln Ser Gln
1 5 10

<210> 97
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 97

Thr Phe Phe Tyr Tyr Asp Leu Gln Ser Gln Pro Cys
1 5 10

<210> 98
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 98

Phe Tyr Tyr Asp Leu Gln Ser Gln Pro Cys Glu Asn
1 5 10

<210> 99
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 99

Tyr Asp Leu Gln Ser Gln Pro Cys Glu Asn Gln Ala
1 5 10

<210> 100

<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 100

Leu Gln Ser Gln Pro Cys Glu Asn Gln Ala Trp Val
1 5 10

<210> 101
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 101

Ser Gln Pro Cys Glu Asn Gln Ala Trp Val Phe Ala
1 5 10

<210> 102
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 102

Pro Cys Glu Asn Gln Ala Trp Val Phe Ala Thr Leu
1 5 10

<210> 103
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 103

Glu Asn Gln Ala Trp Val Phe Ala Thr Leu Ala Thr
1 5 10

<210> 104
<211> 12
<212> PRT
<213> Artificial

<220>
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<400> 104

Gln Ala Trp Val Phe Ala Thr Leu Ala Thr Thr Val
1 5 10

<210> 105
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 105

Ile Ser Pro Tyr His Trp Gly Trp Val Leu Gly Asp
1 5 10

<210> 106
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 106

Tyr His Trp Gly Trp Val Leu Gly Asp Phe Leu Cys
1 5 10

<210> 107
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 107

Gly Trp Val Leu Gly Asp Phe Leu Cys Lys Leu Leu
1 5 10

<210> 108
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 108

Ile Phe His Lys Val Leu Ser Ser Gly Cys Asp Tyr
1 5 10

<210> 109
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 109

Lys Val Leu Ser Ser Gly Cys Asp Tyr Ser Glu Leu
1 5 10

<210> 110
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 110

Ser Ser Gly Cys Asp Tyr Ser Glu Leu Thr Trp Tyr
1 5 10

<210> 111
<211> 12
<212> PRT
<213> Artificial

<220>

<223> Peptide_extracellular region

<400> 111

Cys Asp Tyr Ser Glu Leu Thr Trp Tyr Leu Thr Ser
1 5 10

<210> 112
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 112

Ser Glu Leu Thr Trp Tyr Leu Thr Ser Val Tyr Gln
1 5 10

<210> 113
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 113

Leu Gln Thr Leu Phe Arg Thr Gln Ile Ile Arg Ser
1 5 10

<210> 114
<211> 12
<212> PRT
<213> Artificial

<220>
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<400> 114

Leu Phe Arg Thr Gln Ile Ile Arg Ser Cys Glu Ala
1 5 10

<210> 115
<211> 12
<212> PRT

<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 115

Thr Gln Ile Ile Arg Ser Cys Glu Ala Lys Gln Gln
1 5 10

<210> 116
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 116

Ile Arg Ser Cys Glu Ala Lys Gln Gln Leu Glu Tyr
1 5 10

<210> 117
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Peptide_extracellular region

<400> 117

Cys Glu Ala Lys Gln Gln Leu Glu Tyr Ala Leu Leu
1 5 10

<210> 118
<211> 24
<212> PRT
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<220>
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<400> 118

Pro Glu Ser Thr Thr Phe Phe Tyr Tyr Asp Leu Gln Ser Gln Pro Cys
1 5 10 15

Glu Asn Gln Ala Trp Val Phe Ala
20

<210> 119
<211> 12
<212> PRT
<213> Artificial

<220>
<223> Candidate epitope

<400> 119

Cys Asp Tyr Ser Glu Leu Thr Trp Tyr Leu Thr Ser
1 5 10