

pctgb2013050682-seq1  
SEQUENCE LISTING

<110> Kymab Limited

<120> Animal models and therapeutic molecules

<130> 25077.38

<150> US 13433084

<151> 28.03.2012

<150> US 13434361

<151> 29.3.2012

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<170> PatentIn version 3.5

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pctgb2013050682-seq1

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| gaacgggtgt | tcatgcccct | agagttggct | gaagggccag  | atccacctac | tctagaggca | 16020 |
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| agccctgctg | cagtttcgtc | ctgtatacca | ggttcaccta  | ctaccatatc | tagccctgcc | 16140 |
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pctgb2013050682-seq1

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| tgtaggccac | gaggccctgc | cacacctggg  | gaccgagagg  | accgtggaca | agtccactgg | 18060 |
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| accatgctag | cgctcaacca | ggcaggccct  | gggtgtccag  | ttgctctgtg | tatgcaaact | 18180 |
| aaccatgtca | gagtgagatg | ttgcatttta  | taaaaattag  | aaataaaaaa | aatccattca | 18240 |
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pctgb2013050682-seq1

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| caggagagcg | cacgaggggg | cttccagggg | gaaacgcctg | gtatctttat  | agtcctgtcg  | 21120 |
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pctgb2013050682-seq1

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| agtgagctga | taccgctcgc | cgagccgaa   | cgaccgagcg | cagcgagtca  | gtgagcgagg  | 21360 |
| aagcggaaga | gcgctgatg  | cggatattttc | tccttacgca | tctgtgcggt  | atttcacacc  | 21420 |
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| ccagagaaaa | atcactcagg | gtcaatgcca  | gcgcttcgtt | aatacagatg  | taggtgtttcc | 22020 |
| acaggtagc  | cagcagcatc | ctgcgatgca  | gatccggaac | ataatggtgc  | agggcgctga  | 22080 |
| cttccgcgtt | tccagacttt | acgaaacacg  | gaaaccgaag | accattcatg  | ttgttgctca  | 22140 |
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<211> 14130

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<213> Artificial Sequence

<220>

<223> Targetting vector (short version)

<400> 3

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| cctacacatg | tgtaacagat | gtgcagcttg | gtcttcatgt | gtgtattacc | ctaacatttg | 120 |
| gagcaggagc | tgtctctgac | tctgttgctt | gccattggat | ccccttcccc | tgcttgggct | 180 |
| gccttgtttg | gccttagtag | gaaaggatgt | gcttagtcct | gctgtgactt | gatgtcccta | 240 |
| ggcagaatga | taccccaggg | gggctcccca | tctctgagga | gatgggcaaa | gggtaatggt | 300 |
| tggagggact | tgtgaggctg | ggactgggag | gagagaaagg | agacagctgt | aactggaatg | 360 |
| atgttaaagt | aacaaatgaa | tggatagatt | agatagacag | atagacagac | agacagacag | 420 |
| acagacagac | agacagacag | acagacagat | agaaagatag | atagataagg | ggaaaaagaa | 480 |
| acgtagctga | gcaagccaga | gagagcaagc | caaataagca | gcattcctcc | atgacttttc | 540 |
| cttcagctcc | tgcttatgag | tctgccttga | cttccctcag | tgattgggtg | taagttaaaa | 600 |
| ggtgaaataa | accctttctt | tgacaagttg | cttttggttc | tgatttttat | cacagcaaga | 660 |
| gaaaatcaaa | ctagaacaaa | catgtatttt | tcctggcaca | tgtccatagt | aaggcagaaa | 720 |

pctgb2013050682-seq1

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| ctgtatgatt  | gtaatccaag  | taaatctaca | tagctagaga  | gctagaggaa | aggccaaagc  | 840  |
| ttcctctggg  | aggtcagatc  | ctgtcgcact | gtagccaata  | aggcatattg | catcacagga  | 900  |
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| ttagtaactg  | agtactacag  | caggagcagg | tgttctctag  | aaagcctgag | acaactctac  | 1080 |
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| accagagata  | ctgcttcac   | acaacagtag | agtgcactt   | tagactttaa | tttgggtcac  | 1800 |
| tttcctgctg  | tagaggtggg  | atcagaaagc | aaagagcagt  | atgagtgcct | gataggcacc  | 1860 |
| caagtacact  | atagagtact  | catggtgaat | aaggtacctc  | catggcttcc | cagggagggg  | 1920 |
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| agaactttag  | cgactgtttt  | gagagaaatc | attggtccct  | gactcaagag | atgactggca  | 2100 |
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pctgb2013050682-seq1

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| cctggatgat | gggatagga   | ctttggaggc  | tcatttgaag  | aagatgctaa  | aacaatccta  | 4500 |
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| tgcathtag  | acatctcagt  | cgccgcttgg  | agctcccgtg  | aggcgtgctt  | gtcaatgcgg  | 4680 |
| taagtgtcac | tgattttgaa  | ctataacgac  | cgcgtagtc   | aaaatgacgc  | atgattatct  | 4740 |
| tttacgtgac | ttttaagatt  | taactcatac  | gataattata  | ttgttatttc  | atgttctact  | 4800 |

pctgb2013050682-seq1

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| ctgctgacaa  | agattcactg  | gtaataatth | gaacaagttg  | gaaaatacag  | tcaacattac  | 5040 |
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| acttctattc  | tttctgcat   | atataaaaa  | taaaatacca  | attaaaaaac  | taatatatct  | 5220 |
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| gataaaaattc | ttagaagata  | catgcaaaaa | gctctactaa  | gcagatggcc  | acagaactag  | 5460 |
| aacattgata  | attttactgg  | cgatgtcaat | aggactccag  | atgtttccaa  | actcaacttg  | 5520 |
| aactctcatc  | ttaggctttg  | tattttgctt | ttccagtttc  | actaatgaca  | caaacatgat  | 5580 |
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| ttgttttgcc  | agtgtcaatt  | atatctttca | caatcaagac  | attctttcca  | gttaaagttg  | 5820 |
| agagatcatc  | tccaccaatt  | acttttatgt | cccctgttga  | ctggtcatta  | caatagctct  | 5880 |
| tcagtctgat  | aaaatctaca  | gtcataggaa | tggatctatc  | actattttta  | ttcagtgcct  | 5940 |
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pctgb2013050682-seq1

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| aaaatattca | ataaactctt | tccccttgac  | ccagaaattc | cacttgaata | aagctgaaca  | 6960 |
| agtaccaaac | atgtaaaaga | atgtttcttc  | tagtacagtc | ggtaagaaca | aaatagtgtc  | 7020 |
| tatcaatagt | ggactgggta | aatcagttat  | ggtatctcca | taagacagaa | tgctatgcaa  | 7080 |
| cctttaaaat | atattagata | gctctagaca  | gtggatcccc | tcgagggacc | taataacttc  | 7140 |
| gtatagcata | cattatacga | agttatatta  | agggttattg | aatatgtcga | ctagacacac  | 7200 |
| taatattaaa | agtgtccaat | aacattttaa  | actatactca | tacgttaaaa | tataaatgta  | 7260 |
| tatatgtact | tttgcatata | gtatacatgc  | atagccagtg | cttgagaaga | aatgtgtaca  | 7320 |
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| tataacacaa | atattttgat | attataattt  | taaaataaaa | acacagaata | gccagacata  | 7440 |
| caatgcaagc | attcaatacc | aggtaagggt  | tttcaactgt | attgacttaa | cagaaaattt  | 7500 |
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| tgtttgaaat | taacacaaga | aaaagtaaaa  | aacctcattt | taagatctta | cttacctgtc  | 7860 |
| cataattagt | ccatggggaa | taaacaccct  | ttccaaatcc | tcagcataat | gattaggtat  | 7920 |
| gcaaaataaa | tcaaggtcat | aacctgggtc  | atcatcacta | atcacgacgc | cagggctgcg  | 7980 |
| ggctgccata | acggagccgg | ccggcgcgcg  | ggctgaataa | cttcgtataa | tgtgtactat  | 8040 |
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| attatcgtat | gagttaaata | ttaaaagtca  | cgtaaaagat | aatcatgcgt | cattttgact  | 8760 |
| cacgcggctg | ttatagttca | aatcagtgta  | cacttaccgc | attgacaagc | acgcctcacg  | 8820 |
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| tatacttcag  | gaccacctct | gtgacagcat | ttatacagta  | tccgatgcat  | agggacaaag  | 9060  |
| agtggagtgg  | ggcactttct | ttagatttgt | gaggaatggt  | ccacactaga  | ttgttttaaaa | 9120  |
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| gggaccag    | ctaagaaggc  | aatcctggga  | ttctggaaga | aaagatgttt  | ttagttttta | 11040 |
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| tctctgcaaa  | cggaatcaa   | gattcaacct  | ctttgtccca  | aagttgagac  | atgggtctgg  | 3780 |
| gtcagggact  | ctctgcctgc  | tggctctgtg  | tgacattaga  | actgaagtat  | gatgaaggat  | 3840 |
| ctgccagaac  | tgaagcttga  | agtctgaggc  | agaatcttgt  | ccagggtcta  | tcggactctt  | 3900 |
| gtgagaatta  | ggggctgaca  | gttgatggtg  | acaatttcag  | ggtcagtgac  | tgtctggttt  | 3960 |
| ctctgagggtg | aggctggaat  | ataggtcacc  | ttgaagacta  | aagaggggtc  | caggggcttc  | 4020 |

pctgb2013050682-seq1

|                                                                    |      |
|--------------------------------------------------------------------|------|
| tgacacaggca gggaacagaa tgtggaacaa tgacttgaat ggttgattct tgtgtgacac | 4080 |
| caggaattgg cataatgtct gagttgccca ggggtgattc tagtcagact ctggggtttt  | 4140 |
| tgtcgggtat agaggaaaaa tccactattg tgattactat gctatggact actgggggtca | 4200 |
| aggaacctca gtcaccgtct cctcaggtaa gaatggcctc tccagggtctt tatttttaac | 4260 |
| ctttgttatg gagttttctg agcattgcag actaatcttg gatatttgct cctgaggag   | 4320 |
| ccggctgaga gaagttggga aataaactgt ctagggatct cagagccttt aggacagatt  | 4380 |
| atctccacat ctttgaaaaa ctaagaatct gtgtgatggg gttggtggag tccctggatg  | 4440 |
| atgggatagg gactttggag gctcatttga agaagatgct aaaacaatcc tatggctgga  | 4500 |
| gggatagttg gggct                                                   | 4515 |

<210> 7  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide HV2-5

<400> 7  
 agatcacctt gaaggagtct ggtcc 25

<210> 8  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide HV4-4

<400> 8  
 tggatgaagcc ttcggagacc ctgtc 25

<210> 9  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide HV1-3

<400> 9  
 cactagctat gctatgcatt ggggtg 25

<210> 10  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide HV1-2

<400> 10  
 atggatcaac cctaacagtg gtggc 25

<210> 11

<211> 25  
 <212> DNA  
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<220>  
 <223> oligonucleotide HV6-1

<400> 11  
 ggaaggacat actacagggtc caagt 25

<210> 12  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide C

<400> 12  
 taggtacttg ccccctgtcc tcagt 25

<210> 13  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide KV1-9

<400> 13  
 agcccagtggt gttccgtaca gcctg 25

<210> 14  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide KV1-8

<400> 14  
 atcctcattc tctgcatcta cagga 25

<210> 15  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide KV1-6

<400> 15  
 ggtaaggatg gagaacactg gcagt 25

<210> 16  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide KV1-5

<400> 16

|                                                                                                                                                                                                      |                      |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----|
| ttagtagctg gttggcctgg tatca                                                                                                                                                                          | pctgb2013050682-seq1 | 25 |
| <210> 17<br><211> 25<br><212> DNA<br><213> Artificial Sequence<br><220><br><223> oligonucleotide Ck<br><400> 17<br>ctttgctgtc ctgatcagtc caact                                                       |                      |    |
|                                                                                                                                                                                                      |                      | 25 |
| <210> 18<br><211> 10<br><212> DNA<br><213> Artificial Sequence<br><220><br><223> Rat Switch<br><220><br><221> repeat_region<br><222> (1)..(10)<br><223> Repeated 148 times<br><400> 18<br>gagctgagct |                      |    |
|                                                                                                                                                                                                      |                      | 10 |
| <210> 19<br><211> 10<br><212> DNA<br><213> Artificial Sequence<br><220><br><223> Rat Switch<br><220><br><221> repeat_region<br><222> (1)..(10)<br><223> Repeat 25 times<br><400> 19<br>ggggtggggt    |                      |    |
|                                                                                                                                                                                                      |                      | 10 |
| <210> 20<br><211> 10<br><212> DNA<br><213> Artificial Sequence<br><220><br><223> Rat Switch<br><220><br><221> repeat_region<br><222> (1)..(5)<br><223> Repeat 82 times<br><400> 20<br>gggctgggct     |                      |    |
|                                                                                                                                                                                                      |                      | 10 |

<210> 21  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Antibody Sequence

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(2)  
 <223> Xaa Xaa = PR, RT, or PW

<400> 21

Xaa Xaa Thr Phe Gly Gln  
 1 5

<210> 22  
 <211> 17  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Antibody Sequence

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(2)  
 <223> Xaa Xaa= PR, RT, or PW

<400> 22

Xaa Xaa Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Ala Asp  
 1 5 10 15

Ala

<210> 23  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Antibody Sequence

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(2)  
 <223> Xaa Xaa = PR or PW

<400> 23

Xaa Xaa Thr Phe Gly Gln  
 1 5

<210> 24  
 <211> 17  
 <212> PRT

<213> Artificial Sequence

<220>

<223> Antibody Sequence

<220>

<221> MISC\_FEATURE

<222> (1)..(2)

<223> Xaa Xaa = PR or PW

<400> 24

Xaa Xaa Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Ala Asp  
1 5 10 15

Ala

<210> 25

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer E1554

<400> 25

atgacttcag tgttgttctg gtag

24

<210> 26

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer E1555

<400> 26

caccagattc ttatcagac

19

<210> 27

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> ELP1352\_Cy1

<400> 27

agagcggccg ctgggcaacg ttgcaggtga cggtc

35

<210> 28

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> ELP1353\_Cy2b

<400> 28

agagcggccg ctttgtccac cgtggtgctg ctgg

34

pctgb2013050682-seq1

<210> 29  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> ELP1354\_Cy2a  
 <400> 29  
 agagcggccg cacattgcag gtgatggact ggc 33

<210> 30  
 <211> 35  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> ELP1356\_VH4-4  
 <400> 30  
 aggacgcgtg aaacacctgt ggttcttcct cctgc 35

<210> 31  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> ELP1357\_VH1-2,3  
 <400> 31  
 aggacgcgtc accatggact ggacctggag gat 33

<210> 32  
 <211> 34  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> ELP1358\_VH6-1  
 <400> 32  
 aggacgcgta tgtctgtctc cttcctcatc ttcc 34

<210> 33  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> mIgG1\_2 rev  
 <400> 33  
 ggggccagtg gatagacaga t 21

<210> 34  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> mIgG2b rev

<400> 34  
cagtggatag actgatgg 18

<210> 35  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> mIgG2a\_2 rev

<400> 35  
cagtggatag accgatgg 18

<210> 36  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> mCH1 unirev

<220>  
<221> misc\_feature  
<222> (1)..(1)  
<223> K = G or T

<400> 36  
kcaggggcca gtggatagac 20

<210> 37  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> mCH1 unirev\_2

<220>  
<221> misc\_feature  
<222> (3)..(3)  
<223> R = A or G

<220>  
<221> misc\_feature  
<222> (6)..(6)  
<223> Y = C or T

<220>  
<221> misc\_feature  
<222> (12)..(12)  
<223> M = A or C

<400> 37  
tarccyttga cmaggcatcc 20

<210> 38  
<211> 24  
<212> PRT  
<213> Artificial Sequence

pctgb2013050682-seq1

<220>

<223> 16C9

<400> 38

Gln Glu Val Ile Asn Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln  
1 5 10 15

Gly Thr Thr Val Thr Val Ser Ser  
20

<210> 39

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> 20B5

<400> 39

Gln Glu Val Ile Asn Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln  
1 5 10 15

Gly Thr Thr Val Thr Val Ser Ser  
20

<210> 40

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> 19F4

<400> 40

Leu Glu Met Ala Thr Ile Asn Tyr Tyr Tyr Tyr Gly Met Asp Val Trp  
1 5 10 15

Gly Gln Gly Thr Met Val Thr Val Ser Ser  
20 25

<210> 41

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> 19E1

<400> 41

Gln Glu Phe Gly Asn Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln  
1 5 10 15

Gly Thr Thr Val Thr Val Ser Ser  
20

<210> 42

pctgb2013050682-seq1

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

<220>  
 <223> 19G8

<400> 42

Gln Glu Asp Gly Asn Pro Tyr Tyr Phe Gly Met Asp Phe Trp Gly Gln  
 1 5 10 15

Gly Thr Thr Val Thr Val Ser Ser  
 20

<210> 43  
 <211> 22  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 20H10

<400> 43

Gly Ser Ser Tyr Tyr Tyr Asp Gly Met Asp Val Trp Gly Gln Gly Thr  
 1 5 10 15

Thr Val Thr Val Ser Ser  
 20

<210> 44  
 <211> 25  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 18D10

<400> 44

Leu Glu Asn Asp Tyr Gly Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly  
 1 5 10 15

Gln Gly Thr Thr Val Thr Val Ser Ser  
 20 25

<210> 45  
 <211> 23  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 16F2

<400> 45

Arg Gly Gly Leu Ser Pro Leu Tyr Gly Met Asp Val Trp Gly Gln Gly  
 1 5 10 15

Thr Thr Val Thr Val Ser Ser

<210> 46  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Rat Switch

<400> 46  
 gggctgggct gggct 15

<210> 47  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Rat Switch

<400> 47  
 gggctgggct gggctgggct 20

<210> 48  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Rat Switch

<400> 48  
 gggctgggct gggctgggct gggct 25

<210> 49  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Rat Switch

<400> 49  
 gggctgggct gggctgggct gggctgggct 30

<210> 50  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Rat Switch

<220>  
 <221> repeat\_region  
 <222> (1)..(5)  
 <223> Repeat 6 to 81 times

<400> 50  
 gggctgggct 10

<210> 51  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> IGHV4-4\*02 CDR1  
 <400> 51

Ser Ser Asn Trp Trp Ser  
 1 5

<210> 52  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 12D10 CDR1  
 <400> 52

Ser Gly Asn Trp Trp Ser  
 1 5

<210> 53  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 1283 CDR1  
 <400> 53

Arg Ser Asn Trp Trp Ser  
 1 5

<210> 54  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> IGHV6-1\*01 CDR1  
 <400> 54

Ser Asn Ser Ala Ala Trp Asn  
 1 5

<210> 55  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 4A12 CDR1  
 <400> 55

Ser Asn Ser Ala Ala Trp Asn

1

5

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

<220>  
 <223> IGHV4-4\*02 CDR2

<400> 56

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

<210> 57  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 12D10 CDR2

<400> 57

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

<210> 58  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 1283 CDR2

<400> 58

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

<210> 59  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> IGHV6-1\*01 CDR2

<400> 59

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

Lys Ser

<210> 60  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

pctgb2013050682-seq1

<220>

<223> 4A12 CDR2

<400> 60

Arg Thr Tyr Tyr Arg Ser Lys Trp Tyr Asn Asp Tyr Lys Val Ser Val  
1 5 10 15

Lys Ser

<210> 61

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> 12D10 CDR3

<400> 61

Gly Pro Leu Thr Gly Glu Lys Tyr Tyr Phe Asp Leu  
1 5 10

<210> 62

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> 1283 CDR3

<400> 62

Ile Gly Asp Trp Tyr Phe Asp Leu  
1 5

<210> 63

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> 4A12 CDR3

<400> 63

Glu Gly Ser His Ser Gly Ser Gly Trp Tyr Leu Asp Ala Phe Asp Ile  
1 5 10 15

<210> 64

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> IGHJ2\*01 J-region

<400> 64

Tyr Trp Tyr Phe Asp Leu Trp Gly Arg Gly Thr Leu Val Thr Val Ser  
1 5 10 15

Ser

<210> 65  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 12D10 J-region

&lt;400&gt; 65

Tyr Tyr Phe Asp Leu Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser  
 1 5 10 15

<210> 66  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 1283 J-Region

&lt;400&gt; 66

Trp Tyr Phe Asp Leu Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ser  
 1 5 10 15

<210> 67  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> IGHJ3\*01 J-Region

&lt;400&gt; 67

Asp Ala Phe Asp Val Trp Gly Gln Gly Thr Met Val Thr Val Ser Ser  
 1 5 10 15

<210> 68  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 4A12 J-region

&lt;400&gt; 68

Asp Ala Phe Asp Ile Trp Gly Gln Gly Thr Lys Val Thr Val Ser Ser  
 1 5 10 15