CLAIMS

1. A humanized antibody or fragment thereof capable of binding to interleukin-10 (IL-10), wherein said antibody or fragment thereof comprises a variable light chain comprising the amino acid sequences of CDR1, CDR2 and CDR3 of the murine antibody B-N10 variable light chain, and a variable heavy chain comprising the amino acid sequences of CDR1, CDR2 and CDR3 of the murine B-N10 variable heavy chain, wherein the variable heavy chain further comprises the residues Asn73 and Ser74 of SEQ ID NO: 55 or the corresponding position of the variable heavy chain.

2. The humanized antibody or fragment thereof according to claim 1 wherein the variable light chain comprises an amino acid sequence with at least 80% sequence identity to the murine antibody B-N10 variable light chain and/or the variable heavy chain comprises an amino acid sequence with at least 80% sequence identity to the murine antibody B-N10 variable heavy chain.

3. A humanized antibody or fragment thereof according to claim 1 or claim 2 wherein: the amino acid sequence of the variable light chain is selected from: SEQ ID NO: 18, SEQ ID NO: 19, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 23, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, SEQ ID NO: 27, SEQ ID NO: 28 and SEQ ID NO: 29; and

the amino acid sequence of the variable heavy chain is selected from SEQ ID NO: 30, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 41, SEQ ID NO: 42, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO:47, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO: 52, SEQ ID NO: 55, SEQ ID NO: 56, SEQ ID NO:57 and SEQ ID NO: 58.

4. A humanized antibody or fragment thereof according to claim 3 wherein the amino acid sequence of the variable light chain is selected from SEQ ID NO: 24 and SEQ ID NO: 25, and the amino acid sequence of the variable heavy chain is selected from SEQ ID NO: 30, SEQ ID NO: 38, SEQ ID NO: 42, SEQ ID NO: 47, SEQ ID NO:49, SEQ ID NO: 55 and SEQ ID NO: 57.

5. A humanized antibody or fragment thereof according to claim 4 wherein: (i) the amino acid sequence of the variable light chain is SEQ ID NO: 24 and the amino acid sequence of the variable heavy chain is SEQ ID NO: 49; (ii) the amino acid sequence of the variable light chain is SEQ ID NO: 24 and the amino acid sequence of the variable heavy chain is SEQ ID NO: 55; or (iii) the amino acid sequence of the variable light chain is SEQ ID NO: 25 and the amino acid sequence of the variable heavy chain is SEQ ID NO: 49.

6. A humanized antibody according to claim 5 wherein the amino acid sequence of the variable light chain is sequence SEQ ID NO: 24 and the amino acid sequence of the variable heavy chain is SEQ ID NO: 55.

7. A humanized antibody or fragment thereof capable of binding to interleukin-10 (IL-10) wherein the antibody or fragment thereof comprises SEQ ID NO: 24 and SEQ ID NO: 55.

8. A humanized antibody according to any one of claims 1 to 7 wherein the antibody is a human IgG1 antibody.

9. A humanized antibody or fragment thereof according to any one of claims 1 to 8, wherein the humanized antibody or fragment thereof:
(i) binds to the same region of IL-10 as the IL-10 receptor α (IL-10Rα) and is not capable of binding IL-10 when the IL-10 is bound to the IL-10 receptor; and
(ii) binds to IL-10 in homodimeric form by binding a discontinuous epitope comprising residues of both monomers.

10. A humanized antibody or fragment thereof according to any one of claims 1 to 9 wherein the antibody or fragment thereof does not bind to the same region of IL-10 as the IL-10 receptor β (IL-10Rβ).

11. A humanized antibody or fragment thereof according to any one of claims 1 to 10 wherein said antibody or fragment thereof binds to a discontinuous epitope comprising residues of helix A of one IL-10 monomer and residues of helix F' of the other IL-10 monomer.

12. A humanized antibody or fragment thereof according to claim 9 or claim 11 wherein the residues of the discontinuous epitope are within the first 55 amino acids of one monomer and within the last 20 amino acids of the other monomer.

13. A humanized antibody or fragment thereof according to claim 12 wherein the residues of the discontinuous epitope are within the amino acids of 20 to 55 of one monomer and within the last 20 amino acids of the other monomer.

14. A humanized antibody or fragment thereof according to any one of claims 1 to 13, wherein said antibody or fragment thereof does not induce antibody-dependent cell-mediated cytotoxicity and/or complement-dependent cytotoxicity.

15. A humanized antibody or fragment thereof according to any one of claims 1 to 14, wherein said antibody or fragment thereof is capable of preventing IL-10 signaling through the IL-10α receptor.

16. A humanized antibody or fragment thereof according to any one of claims 1 to 15, wherein said antibody or fragment thereof is not capable of binding to IL-10R expressing cells.

17. A nucleic acid encoding the antibody or fragment thereof of any one of claims 1 to 16.

18. A vector comprising a nucleic acid according to claim 17.

19. A host cell comprising a nucleic acid according to claim 17 or a vector according to claim 18.

20. A method for the production of an antibody or a fragment thereof according to any one of claims 1 to 16 comprising a step of culturing the host cell according to claim 19 in a culture medium under conditions allowing the expression of the antibody or fragment thereof and separating the antibody or fragment from the culture medium.

21. A pharmaceutical composition comprising the antibody or fragment thereof according to any one of claims 1 to 16, and further comprising a pharmaceutically acceptable carrier or diluent.

22. An antibody or fragment thereof according to any one of claims 1 to 16 for use in medicine.

23. An antibody or fragment thereof according to any one of claims 1 to 16 for use in the treatment of SLE.

24. Use of an antibody or fragment thereof according to any one of claims 1 to 16 in the manufacture of a medicament for treating or preventing a medical condition in a subject, wherein the medical condition is mediated by an elevated level or activity of IL-10.

25. Use of an antibody or fragment thereof according to any one of claims 1 to 16 for the manufacture of a medicament for the treatment of SLE.

26. A labeled humanized antibody or fragment thereof comprising the antibody or fragment thereof according to any one claims 1 to 16 and a label.

27. An in vitro method for neutralizing IL-10 in a sample, comprising a step of contacting the sample with an antibody or fragment thereof according to any one of claims 1 to 16 so as to bind the antibody or fragment thereof to the IL-10.

28. An in vitro method for detecting the presence of IL-10 in a sample comprising a step of contacting an unlabeled or labeled antibody or fragment thereof according to any one of claims 1 to 16 or claim 26 with the sample, washing to remove antibody or antibody fragments which are not bound to the sample, and detecting the presence of the antibody or fragment thereof or the label in the sample.

29. A method of diagnosing SLE in an individual comprising: (a) providing a plasma sample taken from an individual; (b) contacting the sample with the antibody or fragment thereof according to any one of claims 1 to 16; and (c) detecting the presence of IL-10.

30. A method according to claim 29 wherein step (c) comprises determining the amount of IL-10 present in the sample.