

[Figure 1]

Amino acid sequence of Glycoprotein-A Repetitions Predominant (GARP) (SEQ ID NO: 1)

MRPQILLLLALLTLGLAAQHQDKVPCKMVDKKVSCQVLGLLQVPSVLPPDTETLDLSGNQLR
SILASPLGFYTALRHLDLSTNEISFLQPGAFQALTHLEHLSLAHNRLAMATASAGGLGPLP
RVTSLDLSGNSLYSGLLERLLGEAPSLHTLSLAENSLTRLTRHTFRDMPALEQLDLHSNVLM
DIEDGAFEGLPRLTHLNLSRNSLTCISDFSLQQLRVLDLSCNSIEAFQTASQPQAEFQLTWL
DLRENKLLHFPDLAALPRLIYLNLSNNLIRLPTGPPQDSKGIHAPSEGWSALPLSAPSGNAS
GRPLSQLLNLDLSYNEIELIPDSFLEHLTSLCFLNLSRNCLRTFEARRLGSLPCLMLLDLSH
NALETLELGARALGSLRTLLLQGNALRDLPPYTFANLASLQRLNLQGNRVSPCGGPDEPGPS
GCVAFSGITSLRSLSLVDNEIELLRAGAFLLHTPLTELDLSSNPGLEVATGALGGLEASLEVL
ALQGNGLMVLQVDLPCFICLKRLNLAENRLSHLPWTQAVSLEVLDLRNNSFSLLPGSAMGG
LETSLRRLYLQGNPLSCCGNGWLAAQLHQGRVDVDATQDLICRFSSQEEVSLSHVRPEDCEK
GGLKNINLIIILTFILVSAILLTTLAACCCVRRQKFNQQYKA

[Figure 2]

Amino acid sequence of 105F antibody heavy chain (SEQ ID NO: 2)

EVQLLESGGGLVQPGGSLRLSCAASGFTFSDYYMSWIRQAPGKGLEWVSGVSWNGSRTHYAD
SVKGRFTISRDN SKNTLYLQMNSLR AEDTAVYYCARQRQLAEFDYWGGQTLTVTVSSASTKGP
SVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSV
VTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKP
KDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVL
HQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKG
FYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNVFCFSVMHEALH
NHYTQKSLSLSPGK

[Figure 3]

Amino acid sequence of 105F antibody light chain (SEQ ID NO: 3)

QSVLTQPPSASGTPGQRVTISCTGSSSNIGAGYVHWHYQQLPGTAPKLLIYADTNRPSGVDP
RFGSGKSGTSASLAISGLRSEDEADYYCQSYDSSLRGWVFGGGTKLTVLGQPKAAPSVTLFP
PSSEELQANKATLVCLISDFYPGAVTVAWKADSSPVKAGVETTTPSKQSNNKYAASSYLSLT
PEQWKSHRSYSCQVTHEGSTVEKTVAPTECS

[Figure 4]

Amino acid sequence of 110F antibody heavy chain (SEQ ID NO: 4)

EVQLLESGGGLVQPGGSLRLSCAASGFTFSSYGMHWVRQAPGKGLEWVAGISWNSAITVYAD
SVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCAKDAGGRYSGSYFDYWGQGT LVTVSSA
STKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVT VSWNSGALTSGVHTFPAVLQSSGLY
SLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFL
FPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVS
VLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLT
CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRWQQGNV FSCSVM
HEALHNHYTQKSLSLSPGK

[Figure 5]

Amino acid sequence of 110F antibody light chain (SEQ ID NO: 5)

QSVLTQPPSASGTPGQRVTISCTGSSSNIGAGYDVHWYQQLPGTAPKLLIYGNSNRPSGVPD
RFGSKSGTSASLAISGLRSEDEADYYCQSYDRSLNWVFGGGTKLTVLGQPKAAPSVTLFPP
SSEELQANKATLVCLISDFYPGAVTVAWKADSSPVKAGVETTTPSKQSNNKYAASSYLSLTP
EQWKSHRSYSCQVTHEGSTVEKTVAPTECS

[Figure 6]

Nucleotide sequence of 105F antibody heavy chain (SEQ ID NO: 6)

GAGGTGCAGCTGTTGGAGTCTGGGGGAGGCTTGGTACAGCCTGGGGGGTCCCTGAGACTCTC
CTGTGCAGCCTCTGGATTCACCTTCAGTGA TACTACATGAGCTGGATCCGCCAGGCTCCAG
GCAAGGGGCTGGAGTGGGTATCGGGTGT TAGTTGGAATGGCAGTAGGACGCACTATGCAGAC
TCTGTGAAGGGCCGATTACCATCTCCAGAGACAATTCCAAGAACACGCTGTATCTGCAAAT
GAACAGCCTGAGAGCCGAGGACACTGCCGTGTATTACTGTGCCAGACAGAGGCAGCTGGCTG
AATTTGACTACTGGGGCCAAGGTACCCTGGT CACCGTGAGCTCAGCCTCCACCAAGGGCCCCA
AGCGTCTTCCCCCTGGCACCTCCTCCAAGAGCACCTCTGGCGGCACAGCCGCCCTGGGCTG
CCTGGTCAAGGACTACTTCCCCGAACCCGTGACCGTGAGCTGGA ACTCAGGCGCCCTGACCA
GCGGCGTGACACCTTCCCCGCTGTCTTG CAGTCTCAGGACTCTACTCCCTCAGCAGCGTG
GTGACCGTGCCCTCCAGCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCC
CAGCAACACCAAGGTGGACAAGAGAGTTGAGCCCAAATCTTGTGACAAA ACTCACACATGCC
CACCTGCCCCAGCACCTGAACTCCTGGGGGGGACCCTCAGTCTT CCTCTTCCCCCCCCAAAACCC
AAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCCA
CGAAGACCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGA
CAAAGCCCCGGGAGGAGCAGTACAACAGCACGTACCGGGTGGTCAGCGT CCTCACCGTCCTG
CACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGC
CCCCATCGAGAAAACCATCTCCAAAGCCAAAGGCCAGCCCCGGGAACCACAGGTGTACACCC
TGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAAAGGC
TTCTATCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGCCAGCCCGAGAACAACTACAA
GACCACCCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCCTCTACAGCAAGCTCACCGTGG
ACAAGAGCAGGTGGCAGCAGGGCAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCAC
AACCCTACACCCAGAAGAGCCTCTCCCTGTCTCCCGGCAAA

[Figure 7]

Nucleotide sequence of 105F antibody light chain (SEQ ID NO: 7)

CAGTCTGTGCTGACTCAGCCACCCTCAGCGTCTGGGACCCCCGGGCAGAGGGTCACCATCTC
CTGCACTGGGAGCAGCTCCAACATTGGGGCGGGTTATGTTGTACATTGGTATCAGCAGCTCC
CAGGAACGGCCCCCAAACCTCCTCATCTATGCTGACACCAATCGGCCCTCAGGGGTCCCTGAC
CGATTCTCTGGCTCCAAGTCTGGCACCTCAGCCTCCCTGGCCATCAGTGGGCTCCGGTCCGA
GGATGAGGCTGATTATTACTGCCAGTCCTATGACAGCAGCCTGAGAGGTTGGGTGTTTCGGCG
GAGGAACCAAGCTGACGGTCCTAGGTCAGCCTAAGGCTGCCCCCTAGCGTGACCCTGTTCCCT
CCTTCCAGCGAGGAGCTTCAAGCTAACAAGGCCACCCTGGTGTGTCTTATCTCTGACTTCTA
CCCTGGCGCTGTGACCGTGGCCTGGAAGGCTGACAGCTCCCCTGTGAAGGCCGGAGTGGAGA
CCACCACACCTAGCAAGCAGTCTAACAACAAGTACGCTGCCAGCTCCTACCTGAGCCTTACC
CCTGAGCAGTGGAAGTCTCACAGAAGCTACTCCTGTCAAGTGACCCACGAGGGCAGCACCGT
GGAGAAGACCGTGGCTCCTACCGAGTGTTCC

[Figure 8]

Nucleotide sequence of 110F antibody heavy chain (SEQ ID NO: 8)

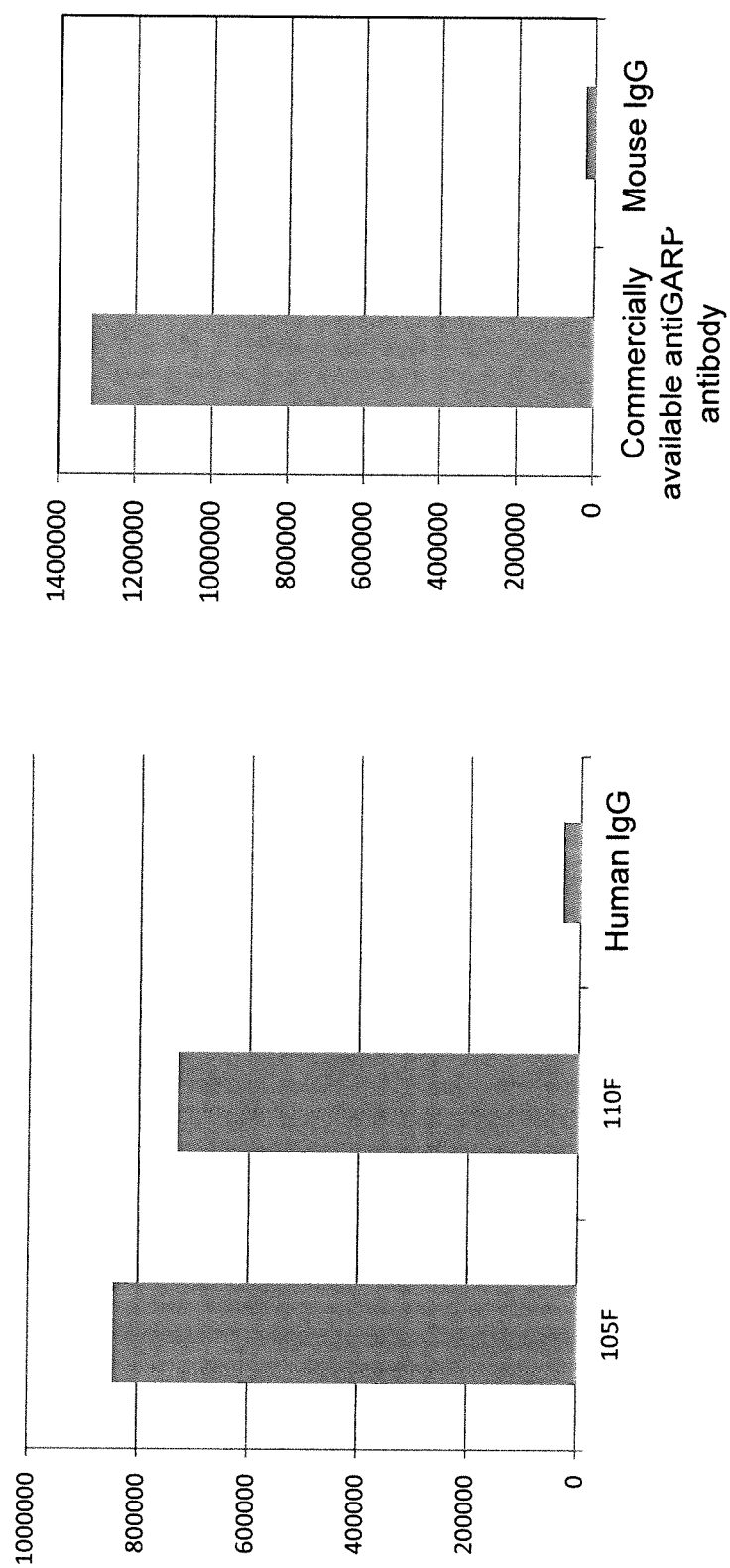
GAGGTGCAGCTGTTGGAGTCTGGGGGAGGCTTGGTACAGCCTGGGGGGTCCCTGAGACTCTC
CTGTGCAGCCTCTGGATTACCTTCAGTAGCTATGGCATGCACTGGGTCCGCCAGGCTCCAG
GCAAGGGGCTGGAGTGGGTGCGCCGGAATTAGTTGGAACAGTGCCATCACAGTCTATGCGGAC
TCTGTGAAGGGCCGGTTCACCATCTCCAGAGACAATTCCAAGAACACGCTGTATCTGCAAAT
GAACAGCCTGAGAGCCGAGGACACTGCCGTGTATTACTGTGCAAAAGATGCCGGGGGCGCGT
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TCCACCAAGGGCCCAAGCGTCTTCCCCCTGGCACCCCTCCTCCAAGAGCACCTCTGGCGGCAC
AGCCGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCCGTGACCGTGAGCTGGAAC
CAGGCGCCCTGACCAGCGGCGTGACACACCTTCCCCGCTGTCCTGCAGTCCTCAGGACTCTAC
TCCCTCAGCAGCGTGGTGACCGTGCCCTCCAGCAGCTTGGGCACCCAGACCTACATCTGCAA
CGTGAATCACAAGCCCAGCAACACCAAGGTGGACAAGAGAGTTGAGCCCAAATCTTGTGACA
AAACTCACACATGCCCCACCCTGCCCAGCACCTGAACTCCTGGGGGGACCCCTCAGTCTTCCTC
TTCCCCCCAAAACCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACATGCGTGGT
GGTGGACGTGAGCCACGAAGACCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGG
TGCATAATGCCAAGACAAAGCCCCGGGAGGAGCAGTACAACAGCACGTACCGGGTGGTCAGC
GTCCTCACCGTCCTGCACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAA
CAAAGCCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAGCCAAAGGCCAGCCCCGGGAAC
CACAGGTGTACACCCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTCAGCCTGACC
TGCCTGGTCAAAGGCTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGCCAGCC
CGAGAACAACACTACAAGACCACCCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCCTCTACA
GCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGCAACGTCTTCTCATGCTCCGTGATG
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[Figure 9]

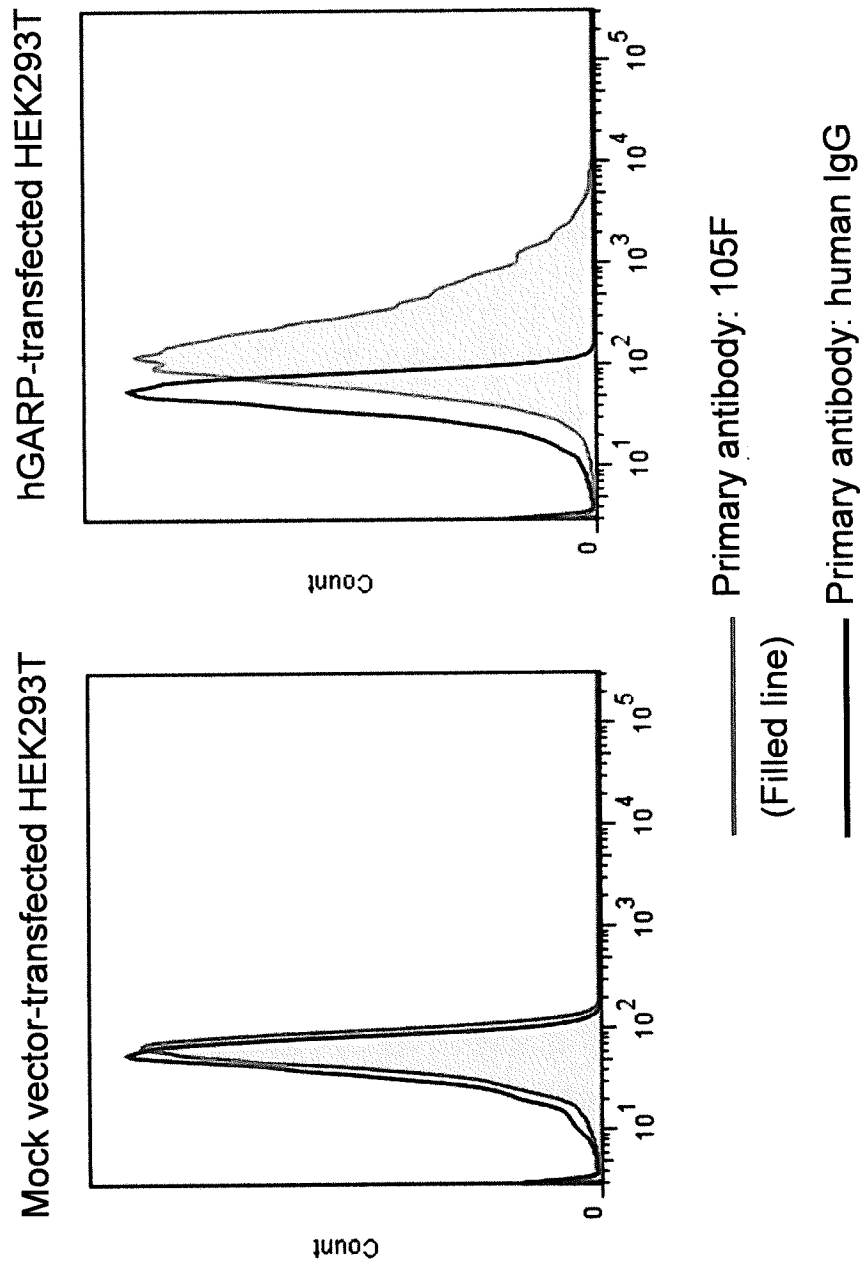
Nucleotide sequence of 110F antibody light chain (SEQ ID NO: 9)

CAGTCTGTGCTGACTCAGCCACCCTCAGCGTCTGGGACCCCCGGGCAGAGGGTCACCATCTC
CTGCACTGGGAGCAGCTCCAACATCGGGGCAGGTTATGATGTACACTGGTATCAGCAGCTCC
CAGGAACGGCCCCCAAACCTCCTCATCTATGGTAACAGCAATCGGCCCTCAGGGGTCCCTGAC
CGATTCTCTGGCTCCAAGTCTGGCACCTCAGCCTCCCTGGCCATCAGTGGGCTCCGGTCCGA
GGATGAGGCTGATTATTACTGCCAGTCCTATGACAGAAGCCTGAATTGGGTGTTTCGGCGGAG
GAACCAAGCTGACGGTCCTAGGTCAGCCTAAGGCTGCCCCCTAGCGTGACCCTGTTCCCTCCT
TCCAGCGAGGAGCTTCAAGCTAACAAGGCCACCCTGGTGTGTCTTATCTCTGACTTCTACCC
TGGCGCTGTGACCGTGGCCTGGAAGGCTGACAGCTCCCCTGTGAAGGCCGGAGTGGAGACCA
CCACACCTAGCAAGCAGTCTAACAACAAGTACGCTGCCAGCTCCTACCTGAGCCTTACCCCT
GAGCAGTGGAAGTCTCACAGAAGCTACTCCTGTCAAGTGACCCACGAGGGCAGCACCGTGGA
GAAGACCGTGGCTCCTACCGAGTGTTCC

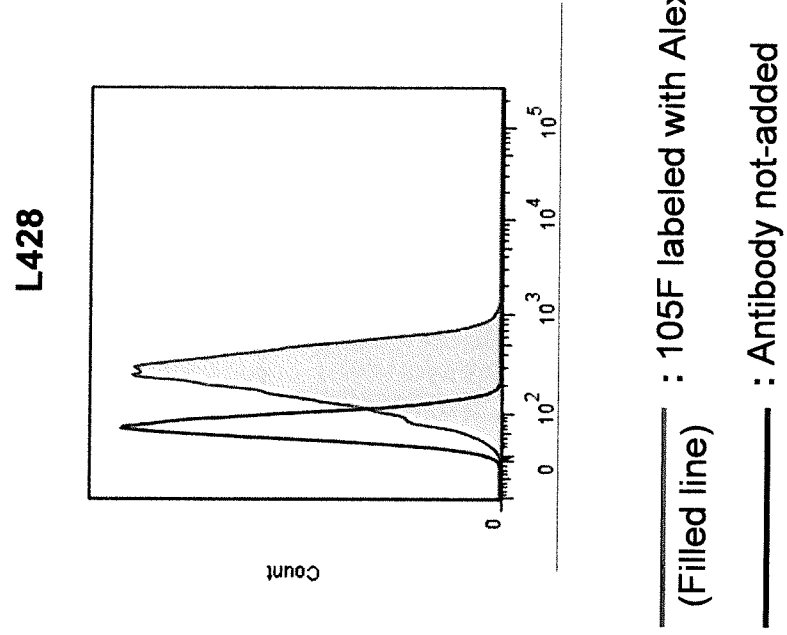
[Figure 10]



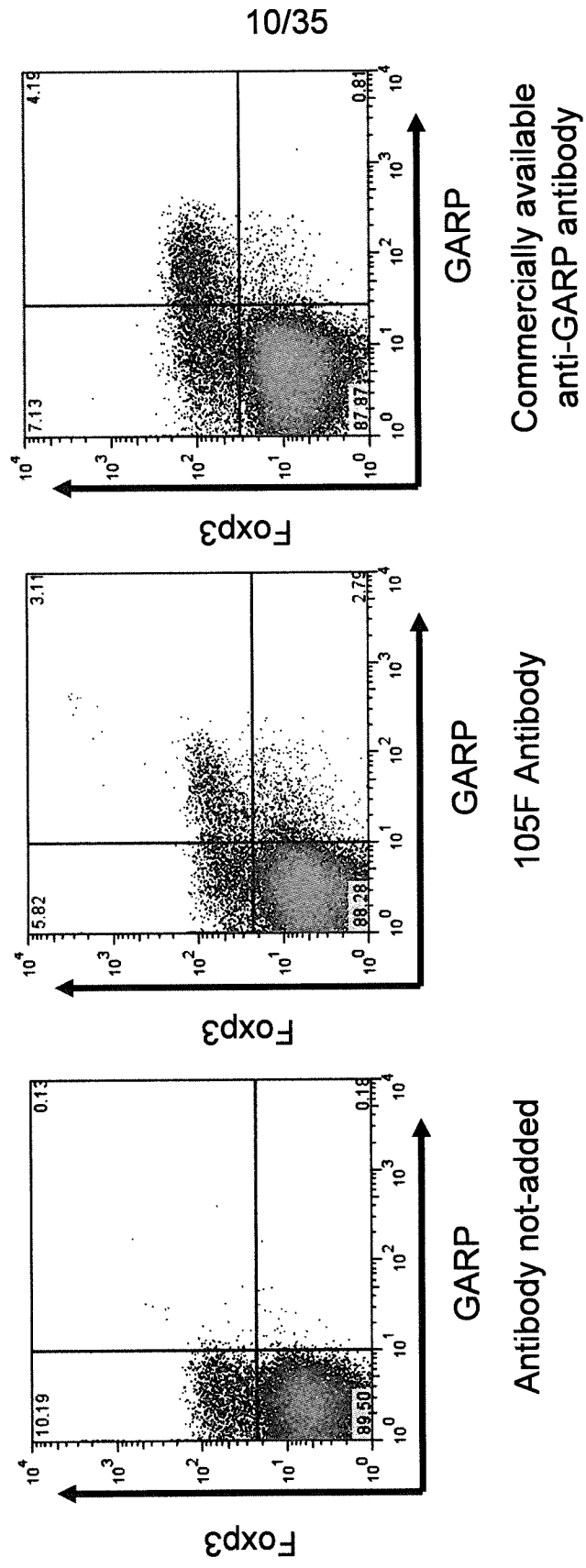
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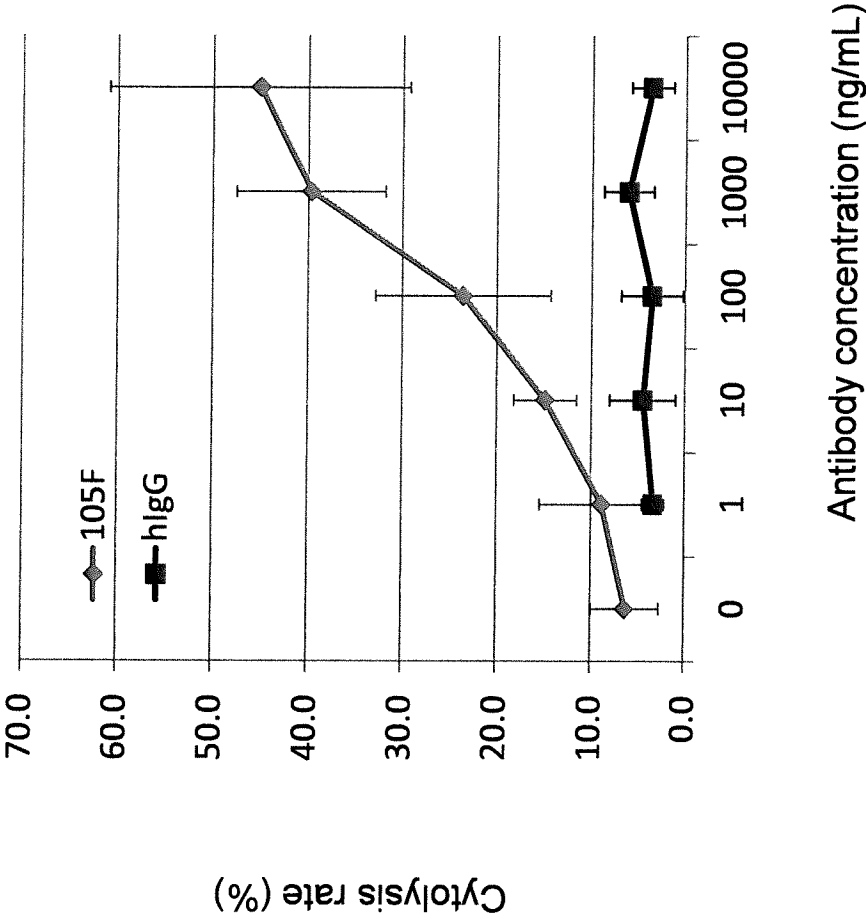
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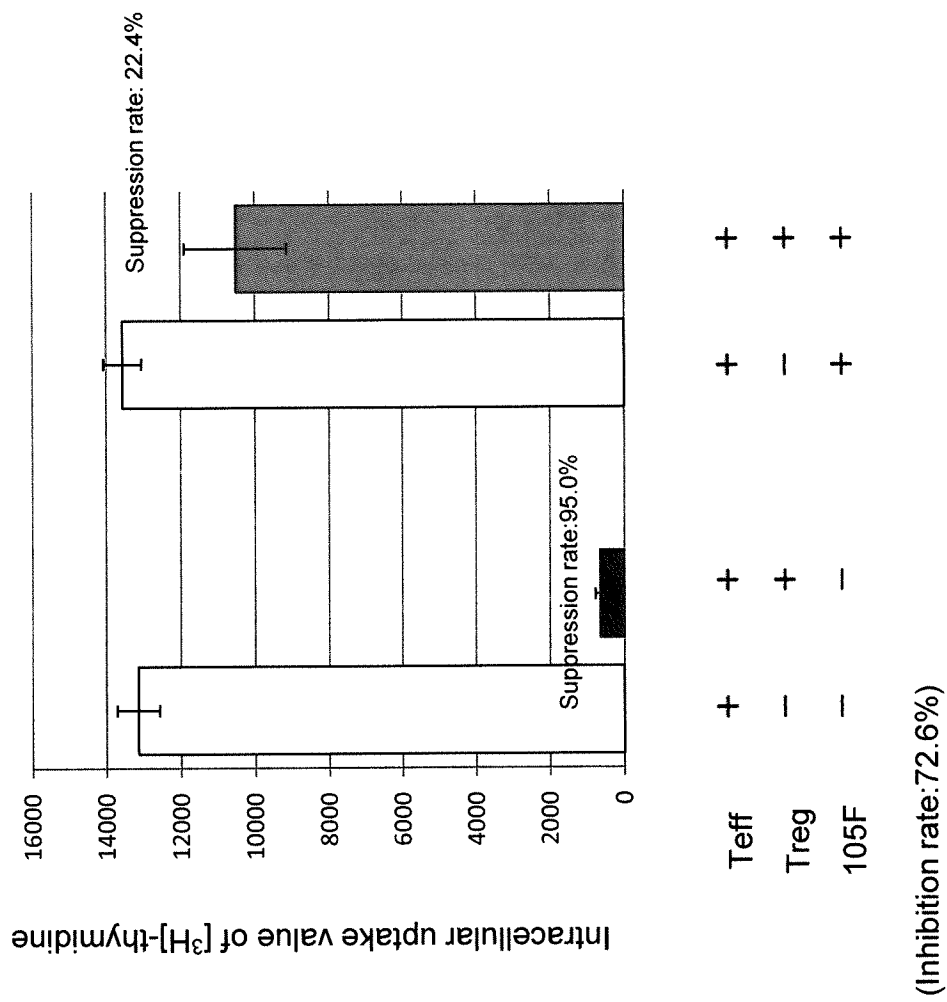


[Figure 13]



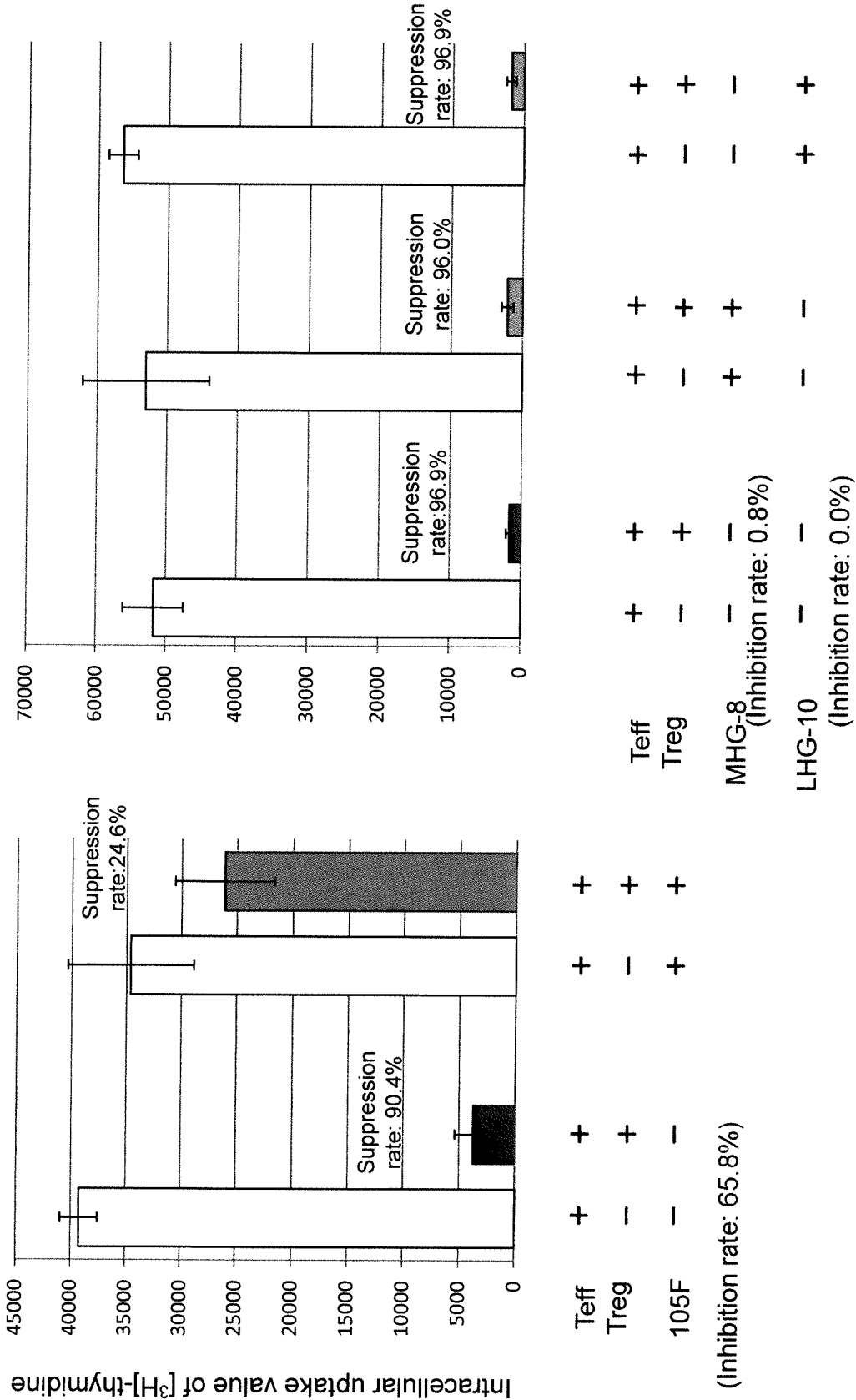
[Figure 14]





[Figure 15]

[Figure 16]



[Figure 17]

Amino acid sequence of c151D antibody heavy chain (SEQ ID NO: 25)

MKHLWFFLLLVAAPRWVLSEVQLVESGGGLVQPGRSKKLSCSASGFTFSNYMAWVRQAPTQ
GLEWVASIGTVGGNTYYRDSVKGRFTISRDDAKSTLYLQMDSLRSEDATYYCAREDYGGFP
HWGQGVMVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGV
HTFPAVLQSSGLYSLSSVVTVPSSSLGTQTCNVNHKPSNTKVDKRVEPKSCDKTHTCPPCP
APPELLGGPSVFLFPPKPDITLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPRE
EQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGPREPQVYTLPPSRE
EMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYTTPPVLDSDGSFFLYSKLTVDKSRWQQ
GNVFCSSVMHEALHNHYTQKSLLSPGK

[Figure 18]

Amino acid sequence of c151D antibody light chain (SEQ ID NO: 27)

SEQ ID NO: 27: amino acid sequence of human chimeric antibody c151D light chain

MVLQTQVFISLLLWISGAYGNIVMTQSPTSMFISVGDRVTMNCKASQNVGTNVDWYQQKTGQ
SPKLLIYGASNRYTGVPDRFTGSGSGTDFTLTISNMQAEDLAVYDCLQYKYNPYTFGTGTKL
ELNRAVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQ
DSKDSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

[Figure 19]

Amino acid sequence of c198D antibody heavy chain (SEQ ID NO: 29)

MKHLWFFLLLVAAPRWVLSQVQLRESGPGLVQPSQTLSTCTVSGFSLTSFHVSWVRQPPEK
GLEWIATISSGGGTYNSALKSRLSISRDTSKSQVFLKMSTLQTEDTAMYFCARISGWGHYY
VMDVWGQGASVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALT
SGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTC
PPCPAPPELLGGPSVFLFPPKPKDITLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAK
TKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYT
LPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTV
DKSRWQQGNVFCSSVMHEALHNHYTQKSLSLSPGK

[Figure 20]

Amino acid sequence of c198D antibody light chain (SEQ ID NO: 31)

MVLQTQVFISLLLWISGAYGDIQMTQSPASLSGSLGETVTIQQASEDIYSGLAWYQQKPGK
SPQLLIYGAGSLQDGVPSRFSGGGSGTHYSLKISSMQTEDEGVYFCQQGLKFPLTFGSGTKL
EIKRAVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQ
DSKDSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

[Figure 21]

Amino acid sequence of h151D-H1 heavy chain (SEQ ID NO: 33)

MKHLWFFLLLVAAPRWVLSEVQLVESGGGLVQPGGSLRLSCAASGFTFSNYYMAWVRQAPGK
GLEWVSSIGTVGGNTYYADSVKGRFTISRDDSKNTLYLQMNSLRAEDTAVYYCAREDYGGFP
HWGQGTTLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGV
HTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPC
PAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKP
REEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPP
SREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKS
RWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

[Figure 22]

Amino acid sequence of h151D-L1 light chain (SEQ ID NO: 37)

MVLQTQVFISLLLWISGAYGNIVMTQSPDSLAVSLGERATINCKASQNVGTNVDWYQQKPGQ
SPKLLIYGASNRYTGVPDRFSGSGSGTDFTLTISSSLQAEDVAVYDCLQYKYNPYTFGQGTKV
EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQ
DSKDSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

[Figure 23]

Amino acid sequence of h151D-H4 heavy chain (SEQ ID NO: 35)

MKHLWFFLLLVAAPRWVLSEVQLVESGGGLVQPGGSLRLSCAASGFTFSNYYMAWVRQAPGK
GLEWVASIGTVGGNTYYRDSVKGRFTISRDDSKSTLYLQMNSLRAEDTAVYYCAREDYGGFP
HWGQGTTLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGV
HTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPC
PAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKP
REEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPP
SREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKS
RWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

[Figure 24]

Amino acid sequence of h151D-L4 light chain (SEQ ID NO: 39)

MVLQTQVFISLLLWISGAYGNIVMTQSPSSLSASVGDRVTINCKASQNVGTNVDWYQQKPGK
SPKLLIYGASNRYTGVPDRFSGSGSGTDFTLTISSLQPEDFATYDCLQYKYNPYTFGQGTKV
EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQ
DSKDSTYSLSSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

[Figure 25]

Amino acid sequence of h198D-H3 heavy chain (SEQ ID NO: 41)

MKHLWFFLLLVAAPRWVLSEVQLVESGGGLVKPSQTLSTCTVSGFSLTSFHVSWVRQPPGK
GLEWIATISSGGGTYYNPSLKSRTISRDTSKNQVSLKLSSVTAADTAVYYCARISGWGHYY
VMDVWGQGTLLTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALT
SGVHTFPAVLQSSGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTC
PPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAK
TKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYT
LPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTV
DKSRWQQGNVDFCSVMHEALHNHYTQKSLSLSPGK

[Figure 26]

Amino acid sequence of h198D-L4 light chain (SEQ ID NO: 43)

MVLQTQVFISLLLWISGAYGDIQMTQSPSSLSASVGDRVTITCQASEDIYSGLAWYQQKPGK
SPKLLIYGAGSLQDGVPSRFSGSGSGTHYTLTISSLQPEDFATYFCQQGLKFPLTFGQGTKV
EIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQ
DSKDSTYSLSSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

[Figure 27]

Nucleotide sequence of c151D antibody heavy chain (SEQ ID NO: 24)

ATGAAACACCTGTGGTTCTTCCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCGAGGT
GCAGCTGGTGGAGTCTGGGGGAGGCTTAGTGCAGCCTGGAAGGTCCAAGAACTCTCCTGTT
CAGCCTCAGGATTCACTTTCAGTAACTATTACATGGCCTGGGTCCGCCAGGCTCCAACGCAG
GGTCTGGAGTGGGTGCGATCCATTGGTACTGTTGGTGGTAACACTTACTATCGAGACTCCGT
GAAGGGCCGATTCACTATCTCCAGAGATGATGCAAAAAGCACCCCTATACCTGCAAATGGACA
GTCTGAGGTCTGAGGACACGGCCACTTATTACTGTGCAAGAGAGGATTACGGAGGGTTTCCC
CACTGGGGCCAAGGAGTCATGGTCACAGTCAGCTCAGCCTCCACCAAGGGCCCAAGCGTCTT
CCCCCTGGCACCCCTCCTCCAAGAGCACCTCTGGCGGCACAGCCGCCCTGGGCTGCCTGGTCA
AGGACTACTTCCCCGAACCCGTGACCGTGAGCTGGAACCTCAGGCGCCCTGACCAGCGGCGTG
CACACCTTCCCCGCTGTCCTGCAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGT
GCCCTCCAGCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACA
CCAAGGTGGACAAGAGAGTTGAGCCCAAATCTTGTGACAAAACCTCACACATGCCCACCCTGC
CCAGCACCTGAACTCCTGGGGGGACCCTCAGTCTTCCTCTTCCCCCCAAAACCCAAGGACAC
CCTCATGATCTCCCGGACCCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCCACGAAGACC
CTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCC
CGGGAGGAGCAGTACAACAGCACGTACCGGGTGGTCAGCGTCCTCACCCTCCTGCACCAGGA
CTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCG
AGAAAACCATCTCCAAAGCCAAAGGCCAGCCCCGGGAACCACAGGTGTACACCCTGCCCCCA
TCCCGGGAGGAGATGACCAAGAACCAGGTGAGCCTGACCTGCCTGGTCAAAGGCTTCTATCC
CAGCGACATCGCCGTGGAGTGGGAGAGCAATGGCCAGCCCGAGAACAACCTACAAGACCACCC
CTCCCGTGCTGGACTCCGACGGCTCCTTCTTCCTCTACAGCAAGCTCACCGTGGACAAGAGC
AGGTGGCAGCAGGGCAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTA
CACCCAGAAGAGCCTCTCCCTGTCTCCCGGCAAA

[Figure 28]

Nucleotide sequence of c151D antibody light chain (SEQ ID NO: 26)

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCGTACGGCAA
TATTGTGATGACTCAGTCTCCCACATCCATGTTTCATATCAGTCGGAGACAGGGTCACCATGA
ACTGTAAGGCCAGTCAGAATGTGGGAACTAATGTAGACTGGTACCAGCAGAAAACAGGGCAG
TCTCCTAAACTGCTTATCTATGGGGCGTCCAACCGCTACACTGGAGTCCCTGATCGCTTCAC
AGGCAGTGGATCTGGAACAGATTTCACTCTCACCATCAGCAACATGCAGGCTGAAGACCTGG
CTGTTTATGACTGTCTACAGTATAAGTACAATCCATACACGTTTGGAAGTGGGACCAAGCTG
GAACTGAACCGGGCTGTGGCCGCCCCCTCCGTGTTTCATCTTCCCCCCTCCGACGAGCAGCT
GAAGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCCAGAGAGGCCAAGG
TGCAGTGGAAGGTGGACAACGCCCTGCAGTCCGGGAACTCCCAGGAGAGCGTGACCGAGCAG
GACAGCAAGGACAGCACCTACAGCCTGAGCAGCACCTGACCCTGAGCAAAGCCGACTACGA
GAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGA
GCTTCAACAGGGGGGAGTGT

[Figure 29]

Nucleotide sequence of c198D antibody heavy chain (SEQ ID NO: 28)

ATGAAACACCTGTGGTTCTTCCTCCTGCTGGTGGCAGCTCCCAGATGGGTGCTGAGCCAGGT
GCAGCTGAGGGAGTCAGGACCTGGTCTGGTGCAGCCCTCACAGACCCTGTCCCTCACCTGCA
CTGTCTCTGGGTTCTCACTAACCAGCTTTTCATGTAAGCTGGGTTCGCCAGCCTCCAGAGAAG
GGTCTGGAGTGGATTGCAACAATTTCAAGTGGTGGAGGTACATATTATAATTCAGCTCTCAA
ATCCCGACTGAGCATCAGCAGGGACACCTCCAAGAGCCAAGTTTTCTTAAAGATGAGCACTC
TGCAAACCTGAAGACACAGCCATGTACTTCTGTGCCCCGATTTTCGGGCTGGGGCCATTACTAT
GTTATGGATGTCTGGGGTCAAGGAGCTTCAGTCACTGTCTCAGCTCAGCCTCCACCAAGGGCCC
AAGCGTCTTCCCCCTGGCACCCCTCCTCCAAGAGCACCTCTGGCGGCACAGCCGCCCTGGGCT
GCCTGGTCAAGGACTACTTCCCCGAACCCGTGACCGTGAGCTGGAACCTCAGGCGCCCTGACC
AGCGGCGTGCACACCTTCCCCGCTGTCTGTCAGTCTCAGGACTCTACTCCCTCAGCAGCGT
GGTGACCGTGCCCTCCAGCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGC
CCAGCAACACCAAGGTGGACAAGAGAGTTGAGCCCAAATCTTGTGACAAAACCTCACACATGC
CCACCCTGCCCAGCACCTGAACTCCTGGGGGGACCCCTCAGTCTTCCTCTTCCCCCCAAAACC
CAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCC
ACGAAGACCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAG
ACAAAGCCCCGGGAGGAGCAGTACAACAGCACGTACCGGGTGGTCAGCGTCCTCACCGTCTCT
GCACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAG
CCCCCATCGAGAAAACCATCTCCAAAGCCAAAGGCCAGCCCCGGGAACCACAGGTGTACACC
CTGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTCTCAGCCTGACCTGCCTGGTCAAAGG
CTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGCCAGCCCGAGAACAACCTACA
AGACCACCCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCCTCTACAGCAAGCTCACCGTG
GACAAGAGCAGGTGGCAGCAGGGCAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCA
CAACCACTACACCCAGAAGAGCCTCTCCCTGTCTCCCGGCAAA

[Figure 30]

Nucleotide sequence of c198D antibody light chain (SEQ ID NO: 30)

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCGTACGGCGA
CATCCAGATGACACAGTCTCCAGCTTCCCTGTCTGGATCTCTGGGAGAACTGTCACCATCC
AATGTCAAGCAAGTGAGGACATTTACAGTGGTTTAGCGTGGTATCAGCAGAAGCCAGGGAAA
TCTCCTCAGCTCCTGATCTATGGTGCAGGTAGCTTACAAGACGGCGTCCCATCACGATTCAG
TGGCGGTGGATCTGGCACACATTATTCTCTCAAGATCAGCAGCATGCAAAGTGAAGATGAAG
GGGTTTATTTCTGTCAACAGGGTTTAAAGTTTCCGCTCACGTTTCGGTTCTGGGACCAAGCTG
GAGATCAAACGGGCTGTGGCCGCCCCCTCCGTGTTTCATCTTCCCCCCCCCTCCGACGAGCAGCT
GAAGTCCGGCACCGCCTCCGTGGTGTGCCTGCTGAATAACTTCTACCCAGAGAGGCCAAGG
TGCAGTGGAAGGTGGACAACGCCCTGCAGTCCGGGAACTCCCAGGAGAGCGTGACCGAGCAG
GACAGCAAGGACAGCACCTACAGCCTGAGCAGCACCTGACCCTGAGCAAAGCCGACTACGA
GAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGCCTGAGCTCCCCCGTCACCAAGA
GCTTCAACAGGGGGGAGTGT

[Figure 31]

Nucleotide sequence of h151D-H1 heavy chain (SEQ ID NO: 32)

ATGAAGCACCTGTGGTTCTTTCTGCTGCTGGTGGCCGCTCCCAGATGGGTGCTGTCTGAAGT
GCAGCTGGTGGAAATCCGGCGGAGGCCTGGTGCAGCCTGGCGGATCTCTGAGACTGTCTTGTG
CCGCCTCCGGCTTCACCTTCTCCAATACTACATGGCCTGGGTGCGACAGGCCCCCTGGCAAG
GGAATGGAATGGGTGTCTCTATCGGCACCGTGGGCGGCAACACCTACTACGCCGATTCTGT
GAAGGGCCGTTTACCATCTCCCGGGACGACTCCAAGAACACCCTGTACCTGCAGATGAACT
CCCTGCGGGCCGAGGACACCGCCGTGTACTACTGTGCCAGAGAGGACTACGGCGGCTTCCCT
CATTGGGGCCAGGGCACACTCGTGACCGTGTCTCTGCTTCCACCAAGGGCCCCCTCCGTGTT
TCCTCTGGCCCCCTTCCAGCAAGTCCACCTCTGGCGGAACAGCCGCTCTGGGCTGCCTCGTGA
AGGACTACTTCCCCGAGCCCGTGACAGTGTCTTGGAACCTCTGGCGCCCTGACCTCCGGCGTG
CACACCTTCCAGCTGTGCTGCACTCTCCGGCCTGTACTCCCTGTCTCCGTGCTGACTGT
GCCCTCCAGCTCTCTGGGCACCCAGACCTACATCTGCAACGTGAACCACAAGCCCTCCAACA
CCAAGGTGGACAAGCGGGTGAACCCAAGTCTGCGACAAGACCCACACCTGTCCCCCTTGT
CCTGCCCCCTGAACTGCTGGGCGGACCTTCCGTGTTCCCTGTTCCCCCCTAAAGGACAC
CCTGATGATCTCCCGGACCCCCGAAGTGACCTGCGTGGTGGTGGATGTGTCCACGAGGACC
CTGAAGTGAAGTTCAATTGGTACGTGGACGGCGTGGAAGTGCACAACGCCAAGACCAAGCCT
AGAGAGGAACAGTACAACCTACCGGGTGGTGTCCGTGCTGACCGTGCTGCATCAGGA
CTGGCTGAACGGCAAAGAGTACAAGTGAAGGTGTCCAACAAGGCCCTGCCTGCCCCCATCG
AAAAGACCATCTCCAAGGCCAAGGGCCAGCCCCGGGAACCCAGGTGTACACACTGCCCCCT
AGCCGGGAAGAGATGACCAAGAACCAGGTGTCCCTGACCTGTCTCGTGAAAGGCTTCTACCC
CTCCGATATCGCCGTGGAATGGGAGAGCAACGGCCAGCCCGAGAACAATAAGACCAACCC
CCCCTGTGCTGGACTCCGACGGCTCATTCTTCCCTGTACAGCAAGCTGACAGTGGACAAGTCC
CGGTGGCAGCAGGGCAACGTGTTCTCCTGCTCCGTGATGCACGAGGCCCTGCACAACCACTA
CACCCAGAAGTCCCTGTCCCTGAGCCCCGGCAAA

[Figure 32]

Nucleotide sequence of h151D-L1 light chain (SEQ ID NO: 36)

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCCTACGGCAA
CATCGTGATGACCCAGTCCCCCGACTCCCTGGCTGTGTCTCTGGGCGAGAGAGCCACCATCA
ACTGCAAGGCCTCCCAGAACGTGGGCACCAACGTGGACTGGTATCAGCAGAAGCCCGGCCAG
TCCCCTAAGCTGCTGATCTACGGCGCCAGCAACCGGTACACCGGCGTGCCCGATAGATTCTC
CGGCTCTGGCTCTGGCACCGACTTTACCCTGACAATCAGCTCTCTGCAGGCCGAGGACGTGG
CCGTGTACGACTGCCTGCAGTACAAGTACAACCCCTACACCTTCGGCCAGGGCACAAGGTG
GAAATCAAGCGGACCGTGGCCGCTCCCTCCGTGTTTATCTTCCCACCCCTCCGACGAGCAGCT
GAAGTCCGGCACAGCTTCCGTGCTGTGCCTGCTGAACAACCTTCTACCCCGCGAGGCCAAGG
TGCAGTGGAAGGTGGACAACGCCCTGCAGTCCGGCAACTCCCAGGAATCCGTGACCGAGCAG
GACTCCAAGGACAGCACCTACTCCCTGTCTCCACCCTGACCCTGTCCAAGGCCGACTACGA
GAAGCACAAGGTGTACGCCTGCGAAGTGACCCACCAGGGCCTGTCTAGCCCCGTGACCAAGT
CTTTCAACCGGGGCGAGTGC

[Figure 33]

Nucleotide sequence of h151D-H4 heavy chain (SEQ ID NO: 34)

ATGAAGCACCTGTGGTTCTTTCTGCTGCTGGTGGCCGCTCCCAGATGGGTGCTGTCTGAAGT
GCAGCTGGTGGGAATCCGGCGGAGGCCTGGTGCAGCCTGGCGGATCTCTGAGACTGTCTTG
CCGCCTCCGGCTTCACCTTCTCCAATACTACATGGCCTGGGTGCGACAGGCCCTGGCAAG
GGACTGGAATGGGTGGCCTCTATCGGCACCGTGGGCGGCAACACCTACTACCGGGATTCTGT
GAAGGGCCGTTTACCATCTCCCGGGACGACTCCAAGTCCACCCTGTACCTGCAGATGAACT
CCCTGCGGGCCGAGGACACCGCCGTGTACTACTGTGCCAGAGAGGACTACGGCGGCTTCCCT
CATTGGGGCCAGGGCACACTCGTGACCGTGTCTCTGCTTCCACCAAGGGCCCCCTCCGTGTT
TCCTCTGGCCCCCTTCCAGCAAGTCTACCTCCGGCGGAACAGCCGCTCTGGGCTGCCTCGTGA
AGGACTACTTCCCCGAGCCCGTGACAGTGTCTTGGAAGTCTGGCGCCCTGACCAGCGGCGTG
CACACCTTTCCAGCTGTGCTGCAGTCCCTCCGGCCTGTACTCCCTGTCTCCGTGCTGACTGT
GCCCTCCAGCTCTCTGGGCACCCAGACCTACATCTGCAACGTGAACCACAAGCCCTCCAACA
CCAAGGTGGACAAGCGGGTGGAAACCAAGTCCTGCGACAAGACCCACACCTGTCCCCCTTGT
CCTGCCCCCTGAACTGCTGGGCGGACCTTCCGTGTTCCCTGTTCCCCCCTAAAGCCCCAAGGACAC
CCTGATGATCTCCCGGACCCCCGAAGTGACCTGCGTGGTGGTGGATGTGTCCACGAGGACC
CTGAAGTGAAGTTCAATTGGTACGTGGACGGCGTGGAAGTGCACAACGCCAAGACCAAGCCT
AGAGAGGAACAGTACAACCTACCGGGTGGTGTCCGTGCTGACCGTGCTGCATCAGGA
CTGGCTGAACGGCAAAGAGTACAAGTGCAAGGTGTCCAACAAGGCCCTGCCTGCCCCCATCG
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CTCCGATATCGCCGTGGAATGGGAGTCCAACGGCCAGCCTGAGAACAATAACAAGACCACCC
CCCCTGTGCTGGACTCCGACGGCTCATTCTTCCCTGTACAGCAAGCTGACAGTGGACAAGTCC
CGGTGGCAGCAGGGCAACGTGTTCTCCTGCTCCGTGATGCACGAGGCCCTGCACAACCACTA
CACCCAGAAGTCCCTGTCCCTGAGCCCCGGCAAA

[Figure 34]

Nucleotide sequence of h151D-L4 light chain (SEQ ID NO: 38)

ATGGTGCTGCAGACCCAGGTGTTTCATCTCCCTGCTGCTGTGGATCTCCGGCGCCTACGGCAA
CATCGTGATGACCCAGTCCCCCTCCAGCCTGTCTGCTTCCGTGGGCGACAGAGTGACCATCA
ACTGCAAGGCCTCCAGAACGTGGGCACCAACGTGGACTGGTATCAGCAGAAGCCCGGCAAG
TCCCCCAAGCTGCTGATCTACGGCGCCAGCAACAGATACACCGGCGTGCCCGACAGATTCTC
CGGCTCTGGCTCTGGCACCAGACTTTACCCTGACCATCAGCTCCCTGCAGCCCGAGGACTTCG
CCACCTACGACTGCCTGCAGTACAAGTACAACCCCTACACCTTCGGCCAGGGCACAAGGTG
GAAATCAAGCGGACCGTGGCCGCTCCCTCCGTGTTTATCTTCCCACCCTCCGACGAGCAGCT
GAAGTCCGGCACAGCTTCTGTCGTGTGCCTGCTGAACAACCTTCTACCCCGCGAGGCCAAGG
TGCAGTGGAAGGTGGACAACGCCCTGCAGTCCGGCAACTCCCAGGAATCCGTGACCGAGCAG
GACTCCAAGGACAGCACCTACTCCCTGTCCTCCACCCTGACCCTGTCCAAGGCCGACTACGA
GAAGCACAAGGTGTACGCCTGCGAAGTGACCCACCAGGGCCTGTCTAGCCCCGTGACCAAGT
CTTTCAACCGGGGCGAGTGC

[Figure 35]

Nucleotide sequence of h198D-H3 heavy chain (SEQ ID NO: 40)

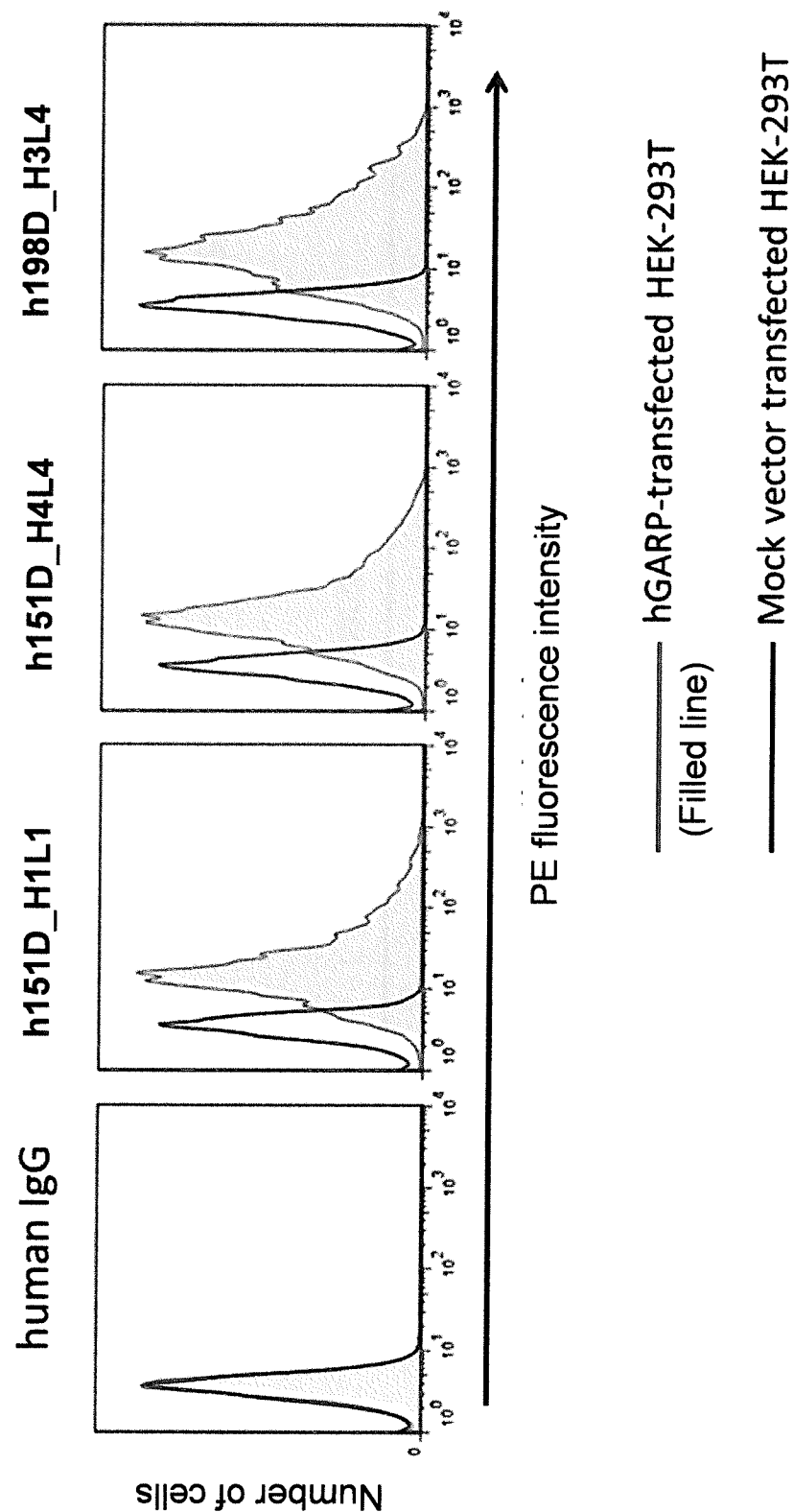
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CGTGACTGTGCCCTCCAGCTCTCTGGGCACCCAGACCTACATCTGCAACGTGAACCACAAGC
CCTCCAACACCAAGGTGGACAAGCGGGTGAACCCAAGTCTGCGACAAGACCCACACCTGT
CCCCCTTGTCTGCCCCTGAACTGCTGGGCGGACCTTCCGTGTTCCCTGTTCCCCCCAAAGCC
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GCACCAGGATTGGCTGAACGGCAAAGAGTACAAGTGCAAGGTGTCCAACAAGGCCCTGCCTG
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CTGCCCCCTAGCCGGGAAGAGATGACAAAAAATCAGGTGTCACTGACCTGTCTCGTGAAGGG
CTTCTACCCCTCCGATATCGCCGTGGAATGGGAGTCCAACGGCCAGCCTGAGAACAACCTACA
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[Figure 36]

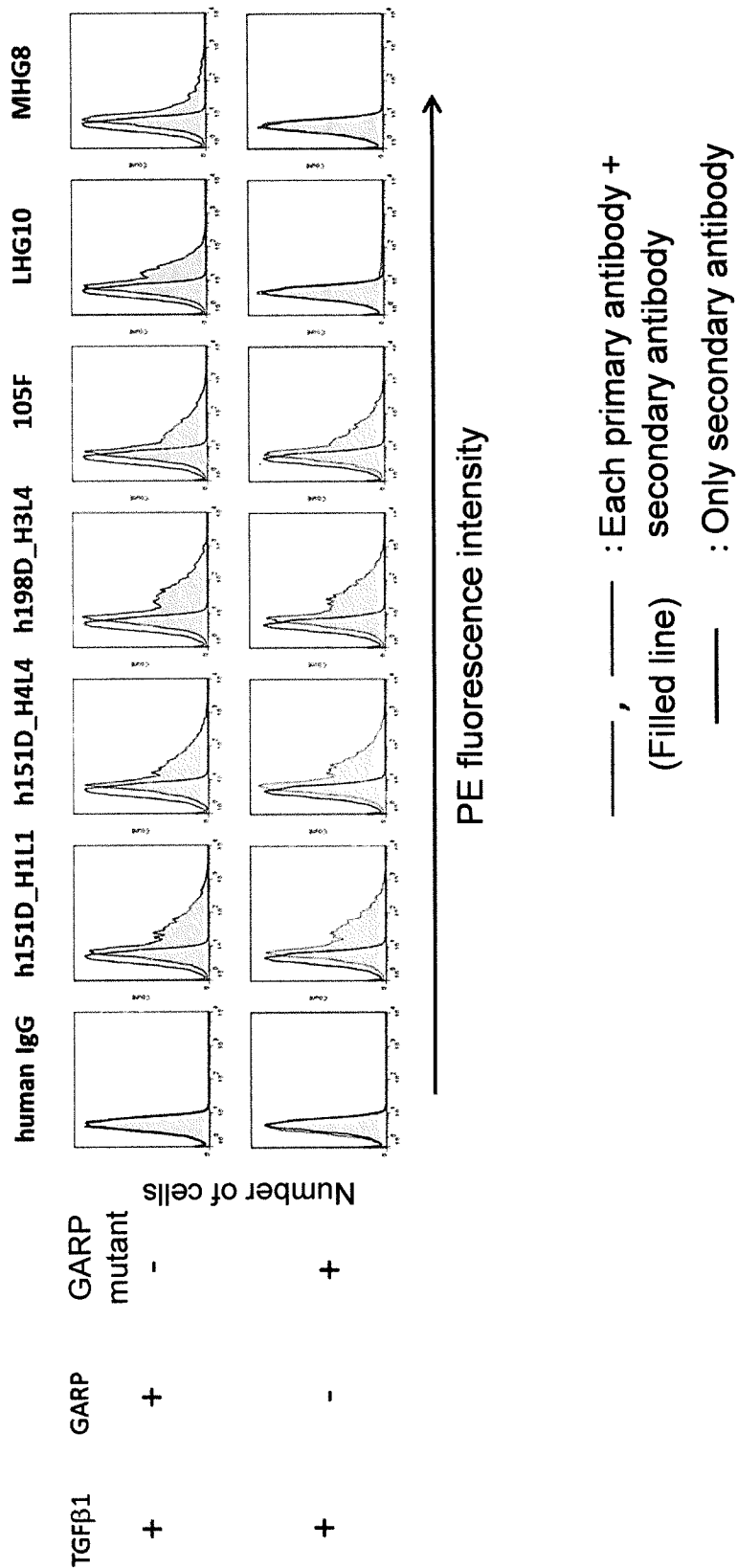
Nucleotide sequence of h198D-L4 light chain (SEQ ID NO: 42)

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CCTGTCAGGCCTCCGAGGACATCTACTCCGGCCTGGCCTGGTATCAGCAGAAGCCCGGCAAG
TCCCCCAAGCTGCTGATCTACGGCGCTGGATCTCTGCAGGACGGCGTGCCCTCTAGATTCTC
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GAAGTCCGGCACAGCTTCTGTCGTGTGCCTGCTGAACAACCTTCTACCCCCGCGAGGCCAAGG
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GACTCCAAGGACAGCACCTACTCCCTGTCCTCTACCCTGACCCTGTCCAAGGCCGACTACGA
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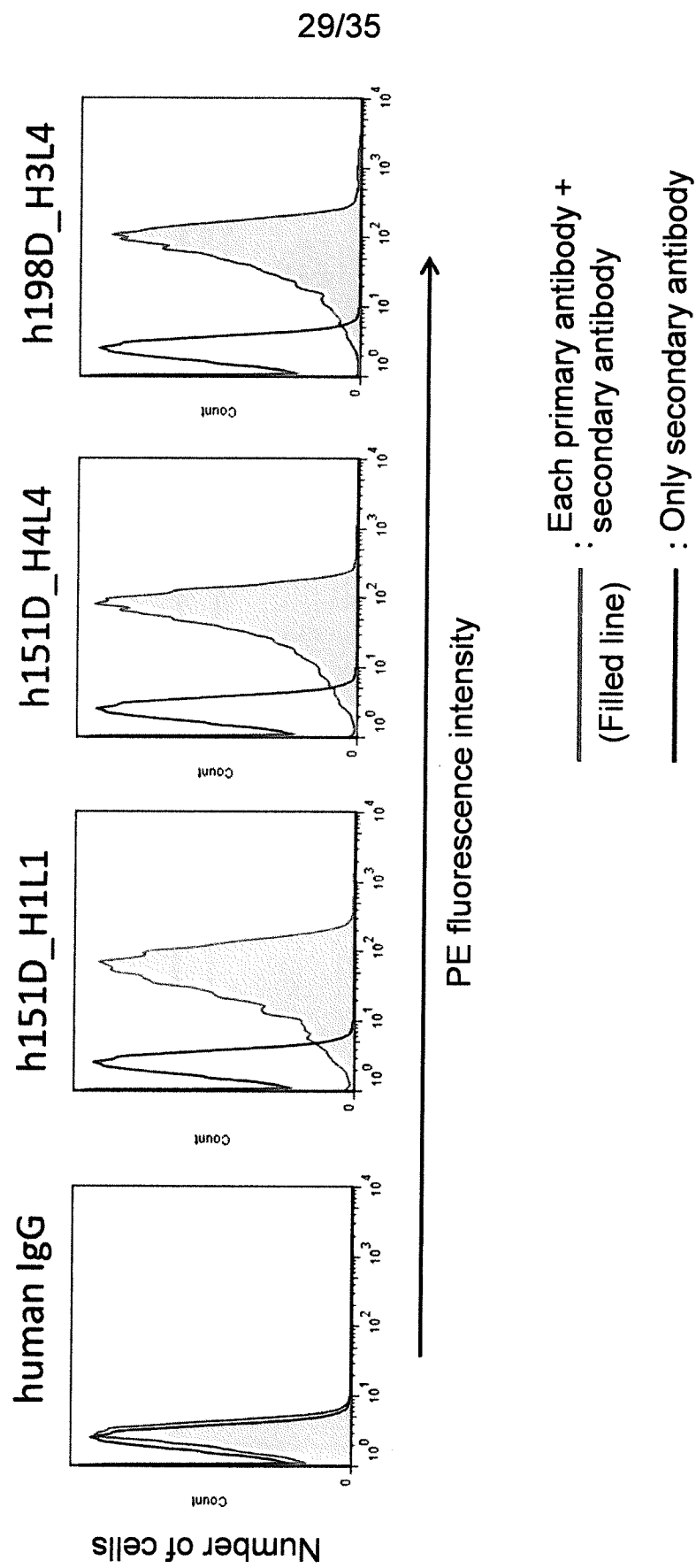
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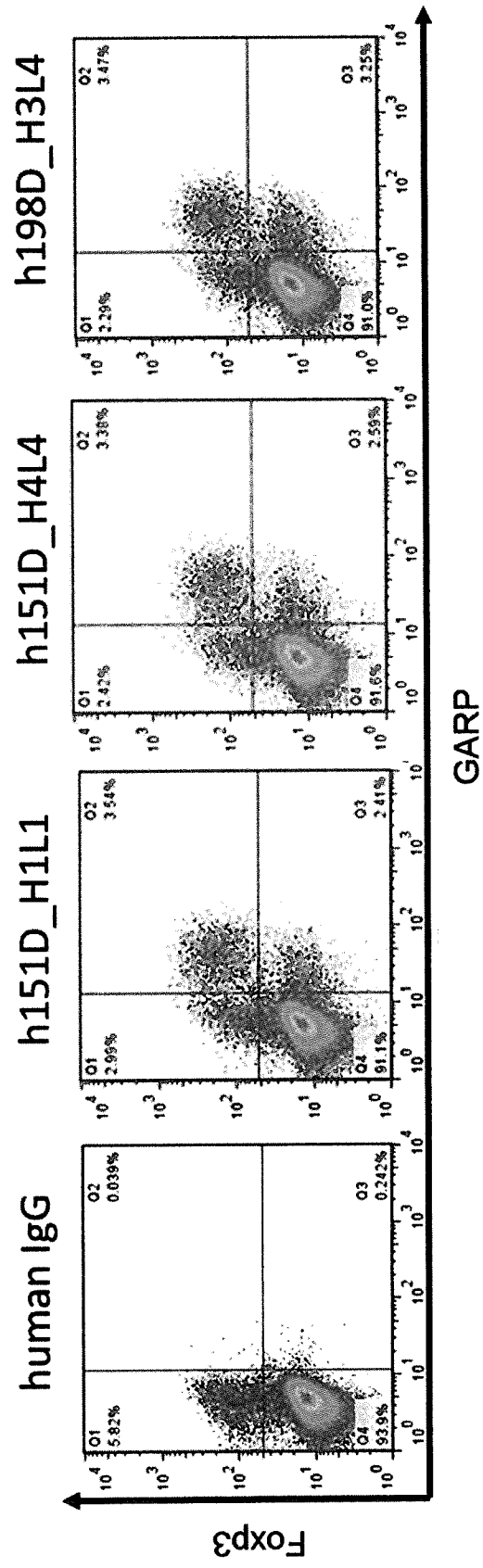
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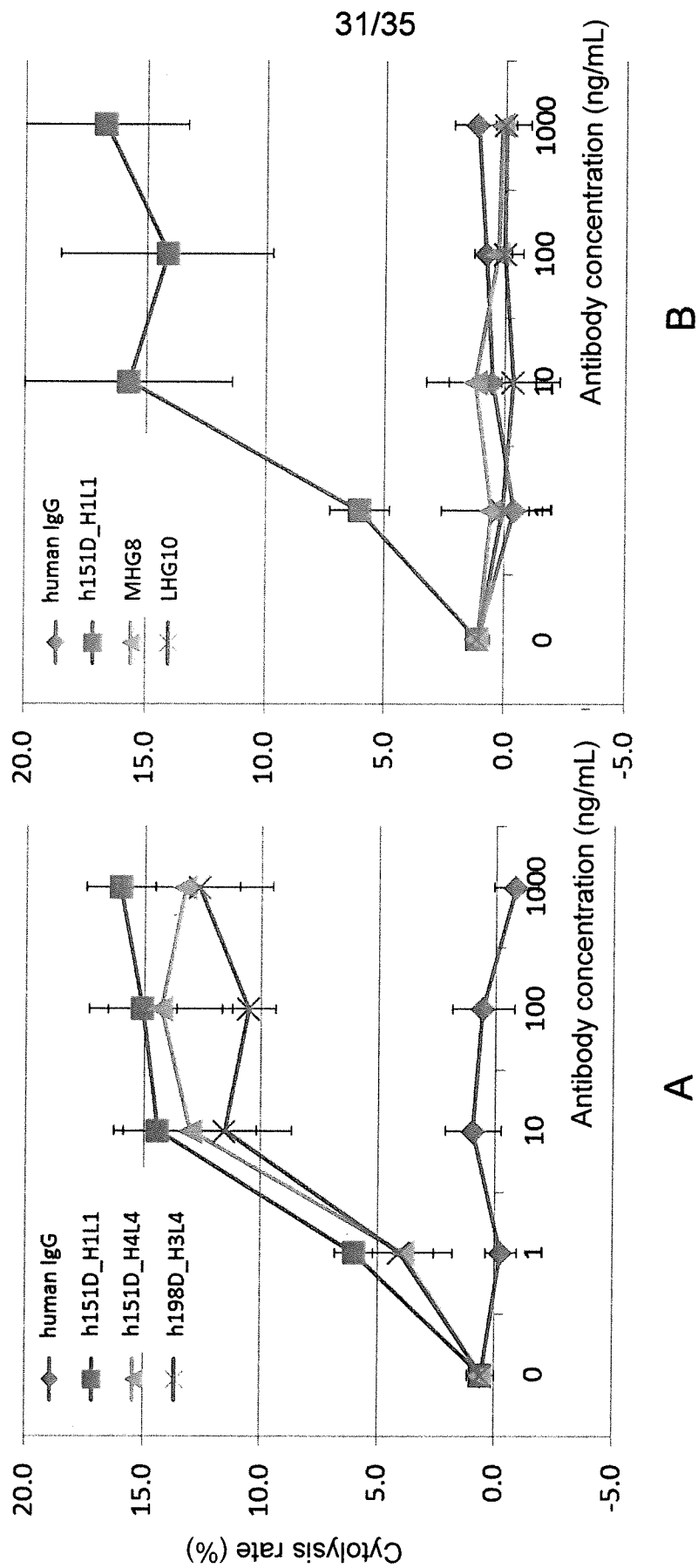
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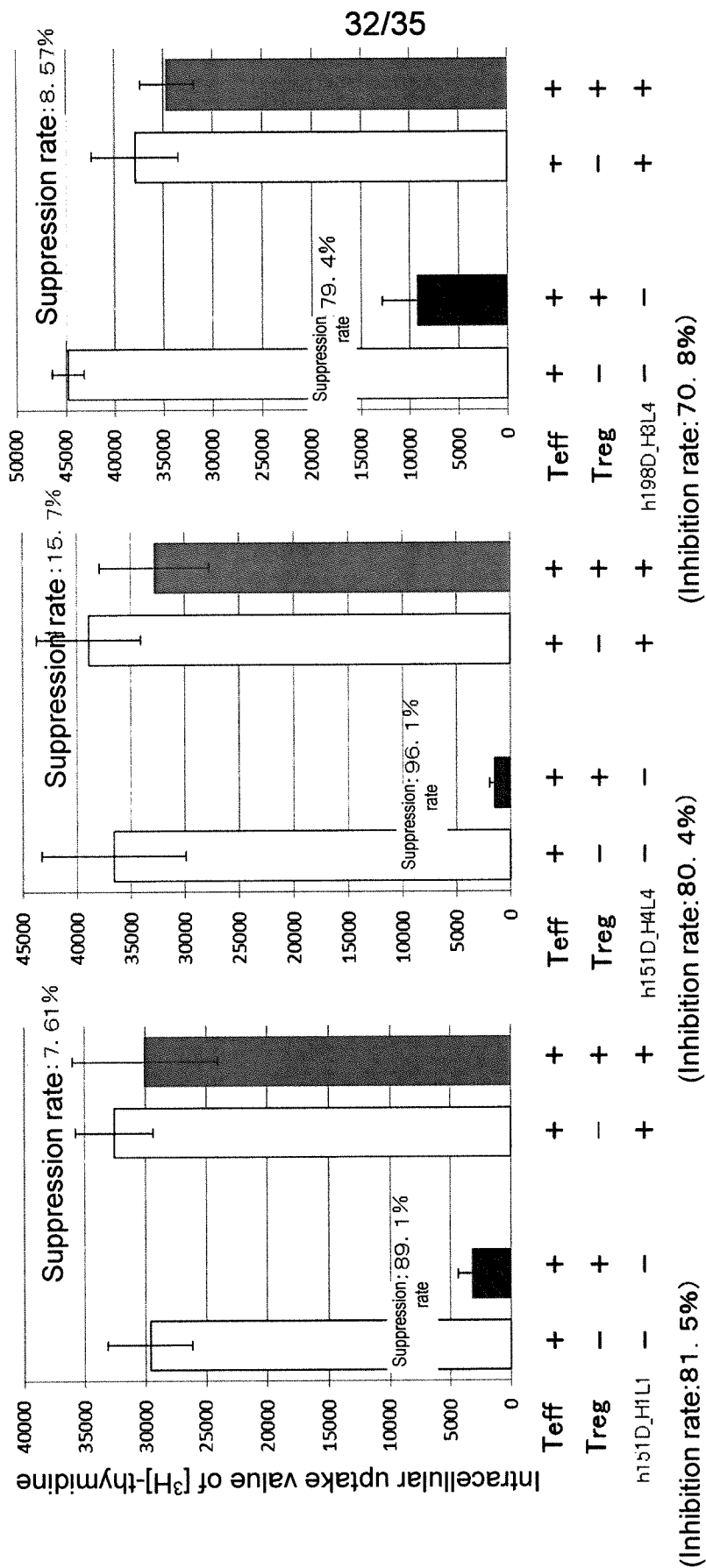
[Figure 40]



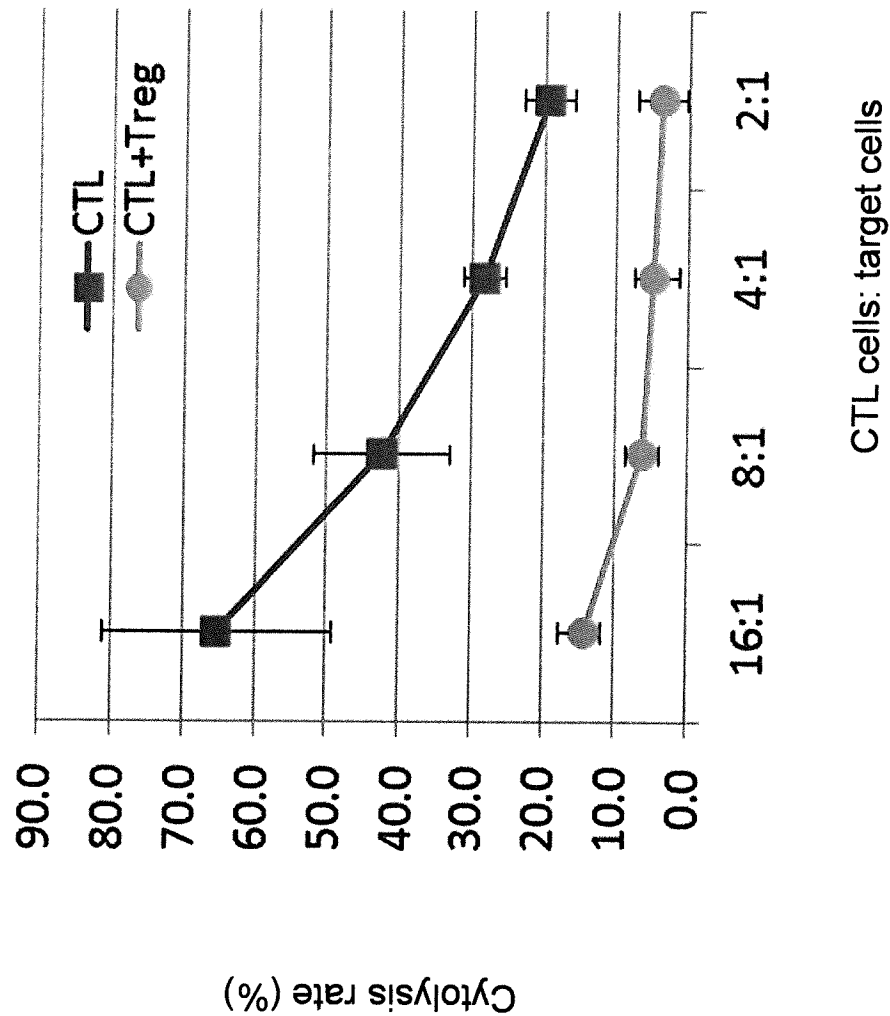
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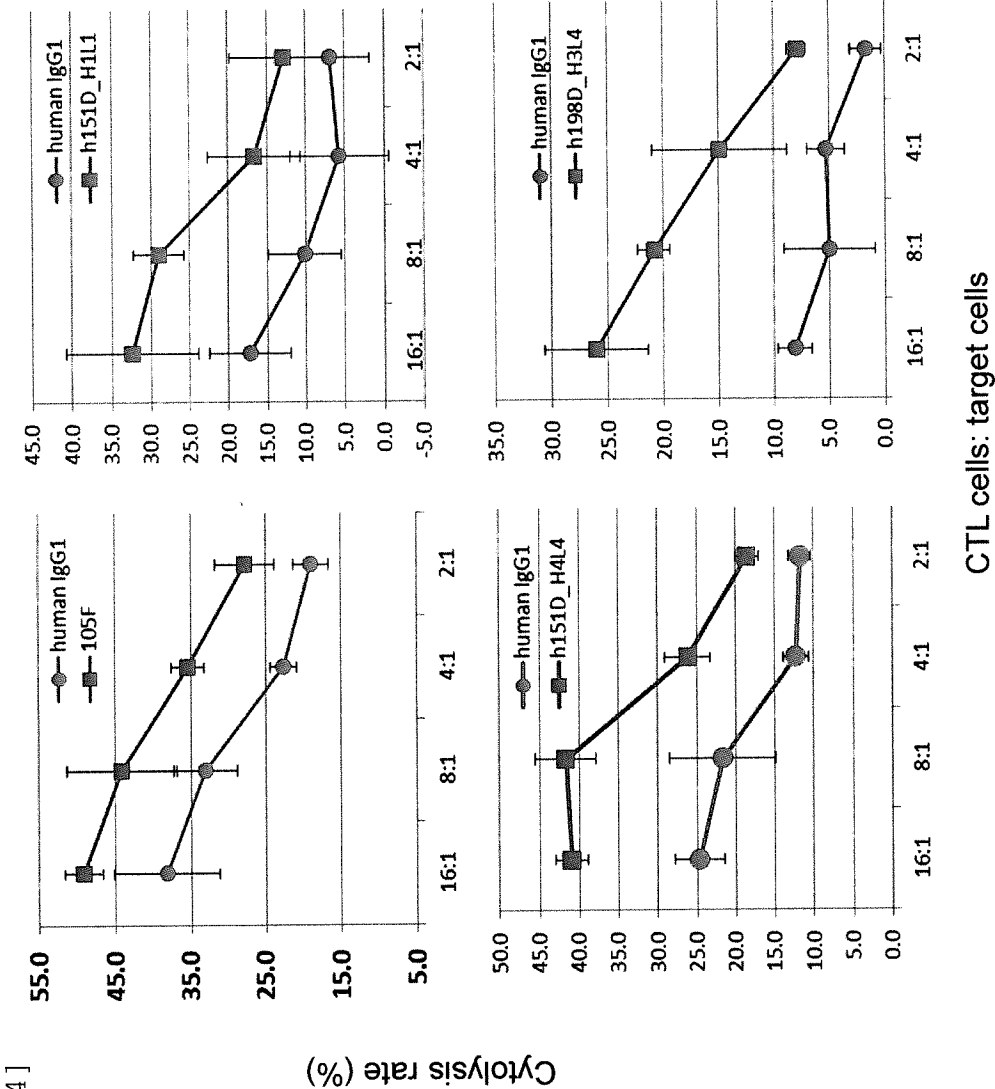


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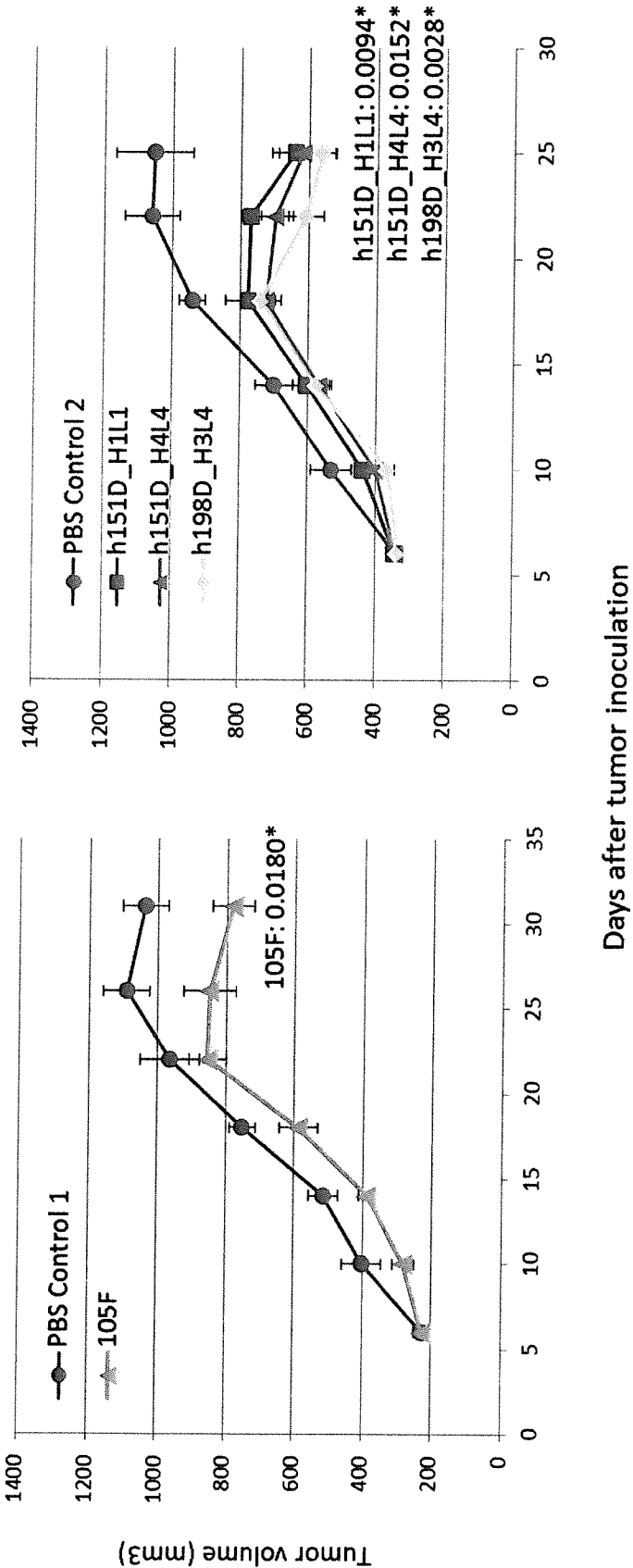


[Figure 43]





[Figure 45]



PN826736 (FP1628) Sequence Listing.TXT
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<151> 2015-09-24

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35 40 45

Pro Asp Thr Glu Thr Leu Asp Leu Ser Gly Asn Gln Leu Arg Ser Ile
50 55 60

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

Ser Thr Asn Glu Ile Ser Phe Leu Gln Pro Gly Ala Phe Gln Ala Leu
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Thr His Leu Glu His Leu Ser Leu Ala His Asn Arg Leu Ala Met Ala
100 105 110

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

Leu Asp Leu Ser Gly Asn Ser Leu Tyr Ser Gly Leu Leu Glu Arg Leu
130 135 140

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

Leu Thr Arg Leu Thr Arg His Thr Phe Arg Asp Met Pro Ala Leu Glu
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Gln Leu Asp Leu His Ser Asn Val Leu Met Asp Ile Glu Asp Gly Ala
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PN826736 (FP1628) Sequence Listing.TXT

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 225 230 235 240
 Ala Glu Phe Gln Leu Thr Trp Leu Asp Leu Arg Glu Asn Lys Leu Leu
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 His Phe Pro Asp Leu Ala Ala Leu Pro Arg Leu Ile Tyr Leu Asn Leu
 260 265 270
 Ser Asn Asn Leu Ile Arg Leu Pro Thr Gly Pro Pro Gln Asp Ser Lys
 275 280 285
 Gly Ile His Ala Pro Ser Glu Gly Trp Ser Ala Leu Pro Leu Ser Ala
 290 295 300
 Pro Ser Gly Asn Ala Ser Gly Arg Pro Leu Ser Gln Leu Leu Asn Leu
 305 310 315 320
 Asp Leu Ser Tyr Asn Glu Ile Glu Leu Ile Pro Asp Ser Phe Leu Glu
 325 330 335
 His Leu Thr Ser Leu Cys Phe Leu Asn Leu Ser Arg Asn Cys Leu Arg
 340 345 350
 Thr Phe Glu Ala Arg Arg Leu Gly Ser Leu Pro Cys Leu Met Leu Leu
 355 360 365
 Asp Leu Ser His Asn Ala Leu Glu Thr Leu Glu Leu Gly Ala Arg Ala
 370 375 380
 Leu Gly Ser Leu Arg Thr Leu Leu Leu Gln Gly Asn Ala Leu Arg Asp
 385 390 395 400
 Leu Pro Pro Tyr Thr Phe Ala Asn Leu Ala Ser Leu Gln Arg Leu Asn
 405 410 415
 Leu Gln Gly Asn Arg Val Ser Pro Cys Gly Gly Pro Asp Glu Pro Gly
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 Pro Ser Gly Cys Val Ala Phe Ser Gly Ile Thr Ser Leu Arg Ser Leu
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PN826736 (FP1628) Sequence Listing.TXT

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 Phe Ile Cys Leu Lys Arg Leu Asn Leu Ala Glu Asn Arg Leu Ser His
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 Leu Pro Ala Trp Thr Gln Ala Val Ser Leu Glu Val Leu Asp Leu Arg
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 Asn Asn Ser Phe Ser Leu Leu Pro Gly Ser Ala Met Gly Gly Leu Glu
 545 550 555 560
 Thr Ser Leu Arg Arg Leu Tyr Leu Gln Gly Asn Pro Leu Ser Cys Cys
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 Gly Asn Gly Trp Leu Ala Ala Gln Leu His Gln Gly Arg Val Asp Val
 580 585 590
 Asp Ala Thr Gln Asp Leu Ile Cys Arg Phe Ser Ser Gln Glu Glu Val
 595 600 605
 Ser Leu Ser His Val Arg Pro Glu Asp Cys Glu Lys Gly Gly Leu Lys
 610 615 620
 Asn Ile Asn Leu Ile Ile Ile Leu Thr Phe Ile Leu Val Ser Ala Ile
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PN826736 (FP1628) Sequence Listing.TXT

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 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Gln Arg Gln Leu Ala Glu Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro
 115 120 125
 Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
 130 135 140
 Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
 145 150 155 160
 Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
 165 170 175
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 Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
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 Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp Lys Thr
 210 215 220
 His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
 225 230 235 240
 Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg
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 Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
 260 265 270
 Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala
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PN826736 (FP1628) Sequence Listing.TXT

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340 345 350

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

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

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

Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
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Tyr Val Val His Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu
35 40 45

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

Ser Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu
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Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Ser Ser
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PN826736 (FP1628) Sequence Listing.TXT

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130 135 140

Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val
145 150 155 160

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

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

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

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
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Ala Lys Asp Ala Gly Gly Arg Tyr Ser Gly Ser Tyr Tyr Phe Asp Tyr
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Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly

PN826736 (FP1628) Sequence Listing.TXT

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120

125

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

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

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

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

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
225 230 235 240

Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245 250 255

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
260 265 270

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
275 280 285

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

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305 310 315 320

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

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

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

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

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr

385 390 395 400

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

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
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Leu Ser Pro Gly Lys
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35 40 45

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

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

Arg Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Asp Arg Ser
85 90 95

Leu Asn Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln
100 105 110

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

Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr
130 135 140

Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys
145 150 155 160

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

PN826736 (FP1628) Sequence Listing.TXT

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

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

Thr Val Ala Pro Thr Glu Cys Ser
210 215

<210> 6
<211> 1344
<212> DNA
<213> Human

<400> 6
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ccaggcaagg ggctggagtg ggtatcgggt gttagttgga atggcagtag gacgcactat 180
gcagactctg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaataa acagcctgag agccgaggac actgccgtgt attactgtgc cagacagagg 300
cagctggctg aatttgacta ctggggccaa ggtaccctgg tcaccgtgag ctacagcctcc 360
accaagggcc caagcgtctt ccccttgcca cctcctcca agagcacctc tggcggcaca 420
gccgccctgg gctgcctggt caaggactac ttccccgaac ccgtgaccgt gagctggaac 480
tcaggcgccc tgaccagcgg cgtgcacacc ttccccgctg tcctgcagtc ctacaggactc 540
tactccctca gcagcgtggt gaccgtgccc tccagcagct tgggcaccca gacctacatc 600
tgcaacgtga atcacaagcc cagcaacacc aagggtggaca agagagttga gcccataatct 660
tgtgacaaaa ctacacatg cccaccctgc ccagcacctg aactcctggg gggaccctca 720
gtcttcctct tcccccaaa acccaaggac accctcatga tctcccggac ccctgaggctc 780
acatgcgtgg tgggtggacgt gagccacgaa gaccctgagg tcaagttcaa ctggtacgtg 840
gacggcgtgg aggtgcataa tgccaagaca aagccccggg aggagcagta caacagcacg 900
taccgggtgg tcagcgtcct caccgtcctg caccaggact ggctgaatgg caaggagtac 960
aagtgcagg tctccaacaa agccctccca gccccatcg agaaaaccat ctccaagacc 1020
aaaggccagc cccgggaacc acaggtgtac accctgcccc catcccggga ggagatgacc 1080
aagaaccagg tcagcctgac ctgcctggtc aaaggcttct atcccagcga catcgccgtg 1140
gagtgaggaga gcaatggcca gcccgagaac aactacaaga ccaccctcc cgtgctggac 1200
tccgacggct cttcttcct ctacagcaag ctacccgtgg acaagagcag gtggcagcag 1260
ggcaacgtct tctcatgctc cgtgatgcat gaggctctgc acaaccacta caccagaag 1320
agcctctccc tgtctcccgg caaa 1344

<210> 7

PN826736 (FP1628) Sequence Listing.TXT

<211> 651
<212> DNA
<213> Human

<400> 7
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ctcccaggaa cggcccccaa actcctcatc tatgctgaca ccaatcggcc ctcaggggtc 180
cctgaccgat tctctggctc caagtctggc acctcagcct ccctggccat cagtgggctc 240
cggtccgagg atgaggctga ttattactgc cagtcctatg acagcagcct gagaggttgg 300
gtgttcggcg gaggaacaa gctgacggc ctaggtcagc ctaaggctgc ccctagcgtg 360
accctgttcc ctcttccag cgaggagctt caagctaaca aggccaccct ggtgtgtctt 420
atctctgact tctaccctgg cgctgtgacc gtggcctgga aggctgacag ctcccctgtg 480
aaggccggag tggagaccac cacacctagc aagcagtcta acaacaagta cgctgccagc 540
tcctacctga gccttacccc tgagcagtgg aagtctcaca gaagctactc ctgtcaagtg 600
accacgagg gcagcacctg ggagaagacc gtggctccta ccgagtgttc c 651

<210> 8
<211> 1359
<212> DNA
<213> Human

<400> 8
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ccaggcaagg ggctggagtg ggtcgccgga attagttgga acagtgccat cacagtctat 180
gctgactctg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaataa acagcctgag agccgaggac actgccgtgt attactgtgc aaaagatgcc 300
ggggggccgg atagtgggag ctactacttt gactactggg gccaaaggta cctggtcacc 360
gtgagctcag cctccaccaa gggcccaagc gtcttcccc tggcaccctc ctccaagagc 420
acctctggcg gcacagccgc cctgggctgc ctggtcaagg actacttccc cgaaccctgt 480
accgtgagct ggaactcagg cgccctgacc agcggcgtgc acaccttccc cgctgtcctg 540
cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag cagcttgggc 600
accagacct acatctgcaa cgtgaatcac aagccagca acaccaagg ggacaagaga 660
gttgagccca aatcttgtga caaaactcac acatgcccac cctgcccagc acctgaactc 720
ctggggggac cctcagtctt cctcttcccc ccaaaaccca aggacaccct catgatctcc 780
cggacccttg aggtcacatg cgtgggtggtg gacgtgagcc acgaagacc tgaggtaag 840
ttcaactggt acgtggacgg cgtggagggt cataatgcca agacaaagcc ccgggaggag 900
cagtacaaca gcacgtaccg ggtggtcagc gtcctcaccg tcctgcacca ggactggctg 960
aatggcaagg agtacaagtg caaggctctc aacaaagccc tcccagcccc catcgagaaa 1020

PN826736 (FP1628) Sequence Listing.TXT

accatctcca aagccaaagg ccagccccgg gaaccacagg tgtacaccct gcccccatcc	1080
cgggaggaga tgaccaagaa ccaggtcagc ctgacctgcc tggtaaagg cttctatccc	1140
agcgacatcg ccgtggagtg ggagagcaat ggccagcccc agaacaacta caagaccacc	1200
cctcccgtgc tggactccga cggctccttc ttcctctaca gcaagctcac cgtggacaag	1260
agcaggtggc agcagggcaa cgtcttctca tgctccgtga tgcattgaggc tctgcacaac	1320
cactacaccc agaagagcct ctccctgtct cccggcaaa	1359

<210> 9
 <211> 648
 <212> DNA
 <213> Human

<400> 9 cagtctgtgc tgactcagcc accctcagcg tctgggaccc ccgggcagag ggtcaccatc	60
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ctcccaggaa cggcccccaa actcctcatc tatggtaaca gcaatcggcc ctcaagggtc	180
cctgaccgat tctctggctc caagtctggc acctcagcct ccctggccat cagtgggctc	240
cggctccgagg atgaggctga ttattactgc cagtcctatg acagaagcct gaattgggtg	300
ttcggcggag gaaccaagct gacggctccta ggtcagccta aggctgcccc tagcgtgacc	360
ctgttccctc cttccagcga ggagcttcaa gctaacaagg ccaccttggg gtgtcttctc	420
tctgacttct accctggcgc tgtgaccgtg gcctggaagg ctgacagctc ccctgtgaag	480
gccggagtg agaccaccac acctagcaag cagtctaaca acaagtacgc tgccagctcc	540
tacctgagcc ttacccttga gcagtggag tctcacagaa gctactcctg tcaagtgacc	600
cacgagggca gcaccgtgga gaagaccgtg gctcctaccg agtggtcc	648

<210> 10
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer A

<400> 10 gaaacagcta tgaaatacct attg	24
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<210> 11
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer B

<400> 11 gcctgagcag tggaagtcc	19
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<210> 12
 <211> 24

PN826736 (FP1628) Sequence Listing.TXT

<212> DNA
<213> Artificial Sequence

<220>
<223> Primer C

<400> 12
taggtatttc attatgactg tctc 24

<210> 13
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer D

<400> 13
cccagtcacg acgttgtaaa acg 23

<210> 14
<211> 351
<212> DNA
<213> Rat

<400> 14
gaggtgcagc tggtggagtc tgggggaggc ttagtgcagc ctggaaggct caagaaactc 60
tcctgttcag cctcaggatt cactttcagt aactattaca tggcctgggt ccgccaggct 120
ccaacgcagg gtctggagtg ggtcgcaccc attggtactg ttggtggtaa cacttactat 180
cgagactccg tgaagggccg attcactatc tccagagatg atgcaaaaag caccctatac 240
ctgcaaattg acagtctgag gtctgaggac acggccactt attactgtgc aagagaggat 300
tacggagggt ttccccactg gggccaagga gtcatggtca cagtctcttc a 351

<210> 15
<211> 117
<212> PRT
<213> Rat

<400> 15
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
1 5 10 15
Ser Lys Lys Leu Ser Cys Ser Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30
Tyr Met Ala Trp Val Arg Gln Ala Pro Thr Gln Gly Leu Glu Trp Val
35 40 45
Ala Ser Ile Gly Thr Val Gly Gly Asn Thr Tyr Tyr Arg Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ala Lys Ser Thr Leu Tyr
65 70 75 80

PN826736 (FP1628) Sequence Listing.TXT

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

Ala Arg Glu Asp Tyr Gly Gly Phe Pro His Trp Gly Gln Gly Val Met
100 105 110

Val Thr Val Ser Ser
115

<210> 16
<211> 327
<212> DNA
<213> Rat

<400> 16
aatattgtga tgactcagtc tcccacatcc atgttcatat cagtcggaga cagggtcacc 60
atgaactgta aggccagtca gaatgtggga actaatgtag actggtacca gcagaaaaca 120
gggcagtctc ctaaactgct tatctatggg gcgccaacc gctacactgg agtcctgat 180
cgcttcacag gcagtggatc tggaacagat ttactctca ccatcagcaa catgcaggct 240
gaagacctgg ctgtttatga ctgtctacag tataagtaca atccatacac gtttggaaact 300
gggaccaagc tggaactgaa ccgggct 327

<210> 17
<211> 109
<212> PRT
<213> Rat

<400> 17

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 Asn
20 25 30

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

Tyr 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 Thr Ile Ser Asn Met Gln Ala
65 70 75 80

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

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

<210> 18
<211> 360

PN826736 (FP1628) Sequence Listing.TXT

<212> DNA
<213> Rat

<400> 18
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acctgcactg tctctggggt ctcactaacc agctttcatg taagctgggt tcgccagcct 120
ccagagaagg gtctggagtg gattgcaaca atttcaagtg gtggagggtac atattataat 180
tcagctctca aatccccgact gagcatcagc agggacacct ccaagagcca agttttctta 240
aagatgagca ctctgcaaac tgaagacaca gccatgtact tctgtgcccg gatttcgggc 300
tgggggccatt actatgttat ggatgtctgg ggtcaaggag cttcagtcac tgtctctca 360

<210> 19
<211> 120
<212> PRT
<213> Rat

<400> 19

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

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

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

Ala Thr Ile Ser Ser Gly Gly Gly Thr Tyr Tyr Asn Ser Ala Leu Lys
50 55 60

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

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

Arg Ile Ser Gly Trp Gly His Tyr Tyr Val Met Asp Val Trp Gly Gln
100 105 110

Gly Ala Ser Val Thr Val Ser Ser
115 120

<210> 20
<211> 327
<212> DNA
<213> Rat

<400> 20
gacatccaga tgacacagtc tccagcttcc ctgtctggat ctctgggaga aactgtcacc 60
atccaatgtc aagcaagtga ggacatttac agtgggttag cgtggtatca gcagaagcca 120
gggaaatctc ctcagctcct gatctatggt gcaggtagct tacaagacgg cgtcccatca 180

PN826736 (FP1628) Sequence Listing.TXT

cgattcagtg gcggtggatc tggcacacat tattctctca agatcagcag catgcaaact 240
 gaagatgaag ggggtttatct ctgtcaacag ggtttaaagt ttccgctcac gttcgggttct 300
 gggaccaagc tggagatcaa acgggct 327

<210> 21
 <211> 109
 <212> PRT
 <213> Rat

<400> 21

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

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

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

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

Gly Gly Ser Gly Thr His Tyr Ser Leu Lys Ile Ser Ser Met Gln Thr
 65 70 75 80

Glu Asp Glu Gly Val Tyr Phe Cys Gln Gln Gly Leu Lys Phe Pro Leu
 85 90 95

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

<210> 22
 <211> 449
 <212> DNA
 <213> Human

<400> 22

gcctccggac tctagagcca ccatggtgct gcagaccag gtgttcatct ccctgctgct 60
 gtggatctcc ggcgcgtacg gcgatatcgt gatgattaaa cgtagcgtgg ccgccccctc 120
 cgtgttcatc ttccccccct ccgacgagca gctgaagtcc ggcaccgcct ccgtggtgtg 180
 cctgctgaat aactttctacc ccagagaggc caaggtgcag tggaagggtg acaacgccct 240
 gcagtccggg aactcccagg agagcgtgac cgagcaggac agcaaggaca gcacctacag 300
 cctgagcagc accctgaccc tgagcaaagc cgactacgag aagcacaagg tgtacgcctg 360
 cgaggtgacc caccagggcc tgagctcccc cgtcaccaag agcttcaaca ggggggagtg 420
 ttaggggccc gtttaaacgg gggaggcta 449

<210> 23
 <211> 1132
 <212> DNA

PN826736 (FP1628) Sequence Listing.TXT

<213> Human

<400> 23

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gcctccggac tctagagcca ccatgaaaca cctgtggttc ttcctcctgc tgggtggcagc      60
tcccagatgg gtgctgagcc aggtgcaatt gtgcaggcgg ttagctcagc ctccaccaag      120
ggcccaagcg tcttccccct ggcaccctcc tccaagagca cctctggcgg cacagccgcc      180
ctgggctgcc tgggtcaagga ctacttcccc gaacccgtga ccgtgagctg gaactcaggc      240
gccctgacca gcggcgtgca caccttcccc gctgtcctgc agtcctcagg actctactcc      300
ctcagcagcg tggtgaccgt gccctccagc agcttgggca cccagacctc catctgcaac      360
gtgaatcaca agcccagcaa caccaaggtg gacaagagag ttgagcccaa atcttgtgac      420
aaaactcaca catgcccacc ctgcccagca cctgaactcc tgggggggacc ctcagtcttc      480
ctcttcccc caaaacccaa ggacaccctc atgatctccc ggaccctga ggtcacatgc      540
gtggtggtgg acgtgagcca cgaagaccct gaggtcaagt tcaactggta cgtggacggc      600
gtggaggtgc ataatgcaa gacaaagccc cgggaggagc agtacaacag cacgtaccgg      660
gtggtcagcg tcctcaccgt cctgcaccag gactggctga atggcaagga gtacaagtgc      720
aaggtctcca acaaagccct cccagccccc atcgagaaaa ccatctccaa agccaaaggc      780
cagccccggg aaccacaggt gtacaccctg ccccatccc gggaggagat gaccaagaac      840
caggtcagcc tgacctgcct ggtcaaaggc ttctatccca gcgacatcgc cgtggagtgg      900
gagagcaatg gccagcccga gaacaactac aagaccaccc ctcccgtgct ggactccgac      960
ggctccttct tcctctacag caagctcacc gtggacaaga gcagggtggca gcagggcaac     1020
gtcttctcat gtcctgtgat gcatgaggct ctgcacaacc actacacca gaagagcctc     1080
tccctgtctc ccggcaaatg agatatcggg cccgtttaaa cgggggaggc ta             1132
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<210> 24

<211> 1398

<212> DNA

<213> Artificial Sequence

<220>

<223> Chimeric Antibody

<400> 24

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gtgcagctgg tggagtctgg gggaggctta gtgcagcctg gaagggtcaa gaaactctcc      120
tggtcagcct caggattcac tttcagtaac tattacatgg cctgggtccg ccaggctcca      180
acgcagggtc tggagtgggt cgcattccatt ggtactgttg gtggtaacac ttactatcga      240
gactccgtga agggccgatt cactatctcc agagatgatg caaaaagcac cctatacctg      300
caaatggaca gtctgaggtc tgaggacacg gccacttatt actgtgcaag agaggattac      360
ggagggtttc cccactgggg ccaaggagtc atggtcacag tcagctcagc ctccaccaag      420
ggcccaagcg tcttccccct ggcaccctcc tccaagagca cctctggcgg cacagccgcc      480
ctgggctgcc tgggtcaagga ctacttcccc gaacccgtga ccgtgagctg gaactcaggc      540
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PN826736 (FP1628) Sequence Listing.TXT

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gccctgacca gcggcgtgca caccttcccc gctgtcctgc agtcctcagg actctactcc      600
ctcagcagcg tgggtgaccgt gccctccagc agcttgggca cccagaccta catctgcaac      660
gtgaatcaca agcccagcaa caccaagggtg gacaagagag ttgagcccaa atcttgtgac      720
aaaactcaca catgcccacc ctgcccagca cctgaactcc tgggggggacc ctcagtcttc      780
ctcttcccc caaaacccaa ggacaccctc atgatctccc ggaccctga ggtcacatgc      840
gtggtggtgg acgtgagcca cgaagaccct gaggtcaagt tcaactggta cgtggacggc      900
gtggagggtgc ataatgccaa gacaaagccc cgaggaggagc agtacaacag cacgtaccgg      960
gtggtcagcg tcctcaccgt cctgcaccag gactggctga atggcaagga gtacaagtgc     1020
aagggtctcca acaaagccct cccagcccc atcgagaaaa ccatctcaa agccaaaggc     1080
cagccccggg aaccacaggt gtacaccctg ccccatccc gggaggagat gaccaagaac     1140
caggtcagcc tgacctgcct ggtcaaaggc ttctatcca gcgacatcg cgtggagtgg     1200
gagagcaatg gccagcccga gaacaactac aagaccacc ctcccgctg ggactccgac     1260
ggctccttct tcctctacag caagctcacc gtggacaaga gcaggtggca gcagggaac     1320
gtcttctcat gtcctgtgat gcatgaggct ctgcacaacc actacacca gaagagcctc     1380
tcctgtctc ccggcaaa                                1398

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<210> 25
 <211> 466
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Chimeric Antibody

<400> 25

Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
 1 5 10 15

Val Leu Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
 20 25 30

Pro Gly Arg Ser Lys Lys Leu Ser Cys Ser Ala Ser Gly Phe Thr Phe
 35 40 45

Ser Asn Tyr Tyr Met Ala Trp Val Arg Gln Ala Pro Thr Gln Gly Leu
 50 55 60

Glu Trp Val Ala Ser Ile Gly Thr Val Gly Gly Asn Thr Tyr Tyr Arg
 65 70 75 80

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ala Lys Ser
 85 90 95

Thr Leu Tyr Leu Gln Met Asp Ser Leu Arg Ser Glu Asp Thr Ala Thr
 100 105 110

PN826736 (FP1628) Sequence Listing.TXT

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

PN826736 (FP1628) Sequence Listing.TXT

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
385 390 395 400

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
405 410 415

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
420 425 430

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
435 440 445

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
450 455 460

Gly Lys
465

<210> 26
<211> 702
<212> DNA
<213> Artificial Sequence

<220>
<223> Chimeric Antibody

<400> 26
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aatattgtga tgactcagtc tcccacatcc atgttcatat cagtcggaga cagggtcacc 120
atgaactgta aggccagtca gaatgtggga actaatgtag actggtacca gcagaaaaca 180
gggcagtctc ctaaactgct tatctatggg gcgtccaacc gctacactgg agtccctgat 240
cgcttcacag gcagtggatc tggaacagat ttactctca ccatcagcaa catgcaggct 300
gaagacctgg ctgtttatga ctgtctacag tataagtaca atccatacac gtttggaact 360
gggaccaagc tggaactgaa ccgggctgtg gccgccccct ccgtgttcat cttccccccc 420
tccgacgagc agctgaagtc cggcaccgcc tccgtggtgt gcctgctgaa taacttctac 480
cccagagagg ccaaggtgca gtggaagggtg gacaacgccc tgcagtccgg gaactcccag 540
gagagcgtga ccgagcagga cagcaaggac agcacctaca gcctgagcag caccctgacc 600
ctgagcaaag ccgactacga gaagcacaag gtgtacgcct gcgaggtgac ccaccagggc 660
ctgagctccc ccgtcaccaa gagcttcaac aggggggaggt gt 702

<210> 27
<211> 234
<212> PRT
<213> Artificial Sequence

<220>
<223> Chimeric Antibody

PN826736 (FP1628) Sequence Listing.TXT

<400> 27

Met Val Leu Gln Thr Gln Val Phe Ile Ser Leu Leu Leu Trp Ile Ser
1 5 10 15

Gly Ala Tyr Gly Asn Ile Val Met Thr Gln Ser Pro Thr Ser Met Phe
20 25 30

Ile Ser Val Gly Asp Arg Val Thr Met Asn Cys Lys Ala Ser Gln Asn
35 40 45

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

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

Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
85 90 95

Asn Met Gln Ala Glu Asp Leu Ala Val Tyr Asp Cys Leu Gln Tyr Lys
100 105 110

Tyr Asn Pro Tyr Thr Phe Gly Thr Gly Thr Lys Leu Glu Leu Asn Arg
115 120 125

Ala Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
130 135 140

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
145 150 155 160

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
165 170 175

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
180 185 190

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
195 200 205

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
210 215 220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230

<210> 28

<211> 1407

<212> DNA

<213> Artificial Sequence

<220>

<223> Chimeric Antibody

<400> 28

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tgcactgtct ctgggttctc actaaccagc ttcatgtaa gctgggttcg ccagcctcca      180
gagaaggggtc tggagtggat tgcaacaatt tcaagtgggt gaggtacata ttataattca      240
gctctcaaat cccgactgag catcagcagg gacacctcca agagccaagt tttcttaaag      300
atgagcactc tgcaaactga agacacagcc atgtacttct gtgcccggat ttcgggctgg      360
ggccattact atgttatgga tgtctgggggt caaggagctt cagtcactgt cagctcagcc      420
tccaccaagg gcccaagcgt cttccccctg gcaccctcct ccaagagcac ctctggcggc      480
acagccgccc tgggctgcct ggtcaaggac tacttccccg aaccctgac cgtgagctgg      540
aactcaggcg ccctgaccag cggcgtgcac accttccccg ctgtcctgca gtcctcagga      600
ctctactccc tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac ccagacctac      660
atctgcaacg tgaatcacia gcccagcaac accaagggtg acaagagagt tgagcccaa      720
tcttgtgaca aaactcacac atgcccaccc tgcccagcac ctgaactcct ggggggaccc      780
tcagtcttcc tcttcccccc aaaacccaag gacaccctca tgatctcccg gaccctgag      840
gtcacatgcg tggtggtgga cgtgagccac gaagaccctg aggtcaagtt caactggtac      900
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gccaaaggcc agccccggga accacaggtg tacaccctgc ccccatcccg ggaggagatg      1140
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gactccgacg gctccttctt cctctacagc aagctcaccg tggacaagag caggtggcag      1320
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aagagcctct ccctgtctcc cggcaaa                                     1407

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<210> 29

<211> 469

<212> PRT

<213> Artificial Sequence

<220>

<223> Chimeric Antibody

<400> 29

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Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
1           5           10          15

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Val Leu Ser Gln Val Gln Leu Arg Glu Ser Gly Pro Gly Leu Val Gln
20          25          30

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PN826736 (FP1628) Sequence Listing.TXT

Pro Ser Gln Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe Ser Leu
35 40 45

Thr Ser Phe His Val Ser Trp Val Arg Gln Pro Pro Glu Lys Gly Leu
50 55 60

Glu Trp Ile Ala Thr Ile Ser Ser Gly Gly Gly Thr Tyr Tyr Asn Ser
65 70 75 80

Ala Leu Lys Ser Arg Leu Ser Ile Ser Arg Asp Thr Ser Lys Ser Gln
85 90 95

Val Phe Leu Lys Met Ser Thr Leu Gln Thr Glu Asp Thr Ala Met Tyr
100 105 110

Phe Cys Ala Arg Ile Ser Gly Trp Gly His Tyr Tyr Val Met Asp Val
115 120 125

Trp Gly Gln Gly Ala Ser Val Thr Val Ser Ser Ala Ser Thr Lys Gly
130 135 140

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
145 150 155 160

Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
165 170 175

Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe
180 185 190

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
195 200 205

Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
210 215 220

Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
225 230 235 240

Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
245 250 255

Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
260 265 270

Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
275 280 285

Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
290 295 300

PN826736 (FP1628) Sequence Listing.TXT

Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
305 310 315 320

Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
325 330 335

Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
340 345 350

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
355 360 365

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
370 375 380

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
385 390 395 400

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
405 410 415

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
420 425 430

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
435 440 445

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
450 455 460

Leu Ser Pro Gly Lys
465

<210> 30
<211> 702
<212> DNA
<213> Artificial Sequence

<220>
<223> Chimeric Antibody

<400> 30
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gacatccaga tgacacagtc tccagcttcc ctgtctggat ctctgggaga aactgtcacc 120
atccaatgtc aagcaagtga ggacatttac agtgggttag cgtggtatca gcagaagcca 180
gggaaatctc ctgagctcct gatctatggt gcaggtagct tacaagacgg cgtcccatca 240
cgattcagtg gcggtggatc tggcacacat tattctctca agatcagcag catgcaaact 300
gaagatgaag gggtttattt ctgtcaacag ggtttaaagt ttccgctcac gttcggttct 360
gggaccaagc tggagatcaa acgggctgtg gccgccccct ccgtgttcat cttccccccc 420

PN826736 (FP1628) Sequence Listing.TXT

tccgacgagc agctgaagtc cggcaccgcc tccgtggtgt gcctgctgaa taacttctac	480
cccagagagg ccaaggtgca gtggaaggtg gacaacgccc tgcagtccgg gaactcccag	540
gagagcgtga ccgagcagga cagcaaggac agcacctaca gcctgagcag caccctgacc	600
ctgagcaaag ccgactacga gaagcacaag gtgtacgcct gcgaggtgac ccaccagggc	660
ctgagctccc ccgtcaccaa gagcttcaac aggggggaggt gt	702

<210> 31
 <211> 234
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Chimeric Antibody

<400> 31

Met Val Leu Gln Thr Gln Val Phe Ile Ser Leu Leu Leu Trp Ile Ser
 1 5 10 15

Gly Ala Tyr Gly Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Leu Ser
 20 25 30

Gly Ser Leu Gly Glu Thr Val Thr Ile Gln Cys Gln Ala Ser Glu Asp
 35 40 45

Ile Tyr Ser Gly Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ser Pro
 50 55 60

Gln Leu Leu Ile Tyr Gly Ala Gly Ser Leu Gln Asp Gly Val Pro Ser
 65 70 75 80

Arg Phe Ser Gly Gly Gly Ser Gly Thr His Tyr Ser Leu Lys Ile Ser
 85 90 95

Ser Met Gln Thr Glu Asp Glu Gly Val Tyr Phe Cys Gln Gln Gly Leu
 100 105 110

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

Ala Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
 130 135 140

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
 145 150 155 160

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
 165 170 175

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
 180 185 190

PN826736 (FP1628) Sequence Listing.TXT

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
195 200 205

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
210 215 220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230

<210> 32
<211> 1398
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized Antibody

<400> 32
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gtgcagctgg tggaatccgg cggaggcctg gtgcagcctg gcggatctct gagactgtct 120
tgtgccgcct ccggcttcac cttctccaac tactacatgg cctgggtgcg acaggcccct 180
ggcaagggac tggaatgggt gtcctctatc ggcaccgtgg gcggcaacac ctactacgcc 240
gattctgtga agggccggtt caccatctcc cgggacgact ccaagaacac cctgtacctg 300
cagatgaact ccctgcgggc cgaggacacc gccgtgtact actgtgccag agaggactac 360
ggcggcttcc ctcatggggg ccagggcaca ctctgtaccg tgcctctgc ttccaccaag 420
ggccccctcg tgtttctctt ggccccctcc agcaagtcca cctctggcgg aacagccgct 480
ctgggctgcc tcgtgaagga ctacttcccc gagcccgtga cagtgtcttg gaactctggc 540
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ctgtcctccg tcgtgactgt gccctccagc tctctgggca ccagacctc catctgcaac 660
gtgaaccaca agccctccaa caccaaggtg gacaagcggg tggaacccaa gtcctgcgac 720
aagaccaca cctgtcccc ttgtcctgcc cctgaactgc tgggcggacc ttccgtgttc 780
ctgttcccc caaagcctaa ggacaccctg atgatctccc ggacccccga agtgacctgc 840
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gtggaagtgc acaacgcaa gaccaagcct agagaggaac agtacaactc cacctaccgg 960
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cagccccggg aacccaggt gtacacactg cccctagcc gggaagagat gaccaagaac 1140
caggtgtccc tgacctgtct cgtgaaaggc ttctaccct cccgatatcg cgtggaatgg 1200
gagagcaacg gccagcccga gaacaactac aagaccacc cccctgtgct ggactccgac 1260
ggctcattct tcctgtacag caagctgaca gtggacaagt cccggtggca gcagggcaac 1320
gtgttctcct gctccgtgat gcacgaggcc ctgcacaacc actacacca gaagtccttg 1380

tccctgagcc ccggcaaa

<210> 33
 <211> 466
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Humanized Antibody

<400> 33

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

PN826736 (FP1628) Sequence Listing.TXT

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Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp
225      230      235      240

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly
      245      250      255

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
      260      265      270

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
      275      280      285

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
      290      295      300

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
305      310      315      320

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
      325      330      335

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
      340      345      350

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
      355      360      365

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu
      370      375      380

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
385      390      395      400

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
      405      410      415

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
      420      425      430

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
      435      440      445

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
      450      455      460

Gly Lys
465

```

<210> 34
<211> 1398

PN826736 (FP1628) Sequence Listing.TXT

<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized Antibody

<400> 34
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gtgcagctgg tggaatccgg cggaggcctg gtgcagcctg gcggatctct gagactgtct 120
tgtgccgcct ccggcttcac cttctccaac tactacatgg cctgggtgcg acaggccctt 180
ggcaagggac tggaatgggt ggcctctatc ggcaccgtgg gcggcaacac ctactaccgg 240
gattctgtga agggccggtt caccatctcc cgggacgact ccaagtccac cctgtacctg 300
cagatgaact ccctgcgggc cgaggacacc gccgtgtact actgtgccag agaggactac 360
ggcggcttcc ctattgggg ccagggcaca ctctgtaccg tctcctctgc ttccaccaag 420
ggccccctcc tgtttctctt ggcccccttc agcaagtcta cctccggcgg aacagccgct 480
ctgggctgcc tcgtgaagga ctacttcccc gagcccgtga cagtgtcttg gaactctggc 540
gccctgacca gcggcgtgca cacctttcca gctgtgctgc agtcctccgg cctgtactcc 600
ctgtcctccg tcgtgactgt gccctccagc tctctgggca cccagacctt catctgcaac 660
gtgaaccaca agccctccaa caccaaggtg gacaagcggg tggaacccaa gtcctgcgac 720
aagaccaca cctgtcccc ttgtcctgcc cctgaactgc tgggcggacc ttccgtgttc 780
ctgttcccc caaagcccaa ggacaccctg atgatctccc ggacccccga agtgacctgc 840
gtggtggtgg atgtgtccca cgaggaccct gaagtgaagt tcaattggta cgtggacggc 900
gtggaagtgc acaacgcaa gaccaagcct agagaggaac agtacaactc cacctaccgg 960
gtggtgtccg tgctgaccgt gctgcatcag gactggctga acggcaaaga gtacaagtgc 1020
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gagtccaacg gccagcctga gaacaactac aagaccacc cccctgtgct ggactccgac 1260
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gtgttctcct gctccgtgat gcacgaggcc ctgcacaacc actacacca gaagtccctg 1380
tccctgagcc ccggcaaa 1398

<210> 35
<211> 466
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized Antibody

<400> 35

Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
1 5 10 15

PN826736 (FP1628) Sequence Listing.TXT

Val Leu Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln
20 25 30

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
35 40 45

Ser Asn Tyr Tyr Met Ala Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
50 55 60

Glu Trp Val Ala Ser Ile Gly Thr Val Gly Gly Asn Thr Tyr Tyr Arg
65 70 75 80

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser
85 90 95

Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
100 105 110

Tyr Tyr Cys Ala Arg Glu Asp Tyr Gly Gly Phe Pro His Trp Gly Gln
115 120 125

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

Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
145 150 155 160

Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
165 170 175

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
180 185 190

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

Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
210 215 220

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp
225 230 235 240

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly
245 250 255

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
260 265 270

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
275 280 285

PN826736 (FP1628) Sequence Listing.TXT

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
290 295 300

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
305 310 315 320

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
325 330 335

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
340 345 350

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
355 360 365

Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu
370 375 380

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
385 390 395 400

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
405 410 415

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
420 425 430

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
435 440 445

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
450 455 460

Gly Lys
465

<210> 36
<211> 702
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized Antibody

<400> 36
atggtgctgc agaccaggt gttcatctcc ctgctgctgt ggatctccgg cgcctacggc 60
aacatcgtga tgaccagtc ccccgactcc ctggctgtgt ctctgggcga gagagccacc 120
atcaactgca aggcctccca gaacgtgggc accaacgtgg actggtatca gcagaagccc 180
ggccagtccc ctaagctgct gatctacggc gccagcaacc ggtacaccgg cgtgcccgat 240
agattctccg gctctggctc tggcaccgac ttaccctga caatcagctc tctgcaggcc 300

PN826736 (FP1628) Sequence Listing.TXT

gaggacgtgg ccgtgtacga ctgcctgcag tacaagtaca acccctacac cttcggccag	360
ggcacaaagg tggaaatcaa gcggaccgtg gccgctccct ccgtgtttat cttcccaccc	420
tccgacgagc agctgaagtc cggcacagct tccgtcgtgt gcctgctgaa caacttctac	480
ccccgcgagg ccaaggtgca gtggaaggtg gacaacgccc tgcagtccgg caactcccag	540
gaatccgtga ccgagcagga ctccaaggac agcacctact ccctgtcctc caccctgacc	600
ctgtccaagg ccgactacga gaagcacaag gtgtacgcct gcgaagtgc ccaccagggc	660
ctgtctagcc ccgtgaccaa gtctttcaac cggggcgagt gc	702

<210> 37
 <211> 234
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Humanized Antibody

<400> 37

Met Val Leu Gln Thr Gln Val Phe Ile Ser Leu Leu Leu Trp Ile Ser
 1 5 10 15

Gly Ala Tyr Gly Asn Ile Val Met Thr Gln Ser Pro Asp Ser Leu Ala
 20 25 30

Val Ser Leu Gly Glu Arg Ala Thr Ile Asn Cys Lys Ala Ser Gln Asn
 35 40 45

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

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

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
 85 90 95

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Asp Cys Leu Gln Tyr Lys
 100 105 110

Tyr Asn Pro Tyr Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 115 120 125

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

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
 145 150 155 160

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
 165 170 175

PN826736 (FP1628) Sequence Listing.TXT

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
180 185 190

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
195 200 205

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
210 215 220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230

<210> 38
<211> 702
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized Antibody

<400> 38
atggtgctgc agaccaggt gttcatctcc ctgctgctgt ggatctccgg cgcctacggc 60
aacatcgtga tgaccagtc cccctccagc ctgtctgctt ccgtgggcga cagagtgacc 120
atcaactgca aggcctccca gaacgtgggc accaacgtgg actggtatca gcagaagccc 180
ggcaagtccc ccaagctgct gatctacggc gccagcaaca gatacaccgg cgtgcccgcac 240
agattctccg gctctggctc tggcaccgac tttaccctga ccatcagctc cctgcagccc 300
gaggacttcg ccacctacga ctgcctgcag tacaagtaca acccctacac cttcggccag 360
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tccgacgagc agctgaagtc cggcacagct tctgtcgtgt gcctgctgaa caacttctac 480
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gaatccgtga ccgagcagga ctccaaggac agcacctact ccctgtcctc caccctgacc 600
ctgtccaagg ccgactacga gaagcacaag gtgtacgcct gcgaagtgac ccaccagggc 660
ctgtctagcc ccgtgaccaa gtctttcaac cggggcgagt gc 702

<210> 39
<211> 234
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized Antibody

<400> 39

Met Val Leu Gln Thr Gln Val Phe Ile Ser Leu Leu Leu Trp Ile Ser
1 5 10 15

Gly Ala Tyr Gly Asn Ile Val Met Thr Gln Ser Pro Ser Ser Leu Ser
20 25 30

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Ala Ser Val Gly Asp Arg Val Thr Ile Asn Cys Lys Ala Ser Gln Asn
35 40 45

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

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

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
85 90 95

Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Asp Cys Leu Gln Tyr Lys
100 105 110

Tyr Asn Pro Tyr Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
115 120 125

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

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
145 150 155 160

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
165 170 175

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
180 185 190

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
195 200 205

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
210 215 220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230

<210> 40
<211> 1407
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized Antibody

<400> 40
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gtgcagctgg tggaatccgg cggaggcctc gtgaagcctt cccagaccct gtctctgacc 120
tgcaccgtgt ccggcttctc cctgacctcc ttccacgtgt catgggtgcg acagcctcca 180

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ggcaagggcc tggaatggat cgccaccatc tcctctggcg gcggaacctt ctacaacccc      240
agcctgaagt ccagagtgcac catctcccgg gacacctcca agaaccaggt gtccctgaag      300
ctgtcctccg tgaccgccgc tgataccgcc gtgtactact gcgccagaat ctccggctgg      360
ggccactact acgtgatgga cgtgtggggc cagggcaccc tcgtgacagt gtcctctgct      420
tccaccaagg gcccctccgt gtttcctctg gccccttcca gcaagtctac ctccggcgga      480
acagccgctc tgggctgcct cgtgaaagac tacttccccg agcccgtagc cgtgtcttgg      540
aactctggcg ctctgaccag cggcgtgcac acctttccag ctgtgctgca gtcctccggc      600
ctgtactccc tgtccagcgt cgtgactgtg ccctccagct ctctgggcac ccagacctac      660
atctgcaacg tgaaccacaa gccctccaac accaagggtg acaagcgggt ggaacccaag      720
tcctgcgaca agaccacac ctgtccccct tgtcctgccc ctgaactgct gggcggacct      780
tccgtgttcc tggtcccccc aaagcccaag gacaccctga tgatctcccg gacccccgaa      840
gtgacctgcg tgggtggtgga tgtgtccac gaggaccctg aagtgaagtt caattggtac      900
gtggacggcg tggaagtgca caacgccaag accaagccta gagaggaaca gtacaactcc      960
acctaccggg tgggtgtccgt gctgaccgtg ctgcaccagg attggctgaa cggcaaagag     1020
tacaagtgca aggtgtccaa caaggccctg cctgccccca tcgaaaagac catcagcaag     1080
gccaagggcc agccccggga accccagggtg tacacactgc cccctagccg ggaagagatg     1140
acaaaaaatc aggtgtcact gacctgtctc gtgaagggct tctaccctc cgatatcgcc     1200
gtggaatggg agtccaacgg ccagcctgag aacaactaca agaccacccc ccctgtgctg     1260
gactccgacg gctcattctt cctgtacagc aagctgacag tggacaagtc ccggtggcag     1320
cagggcaacg tgttctcctg ctccgtgatg cacgaggccc tgcacaacca ctacaccag     1380
aagtcctgtt ccctgagccc cgcaaaa                                     1407

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<210> 41
 <211> 469
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Humanized Antibody

<400> 41

Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
 1 5 10 15

Val Leu Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys
 20 25 30

Pro Ser Gln Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe Ser Leu
 35 40 45

Thr Ser Phe His Val Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu
 50 55 60

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

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Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
340 345 350

Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
355 360 365

Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
370 375 380

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
385 390 395 400

Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
405 410 415

Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
420 425 430

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
435 440 445

Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
450 455 460

Leu Ser Pro Gly Lys
465

<210> 42
<211> 702
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized Antibody

<400> 42
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gacatccaga tgaccagag cccttcacg ctgtccgctt ccgtgggcga cagagtgacc 120
atcacctgtc aggcctccga ggacatctac tccggcctgg cctggtatca gcagaagccc 180
ggcaagtccc ccaagctgct gatctacggc gctggatctc tgcaggacgg cgtgccctct 240
agattctccg gctctggatc cggcaccac tacaccctga ccatctccag cctgcagccc 300
gaggacttcg ctacctactt ctgtcagcaa ggcctgaagt tccccctgac cttcggccag 360
ggcaccaagg tggaaatcaa gcggaccgtg gccgtccct ccgtgtttat cttcccaccc 420
tccgacgagc agctgaagtc cggcacagct tctgtcgtgt gcctgctgaa caacttctac 480
ccccgcgagg ccaaggtgca gtggaagggtg gacaacgccc tgcagtccgg caactcccag 540
gaatccgtga ccgagcagga ctccaaggac agcacctact ccctgtcctc taccctgacc 600
ctgtccaagg ccgactacga gaagcacaag gtgtacgcct gcgaagtgac ccaccagggc 660

ctgtctagcc ccgtgaccaa gtctttcaac cggggcgagt gc

702

<210> 43
 <211> 234
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Humanized Antibody

<400> 43

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

PN826736 (FP1628) Sequence Listing.TXT

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230

<210> 44
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer F

<400> 44
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<210> 45
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer R

<400> 45
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