[0054] The nucleic acid sequence for the CH1 region is provided below:

CTAGCACCAAGGGCCCATCGGTCTTCCCCCTGGCACCCTCCTCCAAGAGCACCTCTGG
GGGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGGTGACGGTG
TCGTGGAACTCAGGCGCCCTGACCAGCGGCGTGCACACCTTCCCGGCTGTCCTACAGT
CCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCCCTCCAGCAGCTTGGGCAC
CCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGACAAGAAA
(SEQ ID NO: 10)

[0055] The mAb11 antibody described herein may comprise a mutation specifically in the CH2 region that reduces or inhibits binding to the Fcγ receptor. Preferably, the mutation does not affect binding to FcRn receptor. Preferably, the mAb11 antibody contains two mutations in the CH2 region, such that two adjacent leucines are mutated to alanines described below. For example, the mutations are located at amino acid positions 4 and 5 of the CH2 region. Preferably, the mutations are to alanines.

[0056] The amino acid sequence for the CH2 region of the wild-type mAb11 antibody is provided below:

APELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAK
TKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAK(SEQ
ID NO: 11)

[0057] The nucleic acid sequence for the CH2 region of the wild-type mAb11 antibody is provided below:

GCACCTGAACTCCTGGGGGGACCGTCAGTCTTCCTCTTCCCCCCAAAACCCAAGGACA
CCCTCATGATCTCCCGGACCCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCCACGA
AGACCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAG
ACAAAGCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACCG
TCCTGCACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGC
CCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAGCCAAA (SEQ ID NO: 12)

[0058] The amino acid sequence for the CH2 region of the mutant mAb11 antibody is provided below (the LALA mutation is underlined):

APE<u>AA</u>GGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAK
TKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAK (SEQ
ID NO: 13)

[0059] The nucleic acid sequence for the CH2 region of the mutant mAb11 antibody is provided below (the LALA mutation is underlined):

GCACCTGAA<u>GCCGCC</u>GGGGGACCGTCAGTCTTCCTCTTCCCCCCAAAACCCAAGGACA
CCCTCATGATCTCCCGGACCCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCCACGA
AGACCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAG
ACAAAGCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACCG
TCCTGCACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGC
CCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAGCCAAA (SEQ ID NO: 14)