# FIG. 1A

**Humanized 2A4 IgG1 Heavy Chain Variant 2 (G1m3 allotype):**

```
      EVQLVESGGG LVQPGGSLRL SCAASGFTFN TYAMYWIRQA PGKGLEWVAR
 51   IRSKSNNYAI YYADSVKDRF TISRDDSKNS LYLQMNSLKT EDTAVYYCAR
101   PYSDSFAYWG QGTLVTVSSA STKGPSVFPL APSSKSTSGG TAALGCLVKD
151   YFPEPVTVSW NSGALTSGVH TFPAVLQSSG LYSLSSVVTV PSSSLGTQTY
201   ICNVNHKPSN TKVDKRVEPK SCDKTHTCPP CPAPELLGGP SVFLFPPKPK
251   DTLMISRTPE VTCVVVDVSH EDPEVKFNWY VDGVEVHNAK TKPREEQYNS
301   TYRVVSVLTV LHQDWLNGKE YKCKVSNKAL PAPIEKTISK AKGQPREPQV
351   YTLPPSREEM TKNQVSLTCL VKGFYPSDIA VEWESNGQPE NNYKTTPPVL
401   DSDGSFFLYS KLTVDKSRWQ QGNVFSCSVM HEALHNHYTQ KSLSLSPGK
(SEQ ID NO: 15)
```

**Humanized 2A4 Kappa Light Chain:**

```
      DVVMTQSPLS LPVTPGEPAS ISCRSSQSLV HSTGNTYLHW YLQKPGQSPQ
 51   LLIYKVSNRF SGVPDRFSGS GSGTDFTLKI SRVEAEDVGV YYCSQSTHVP
101   FTFGGGTKVE IKRTVAAPSV FIFPPSDEQL KSGTASVVCL LNNFYPREAK
151   VQWKVDNALQ SGNSQESVTE QDSKDSTYSL SSTLTLSKAD YEKHKVYACE
201   VTHQGLSSPV TKSFNRGEC
(SEQ ID NO: 13)
```

# FIG. 1B

**Humanized 2A4 IgG1 heavy chain variant 1 (G1m1 allotype)**

```
  1  EVQLVESGGG LVQPGGSLRL SCAASGFTFN TYAMYWIRQA PGKGLEWVAR
 51  IRSKSNNYAI YYADSVKDRF TISRDDSKNS LYLQMNSLKT EDTAVYYCAR
101  PYSDSFAYWG QGTLVTVSSA STKGPSVFPL APSSKSTSGG TAALGCLVKD
151  YFPEPVTVSW NSGALTSGVH TFPAVLQSSG LYSLSSVVTV PSSSLGTQTY
201  ICNVNHKPSN TKVDKRVEPK SCDKTHTCPP CPAPELLGGP SVFLFPPKPK
251  DTLMISRTPE VTCVVVDVSH EDPEVKFNWY VDGVEVHNAK TKPREEQYNS
301  TYRVVSVLTV LHQDWLNGKE YKCKVSNKAL PAPIEKTISK AKGQPREPQV
351  YTLPPSRDEL TKNQVSLTCL VKGFYPSDIA VEWESNGQPE NNYKTTPPVL
401  DSDGSFFLYS KLTVDKSRWQ QGNVFSCSVM HEALHNHYTQ KSLSLSPGK
(SEQ ID NO: 14)
```

**Humanized 2A4 IgG2 heavy chain**

```
  1  EVQLVESGGG LVQPGGSLRL SCAASGFTFN TYAMYWIRQA PGKGLEWVAR
 51  IRSKSNNYAI YYADSVKDRF TISRDDSKNS LYLQMNSLKT EDTAVYYCAR
101  PYSDSFAYWG QGTLVTVSSA STKGPSVFPL APCSRSTSES TAALGCLVKD
151  YFPEPVTVSW NSGALTSGVH TFPAVLQSSG LYSLSSVVTV PSSNFGTQTY
201  TCNVDHKPSN TKVDKTVERK CCVECPPCPA PPVAGPSVFL FPPKPKDTLM
251  ISRTPEVTCV VVDVSHEDPE VQFNWYVDGV EVHNAKTKPR EEQFNSTFRV
301  VSVLTVVHQD WLNGKEYKCK VSNKGLPAPI EKTISKTKGQ PREPQVYTLP
351  PSREEMTKNQ VSLTCLVKGF YPSDIAVEWE SNGQPENNYK TTPPMLDSDG
401  SFFLYSKLTV DKSRWQQGNV FSCSVMHEAL HNHYTQKSLS LSPGK
(SEQ ID NO: 16)
```

# FIG. 2

**Murine VL 2A4**

MKLPVRLLVLMFWIPASSSDVVMTQTPLSLPVSLGDQASISCRSSQSLVHSTGNTYLHWYLQKPGQSPKLLIYKVSNRFSGVPDRFSGS
GSGTYFTLKISRVEAEDLGVYFCSQSTHVPFTFGGGTKLEIK (SEQ ID NO: 1)

**Murine VL7D8**

MKLPVRLLVLMFWIPASSSDVVMTQTPLSLPVSLGDQASISCRSSLSLVHSTGNTYLHWYLQKPGQSPKLLIYKVSNRFSGVPDRFSGS
GSGTYFTLKISRVEAEDLGVYFCSQSTHVPFTFGGGTKLEIK (SEQ ID NO: 2)

**Murine VH (2A4 and 7D8)**

MVLGLKWVFFVVFYQGVHCEVQLVESGGRLVQPKGSLKLSCAASGFTFNTYAMYWIRQAPGKGLEWVARIRSKSNNYAIYYADSVKDRF
TIFRDDSQSMLYLQMNNLKTEDTAMYYCVRPYSDSFAYWGQGTLVTVSA (SEQ ID NO: 3)

# FIG. 3

**Hum2A4 VL Version 3**

DVVMTQSPLSLPVTPGEPASISCRSSQSLVHSTGNTYLHWYLQKPGQSPQLLIYKVSNRFSGVPDRFSGSGSGTDFTLKISRVEAEDVG
VYYCSQSTHVPFTFGGGTKVEIK (SEQ ID NO: 4)

**Hum2A4/7D8/8G9 VH Version 3**

EVQLVESGGGLVQPGGSLRLSCAASGFTFNTYAMYWiRQAPGKGLEWVaRIRSKSNNYAIYYADSVKDRFTISRDDSKNSLYLQMNSLK
TEDTAVYYCARPYSDSFAYWGQGTLVTVSS (SEQ ID NO: 5)

# FIG. 4A

**Hu2A4 VH3VL3 hcg1,k cDNA sequence / Heavy Chain**

```
ATGGAGTTCGGCCTGTCCTGGCTGTTCCTGGTGGCCATCCTGAAGGGCGTGCAGTGCGAG   60
GTGCAGCTGGTCGAGTCCGGCGGAGGCCTGGTGCAGCCTGGCGGCTCCCTGAGACTGTCC  120
TGCGCCGCCTCCGGCTTCACCTTCAACACCTACGCCATGTACTGGATCAGGCAGGCTCCT  180
GGCAAGGGACTGGAGTGGGTGGCCCGGATCAGGTCCAAGTCCAACAACTACGCTATCTAC  240
TACGCCGACTCCGTGAAGGACCGGTTCACCATCTCCCGGGACGACTCCAAGAACTCCCTG  300
TATCTGCAGATGAACTCCCTGAAAACCGAGGACACCGCCGTGTACTACTGCGCTCGGCCT  360
TACTCCGACTCCTTCGCCTACTGGGGCCAGGGCACCCTGGTGACCGTGTCCAGCGCCTCC  420
ACCAAGGGCCCATCGGTCTTCCCCCTGGCACCCTCCTCCAAGAGCACCTCTGGGGGCACA  480
GCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGGTGACGGTGTCGTGGAAC  540
TCAGGCGCCCTGACCAGCGGCGTGCACACCTTCCCGGCTGTCCTACAGTCCTCAGGACTC  600
TACTCCCTCAGCAGCGTGGTGACCGTGCCCTCCAGCAGCTTGGGCACCCAGACCTACATC  660
TGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGACAAGAGAGTTGAGCCCAAATCT  720
TGTGACAAAACTCACACATGCCCACCGTGCCCAGCACCTGAACTCCTGGGGGGACCGTCA  780
GTCTTCCTCTTCCCCCCAAAACCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTC  840
ACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAGGTCAAGTTCAACTGGTACGTG  900
GACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCGCGGGAGGAGCAGTACAACAGCACG  960
TACCGTGTGGTCAGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAATGGCAAGGAGTAC 1020
AAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAGCC 1080
AAAGGGCAGCCCCGAGAACCACAGGTGTACACGCTGCCCCCATCCCGGGAGGAGATGACC 1140
AAGAACCAGGTCAGCCTGACCTGCCTGGTCAAAGGCTTCTATCCCAGCGACATCGCCGTG 1200
GAGTGGGAGAGCAATGGGCAGCCGGAGAACAACTACAAGACCACGCCTCCCGTGCTGGAC 1260
TCCGACGGCTCCTTCTTCCTCTATAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAG 1320
GGGAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAG 1380
AGCCTCTCCCTGTCCCCGGGTAAATGA                                    1407
```

(SEQ ID NO: 23)

# FIG. 4B

**Hu2A4 VH3VL3 hcg1,k cDNA sequence / Light Chain**

```
ATGGACATGCGGGTGCCCGCACAGCTGCTGGGCCTGCTGATGCTGTGGGTGTCCGGCTCC 60
TCCGGCGACGTGGTGATGACCCAGTCCCCTCTGTCCCTGCCTGTGACCCCTGGCGAGCCT 120
GCCTCCATCTCCTGCCGGTCCTCCCAGTCCCTGGTGCACTCCACCGGCAACACCTATCTG 180
CACTGGTATCTGCAGAAGCCTGGCCAGTCTCCTCAGCTGCTGATCTACAAGGTGTCCAAC 240
CGGTTCTCCGGCGTGCCTGACCGGTTCTCTGGCTCCGGCTCCGGCACCGACTTCACCCTG 300
AAGATCTCCCGGGTGGAGGCCGAGGACGTGGGCGTGTACTACTGCTCCCAGTCCACCCAC 360
GTGCCTTTCACCTTCGGCGGAGGCACCAAGGTGGAGATCAAGCGAACTGTGGCTGCACCA 420
TCTGTCTTCATCTTCCCGCCATCTGATGAGCAGTTGAAATCTGGAACTGCCTCTGTTGTG 480
TGCCTGCTGAATAACTTCTATCCCAGAGAGGCCAAAGTACAGTGGAAGGTGGATAACGCC 540
CTCCAATCGGGTAACTCCCAGGAGAGTGTCACAGAGCAGGACAGCAAGGACAGCACCTAC 600
AGCCTCAGCAGCACCCTGACGCTGAGCAAAGCAGACTACGAGAAACACAAAGTCTACGCC 660
TGCGAAGTCACCCATCAGGGCCTGAGCTCGCCCGTCACAAAGAGCTTCAACAGGGGAGAG 720
TGTTAG                                                        726
(SEQ ID NO: 20)
```