

MFP1165-seq1-000001
SEQUENCE LISTING

<110> MAB Explorations Sdn Bhd
<120> ANTIBODIES SPECIFIC FOR ENTEROVIRUSES THAT INFECT HUMANS
<130> FP7176
<150> MY PI 2013004513
<151> 2013-12-16
<160> 30
<170> PatentIn version 3.5
<210> 1
<211> 108
<212> PRT
<213> Artificial Sequence
<220>
<223> Antibody E18 VL Chain
<400> 1

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

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

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

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

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

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

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

MFP1165-seql-000001

<210> 2
 <211> 120
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody E18 VH Chain

<400> 2

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

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

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

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

Lys Gly Arg Phe Ala Phe Ser Leu Glu Thr Ser Ala Ser Thr Ala Tyr
 65 70 75 80

Leu Gln Ile Asn Asn Leu Lys Asn Glu Asp Thr Ala Thr Tyr Phe Cys
 85 90 95

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

Gly Thr Ser Val Thr Val Ser Ser
 115 120

<210> 3
 <211> 112
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody E19 VL Chain

<400> 3

MFP1165-seql-000001

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

Gly Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
20 25 30

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

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

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

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

Tyr Leu Ser Ser Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 4

<211> 122

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody E19 VH1 Chain

<400> 4

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

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

Ala Met Ser Trp Val Arg Gln Thr Ala Glu Thr Arg Leu Glu Trp Val
35 40 45

Ala Thr Ile Ser Asp Gly Gly Ser His Thr Tyr Tyr Pro Asp Ser Val

MFP1165-seql-000001

50

55

60

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

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

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

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

<210> 5

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody E19 VH2 Chain

<400> 5

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

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

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

Trp Met Gly Tyr Ile Asn Tyr Gly Gly Ser Ile Asn Tyr Asn Pro Ser
 50 55 60

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

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

MFP1165-seql-000001

Cys Ala Thr Met Pro Asn Ser Trp Tyr Phe Asp Val Trp Gly Thr Gly
 100 105 110

Thr Thr Val Thr Val Ser Ser
 115

<210> 6
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody E20 VL Chain

<400> 6

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

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

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

Tyr Tyr 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 Phe Thr Ile Ser Ser Val Gln Val
 65 70 75 80

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

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
 100 105

<210> 7
 <211> 123
 <212> PRT
 <213> Artificial Sequence

MFP1165-seql-000001

<220>

<223> Antibody E20 VH Chain

<400> 7

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

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

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

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

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

Leu Gln Met Ser His Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
85 90 95

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

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

<210> 8

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody E18 VL Chain

<400> 8

gacatcaaga tgaccagtc tccatcctcc atgtatgcat cgctgggaga gagagtcact 60

atcacttgca aggcgagtc ggacattaaa agctatttaa gctggtacca gcagaaacca 120

tggaaatctc ctaagaccct gatctattat gcaaaaaact tggcagatgg ggtcccatca 180

MFP1165-seql-000001

agattcagtg gcagtggtt tgggcaagat tattctctaa ccatcagcag cctggagtct 240
gacgatacag caacttatta ctgtctacag catggtgaga gcccgtatac gttcggatcg 300
gggaccaaac tggaaataaa acgg 324

<210> 9
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody E18 VH Chain

<400> 9
cagatccagt tggtagctc tggacctgag ctgaagaagc ctggagagac agtcaagatc 60
tcctgcaagg cttctggata taccttcaca aggtatggaa tgagctgggt gaaacaggct 120
ccaggaaagg gtttaaagt gatgggctgg ataaacacct actctggagt gccaacatat 180
gctgacgact tcaagggacg gtttgccttc tctttggaaa cctctgccag cactgcctat 240
ttgcagatca acaacctcaa aaatgaggac acggctacat atttctgtgc aagaaggggg 300
tatagtaact attatcctat ggacttctgg ggtcaaggaa cctcagtcac cgtctcctca 360

<210> 10
<211> 336
<212> DNA
<213> Artificial Sequence

<220>
<223> Antibody E19 VL Chain

<400> 10
aacattatga tgacacagtc gccatcatct ctggctgtgt ctgcaggagg aaaggtcact 60
atgagctgta agtccagtca aagtgtttta tacagttcaa atcagaagaa ctacttggcc 120
tggtaccagc agaaaccagg gcagtctcct aaactactga tctactgggc atccactagg 180
gaatctgggtg tccctgatcg cttcacaggc agtggatctg ggacagattt tactcttacc 240
atcagcagtg tacaagctga agacctggca gtttattact gtcacataa cctctcctcg 300
tggacgttcg gtggaggcac caagctggaa atcaaa 336

<210> 11

MFP1165-seql-000001

<211> 366
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Antibody E19 VH1 Chain

<400> 11

gaagtgatgc tgggtggagtc tggggggaggc ttagtgaagc ctggagggtc cctccaactc	60
tcctgtgcag cctctggatt cacgttcagt gactatgcc a tgtcttgggt tcgccagact	120
gcggagacga ggctggagtg ggtcgcaacc atcagtgatg gtggtagtca cacctactat	180
ccagacagtg tgagggggacg gttcaccatc tccagagaca atgccaagaa ggccctgtac	240
ctggaaatga gcagtctgaa gtctgaggac acggccatgt attactgtgg aagacgggcg	300
gggagggtacg atgagagaga tgctatggac tactgggggtc aaggaaccac agtcaccgtc	360
tcctca	366

<210> 12
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Antibody E19 VH2 Chain

<400> 12

tctgatgtac agcttcagga gtcaggacct ggcctcgtga aaccttctca gtctctgtct	60
ctcacctgct ctgtcactgg ctactccatc accagtgggtt ttactttaa ctggatccgg	120
cagtttccag gaaacaaact ggaatggatg ggctacataa actacggtgg tagcattaac	180
tacaacccat ctctcaaaag tcgcatctcc atcactcgtg acacatctaa gaaccagttt	240
ttcctgaggt tgaattctgt gactgctgag gacacagcca catattactg tgcaaccatg	300
cctaactcct ggtacttcga tgtctggggc acagggacca cggtcaccgt ctctca	357

<210> 13
 <211> 321
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Antibody E20 VL Chain

MFP1165-seql-000001

<400> 13
 agtattgtga tgaccagac tcccaaattc ctgcctgtat cagcaggaga cagggttacc 60
 atgacctgca aggccagtca gagtgtgggt aataatgtag cctggtacca acagaagtca 120
 ggacagtctc ctaaactgct gatatactat gcatccaatc gctacactgg agtccttgat 180
 cgcttcactg gcagtggatc tgggacagat ttcactttca ccatcagcag tgtgcaggtt 240
 gaagacctgg cagtttattt ctgtcagcag cattatagct ctcctccac gttcggtgct 300
 gggaccaagc tggagctgaa a 321

<210> 14
 <211> 369
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody E20 VH Chain

<400> 14
 gaagtgcagc tgggtggagtc tgggggaggc ttagtgaagc ctggagggtc cctgaaactc 60
 tcctgtgcag cctctggatt cactttcaac atctatgcc a tgtcttgggt tcgccagact 120
 ccggaaaaga ggctggagtg ggtcgcaacc attagtgatg gtggtagtta tacctactat 180
 ccagacaatg taaagggccg attcaccatc tccagagaca atgccaagaa caacctgtac 240
 ctgcaaatga gccatctgaa gtctgaggac acagccatgt attactgtgt aagagatcga 300
 ggaaattact acagtagagc gttcccgtat gcttactggg gccaaaggac tctggtcact 360
 gtctctgca 369

<210> 15
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Antibody E18 VL2 Chain derived from SEQ ID NO: 1

<400> 15

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

MFP1165-seq1-000001

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

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

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

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

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

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

<210> 16

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody E19 humanized VL1 Chain derived from SEQ ID NO: 3

<400> 16

Asn Ile Met 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 Tyr Ser
20 25 30

Ser Asn Gln Lys Asn Tyr Leu Ala 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

MFP1165-seq1-000001

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 His Gln
85 90 95

Tyr Leu Ser Ser Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 17

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody E19 humanized VL2 Chain derived from SEQ ID NO: 3

<400> 17

Asn Ile Met 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 Tyr Ser
20 25 30

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

Ser 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 His Gln
85 90 95

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

<210> 18

<211> 112

MFP1165-seql-000001

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody E19 humanized VL3 Chain derived from SEQ ID NO: 3

<400> 18

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

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

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

Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Ser 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 Leu Tyr Tyr Cys His Gln
85 90 95

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

<210> 19

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody E19 humanized VH1 Chain derived from SEQ ID NO: 5

<400> 19

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

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

MFP1165-seql-000001

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

Ile Gly Tyr Ile Asn Tyr Gly Gly Ser Ile Asn Tyr Asn Pro Ser Leu
50 55 60

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

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

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

Leu Val Thr Val Ser Ser
115

<210> 20

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> Antibody E19 humanized VH2 Chain derived from SEQ ID NO: 5

<400> 20

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

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

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

Ile Gly Tyr Ile Asn Tyr Gly Gly Ser Ile Asn Tyr Asn Pro Ser Leu
50 55 60

MFP1165-seq1-000001

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

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

Ala Thr Met Pro Asn Ser Trp Tyr Phe Asp Val Trp Gly Thr Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 21
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody E19 humanized VH3 Chain derived from SEQ ID NO: 5

<400> 21

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

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

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

Ile Gly Tyr Ile Asn Tyr Gly Gly Ser Ile Asn Tyr Asn Pro Ser Leu
50 55 60

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

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

Ala Thr Met Pro Asn Ser Trp Tyr Phe Asp Val Trp Gly Thr Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 22
<211> 119
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody E19 humanized VH4 Chain derived from SEQ ID NO: 20

<400> 22

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

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

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

Ile Gly Tyr Ile Asn Tyr Gly Gly Ser Ile Asn Tyr Asn Pro Ser Leu
50 55 60

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

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

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

Thr Leu Val Thr Val Ser Ser
115

<210> 23
<211> 321
<212> DNA
<213> Artificial Sequence

<220>

<223> Antibody E18 VL2 Chain derived from SEQ ID NO: 1

<400> 23

```

gacatcaaga tgaccagtc tccatcctcc atgtatgcat cgctgggaga gagagtcact      60
atcacttgca aggcgagtc ggacattaaa agctatttaa gctggtacca gcagaaacca      120
tggaatctc ctaagaccct gatctattat gcaaaaaact tggcagatgg ggtcccatca      180
agattcagtg gcagtggatt tgggcaagat tattctctaa ccatcagcag cctggagtct      240
gacgatacag caacttatta ctgtctacag catggtgaga gcccgtatac gttcggatcg      300
gggaccaaac tggaataaaa a                                              321

```

<210> 24

<211> 336

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody E19 humanized VL1 Chain derived from SEQ ID NO: 3

<400> 24

```

aatatcatga tgaccagtc ccccgactcc ctggccgtgt ctctgggaga gagagccacc      60
atcaactgca agtcctccca gtccgtgctg tactcctcca accagaagaa ctacctggcc      120
tggtatcagc agaagcccgg ccagcctccc aagctgctga tctactgggc ctccaccggg      180
gaatctggcg tgcccgatag attctccggc tccggctctg gcaccgactt taccctgacc      240
atcagctccc tgcaggccga ggatgtggcc gtgtactact gccaccagta cctgtcctct      300
tggaccttcg gccagggcac caaggtggaa atcaag                               336

```

<210> 25

<211> 336

<212> DNA

<213> Artificial Sequence

<220>

<223> Antibody E19 humanized VL2 Chain derived from SEQ ID NO: 3

<400> 25

```

aatatcatga tgaccagtc ccccgactcc ctggccgtgt ctctgggaga gagagccacc      60
atcaactgca agtcctccca gtccgtgctg tactcctcca accagaagaa ctacctggcc      120

```

MFP1165-seql-000001

tggtatcagc agaagcccg	ccagtcccct aagctgctga tctactgggc	ctccacccgg	180
gaatctggcg tgcccgatag	attctccggc tccggctctg	gcaccgactt taccctgacc	240
atcagctccc tgcaggccga	ggatgtggcc gtgtactact	gccaccagta cctgtcctct	300
tggaccttcg gcggaggcac	caaggtggaa atcaag		336

<210> 26
 <211> 336
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Antibody E19 humanized VL3 Chain derived from SEQ ID NO: 3

<400> 26			
aatatcatga tgaccagtc	ccccgactcc ctggccctgt	ctctgggaga gagagccacc	60
atcaactgca agtcctccca	gtccgtgctg tactcctcca	accagaagaa ctacctggcc	120
tggtatcagc agaagcccg	ccagtcccct aagctgctga	tctactgggc ctctcccg	180
gaatctggcg tgcccgatag	attctccggc tccggctctg	gcaccgactt taccctgacc	240
atcagctccc tgcaggccga	ggatgtggcc ctgtactact	gccaccagta cctgtcctct	300
tggaccttcg gcggaggcac	caaggtggaa atcaag		336

<210> 27
 <211> 354
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Antibody E19 humanized VH1 Chain derived from SEQ ID NO: 5

<400> 27			
gatgtgcagc tgcaggaatc	tggccctggc ctctgaagc	cttcccagac cctgtctctg	60
acctgcaccg tgtccggcta	ctccatcacc tccggcttct	acctgaactg gatccggcag	120
cacccttgca agggcctgga	atggatcggc tacatcaact	acggcggctc tatcaactac	180
aacccagcc tgaagtccag	agtgaccatc tcccgggaca	cctccaagaa ccagttctcc	240
ctgaagctgt cctccgtgac	cgccgtgat accgccgtgt	actactgcgc taccatgccc	300
aacagctggg acttcgacgt	gtggggcaga ggcaccctcg	tgaccgtgtc atct	354

<210> 28
 <211> 354
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody E19 humanized VH2 Chain derived from SEQ ID NO: 5

<400> 28
 gatgtgcagc tgcaggaatc tggccctggc ctcgtgaagc cttcccagac cctgtctctg 60
 acctgcaccg tgtccggcta ctccatcacc tccggcttct acctgaactg gatccggcag 120
 caccgccgga agaaactgga atggatcggc tacatcaact acggcggctc tatcaactac 180
 aaccccagcc tgaagtccag agtgaccatc tcccgggaca cctccaagaa ccagttctcc 240
 ctgaagctgt cctccgtgac cgccgctgat accgccgtgt actactgcgc taccatgccc 300
 aacagctggg acttcgacgt gtggggcacc ggcaccctcg tgacagtgtc atct 354

<210> 29
 <211> 354
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antibody E19 humanized VH3 Chain derived from SEQ ID NO: 5

<400> 29
 gaagtgcagc tgggtggaatc tggccctggc ctcgtgaagc cttcccagac cctgtctctg 60
 acctgcaccg tgtccggcta ctccatcacc tccggcttct acctgaactg ggtgcgacag 120
 caccgccgga agaaactgga atggatcggc tacatcaact acggcggctc tatcaactac 180
 aaccccagcc tgaagtcccg ggtgtccatc tcccgggaca cctccaagaa ccagttctcc 240
 ctgaagctga cctccgtgac cgccgctgat accgccgtgt actactgcgc taccatgccc 300
 aacagctggg acttcgacgt gtggggcacc ggcaccctcg tgacagtgtc atct 354

<210> 30
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>

MFP1165-seql-000001

<223> Antibody E19 humanized VH4 Chain derived from SEQ ID NO: 20

<400> 30

gatgtgcagc tgcaggaatc tggccctggc ctcgtgaagc cttcccagac cctgtctctg	60
acctgcaccg tgtccggcta ctccatcacc tccggcttct acctgaactg gatccggcag	120
caccccgga agaaactgga atggatcggc tacatcaact acggcggctc tatcaactac	180
aacccagcc tgaagtccag agtgaccatc tccggggaca cctccaagaa ccagttctcc	240
ctgaagctgt cctccgtgac cgccgctgat accgccgtgt actactgcgc tcgcaccatg	300
cccaacagct ggtacttcga cgtgtggggc accggcacc tcgtgacagt gtcattt	357