CLAIMS

1. A human antibody constant region of any one of:
(a) a human antibody constant region that comprises deletions of both Gly at position 329 (position 446 in the EU numbering system) and Lys at position 330 (position 447 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 1;
(b) a human antibody constant region that comprises deletions of both Gly at position 325 (position 446 in the EU numbering system) and Lys at position 326 (position 447 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2; and
(c) a human antibody constant region that comprises deletions of both Gly at position 326 (position 446 in the EU numbering system) and Lys at position 327 (position 447 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 3.

2. An IgG2 constant region in which the amino acids at positions 209 (position 330 in the EU numbering system), 210 (position 331 in the EU numbering system), and 218 (position 339 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

3. An IgG2 constant region in which the amino acid at position 276 (position 397 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 has been substituted with another amino acid.

4. An IgG2 constant region in which the amino acids at positions 14 (position 131 in the EU numbering system), 102 (position 219 in the EU numbering system), and/or 16 (position 133 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with another amino acid.

5. The IgG2 constant region of claim 4, in which the amino acids at positions 20 (position 137 in the EU numbering system) and 21 (position 138 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

6. An IgG2 constant region in which His at position 147 (position 268 in the EU numbering system), Arg at position 234 (position 355 in the EU numbering system), and/or Gln at position 298 (position 419 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

7. An IgG2 constant region in which the amino acids at positions 209 (position 330 in the EU numbering system), 210 (position 331 in the EU numbering system), 218 (position 339 in the EU numbering system), 276 (position 397 in the EU numbering system), 14 (position 131 in the EU numbering system), 16 (position 133 in the EU numbering system), 102 (position 219 in the EU numbering system), 20 (position 137 in the EU numbering system), and 21 (position 138 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

8. The IgG2 constant region of claim 7, which further comprises deletions of both Gly at position 325 (position 446 in the EU numbering system) and Lys at position 326 (position 447 in the EU numbering system).

9. An IgG2 constant region in which the amino acids at positions 276 (position 397 in the EU numbering system), 14 (position 131 in the EU numbering system), 16 (position 133 in the EU numbering system), 102 (position 219 in the EU numbering system), 20 (position 137 in the EU numbering system), and 21 (position 138 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

10. The IgG2 constant region of claim 9, which further comprises deletions of both Gly at position 325 (position 446 in the EU numbering system) and Lys at position 326 (position 447 in the EU numbering system).

11. An IgG2 constant region in which Cys at position 14 (position 131 in the EU numbering system), Arg at position 16 (position 133 in the EU numbering system), Cys at position 102 (position 219 in the EU numbering system), Glu at position 20 (position 137 in the EU numbering system), Ser at position 21 (position 138 in the EU numbering system), His at position 147 (position 268 in the EU numbering system), Arg at position 234 (position 355 in the EU numbering system), and Gln at position 298 (position 419 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

12. The IgG2 constant region of claim 11, which further comprises deletions of both Gly at position 325 (position 446 in the EU numbering system) and Lys at position 326 (position 447 in the EU numbering system).

13. An IgG2 constant region in which Cys at position 14 (position 131 in the EU numbering

system), Arg at position 16 (position 133 in the EU numbering system), Cys at position 102 (position 219 in the EU numbering system), Glu at position 20 (position 137 in the EU numbering system), Ser at position 21 (position 138 in the EU numbering system), His at position 147 (position 268 in the EU numbering system), Arg at position 234 (position 355 in the EU numbering system), Gln at position 298 (position 419 in the EU numbering system), and Asn at position 313 (position 434 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

14. The IgG2 constant region of claim 13, which further comprises deletions of both Gly at position 325 (position 446 in the EU numbering system) and Lys at position 326 (position 447 in the EU numbering system).

15. An IgG4 constant region in which the amino acid at position 289 (position 409 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 3 has been substituted with another amino acid.

16. An IgG4 constant region in which the amino acids at position 289 (position 409 in the EU numbering system), positions 14, 16, 20, 21, 97, 100, 102, 103, 104, and 105 (positions 131, 133, 137, 138, 214, 217, 219, 220, 221, and 222 in the EU numbering system, respectively), and positions 113, 114, and 115 (positions 233, 234, and 235 in the EU numbering system, respectively), have been substituted with other amino acids, and the amino acid at position 116 (position 236 in the EU numbering system) has been deleted from the amino acid sequence of SEQ ID NO: 3.

17. The IgG4 constant region of claim 16, which further comprises deletions of both Gly at position 326 (position 446 in the EU numbering system) and Lys at position 327 (position 447 in the EU numbering system).

18. An IgG2 constant region in which Ala at position 209 (position 330 in the EU numbering system), Pro at position 210 (position 331 in the EU numbering system), Thr at position 218 (position 339 in the EU numbering system), Cys at position 14 (position 131 in the EU numbering system), Arg at position 16 (position 133 in the EU numbering system), Cys at position 102 (position 219 in the EU numbering system), Glu at position 20 (position 137 in the EU numbering system), and Ser at position 21 (position 138 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

19. The IgG2 constant region of claim 18, which further comprises deletions of both Gly at position 325 (position 446 in the EU numbering system) and Lys at position 326 (position 447 in the EU numbering system).

20. An IgG2 constant region in which Cys at position 14 (position 131 in the EU numbering system), Arg at position 16 (position 133 in the EU numbering system), Cys at position 102 (position 219 in the EU numbering system), Glu at position 20 (position 137 in the EU numbering system), and Ser at position 21 (position 138 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

21. The IgG2 constant region of claim 20, which further comprises deletions of both Gly at position 325 (position 446 in the EU numbering system) and Lys at position 326 (position 447 in the EU numbering system).

22. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 5.

23. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 7.

24. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 9.

25. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 35.

26. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 36.

27. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 37.

28. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 43.

29. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 57 (M40ΔGK).

30. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 55 (M86).

31. An antibody comprising the constant region of any one of claims 1 to 30.

32. An anti-IL-6 receptor antibody comprising the constant region of any one of claims 1 to 30.

33. A pharmaceutical composition comprising the constant region of any one of claims 1 to 30.

CLAIMS

1. An IgG2 constant region in which His at position 147 (position 268 in the EU numbering system), Arg at position 234 (position 355 in the EU numbering system), and/or Gln at position 298 (position 419 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

2. An IgG2 constant region in which Cys at position 14 (position 131 in the EU numbering system), Arg at position 16 (position 133 in the EU numbering system), Cys at position 102 (position 219 in the EU numbering system), Glu at position 20 (position 137 in the EU numbering system), Ser at position 21 (position 138 in the EU numbering system), His at position 147 (position 268 in the EU numbering system), Arg at position 234 (position 355 in the EU numbering system), and Gln at position 298 (position 419 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

3. An IgG2 constant region in which Cys at position 14 (position 131 in the EU numbering system), Arg at position 16 (position 133 in the EU numbering system), Cys at position 102 (position 219 in the EU numbering system), Glu at position 20 (position 137 in the EU numbering system), Ser at position 21 (position 138 in the EU numbering system), His at position 147 (position 268 in the EU numbering system), Arg at position 234 (position 355 in the EU numbering system), Gln at position 298 (position 419 in the EU numbering system), and Asn at position 313 (position 434 in the EU numbering system) in the amino acid sequence of SEQ ID NO: 2 have been substituted with other amino acids.

4. A human antibody constant region comprising the amino acid sequence of SEQ ID NO: 36.

5. An antibody comprising the constant region of any one of claims 1 to 4.

6. An anti-IL-6 receptor antibody comprising the constant region of any one of claims 1 to 4.

7. A pharmaceutical composition comprising the constant region of any one of claims 5 and 6.