rheumatoid arthritis affect a large percentage of the population (for example, rheumatoid arthritis affects approximately 1% of the adult population worldwide), there is a need to provide alternative biologics for the treatment of immune-mediated diseases which overcome, or at least ameliorate, one or more of the disadvantages described above.

SUMMARY OF THE INVENTION

[8] In a first aspect, the present disclosure refers to use of an isolated antibody or an antigen-binding fragment thereof, wherein the isolated antibody or antigen-binding fragment thereof is capable of binding to a muramyl peptide selected from the group consisting of N-acetylmuramyl-L-alanyl-D-isoglutamine, muramyl-L-alanyl-D-isoglutamine, N-acetylmuramyl-L-alanyl-D-glutamate, and muramyl-L-alanyl-D-glutamate, in the manufacture of a medicament for prophylactically or therapeutically treating rheumatoid arthritis, wherein the medicament is to be administered with etanercept; wherein said isolated antibody or antigen-binding fragment thereof comprises a heavy chain variable domain comprising the amino acid sequence as set forth in SEQ ID NO: 3, and a light chain variable domain comprising the amino acid sequence as set forth in SEQ ID NO: 4.

[9] Disclosed is an isolated antibody or an antigen-binding fragment thereof as defined in the first aspect, for use in the prophylactic or therapeutic treatment of an autoimmune or inflammatory disease.

[10] Also disclosed is a method of prophylactically or therapeutically treating an autoimmune or inflammatory disease comprising administering an isolated antibody or an antigen-binding fragment thereof as defined in the first aspect.

[11] In a second aspect, the present disclosure refers to a composition comprising an isolated antibody or an antigen-binding fragment thereof as defined in the first aspect, etanercept, and optionally a pharmaceutically acceptable carrier.

[12] Disclosed is a method of prophylactically or therapeutically treating an autoimmune or inflammatory disease comprising administering a composition of the second aspect.

[13] Also disclosed is a composition of the second aspect for use in the prophylactic or therapeutic treatment of an autoimmune or inflammatory disease.

[14] In a third aspect, the present disclosure refers to use of the composition of the second aspect in the manufacture of a medicament for prophylactically or therapeutically treating rheumatoid arthritis.

BRIEF DESCRIPTION OF THE DRAWINGS

Claims

1. Use of an isolated antibody or an antigen-binding fragment thereof, wherein said isolated antibody or antigen-binding fragment thereof is capable of binding to a muramyl peptide selected from the group consisting of N-acetylmuramyl-L-alanyl-D-isoglutamine, muramyl-L-alanyl-D-isoglutamine, N-acetylmuramyl-L-alanyl-D-glutamate, and muramyl-L-alanyl-D-glutamate, in the manufacture of a medicament for prophylactically or therapeutically treating rheumatoid arthritis, wherein the medicament is to be administered with etanercept; wherein said isolated antibody or antigen-binding fragment thereof comprises a heavy chain variable domain comprising the amino acid sequence as set forth in SEQ ID NO: 3, and a light chain variable domain comprising the amino acid sequence as set forth in SEQ ID NO: 4.

2. The use according to claim 1, wherein said muramyl peptide is part of a peptidoglycan or fragment thereof.

3. The use according to claim 1 or 2, wherein said isolated antibody or antigen-binding fragment thereof comprises a heavy chain encoded by the nucleotide sequence of SEQ ID NO: 1.

4. The use according to any one of claims 1 to 3, wherein said isolated antibody or antigen-binding fragment thereof comprises a light chain encoded by the nucleotide sequence of SEQ ID NO: 2.

5. The use according to any one of claims 1 to 4, wherein said isolated antibody or antigen-binding fragment thereof comprises a heavy chain encoded by the nucleotide sequence of SEQ ID NO: 1 and a light chain encoded by the nucleotide sequence of SEQ ID NO: 2.

6. The use according to any one of claims 1 to 5, wherein said isolated antibody or antigen binding fragment thereof is monoclonal.

7. The use according to claim 6, wherein said monoclonal antibody is of the subtype IgG1.

8. The use according to claim 6 or 7, wherein said monoclonal antibody is selected from the group consisting of a humanized antibody and a chimeric antibody.

9. The use according to any one of claims 1 to 8, wherein said antigen-binding fragment is selected from the group consisting of Fab, Fab', (Fab')2, Fv, sFV, and scFv.

10. The use according to any one of claims 1 to 9, wherein said isolated antibody or antigen-binding fragment binds to said muramyl peptide, with a Kd value selected from the group consisting of less than about 1 nM, less than about 900 pM, less than about 800 pM, less than about 700 pM, less than about 600 pM, less than about 500 pM, less than about 400 pM, less than about 300 pM, less than about 200 pM, less than about 100 pM, less than about 90 pM, less than about 80 pM, less than about 70 pM, less than about 60 pM, less than about 50 pM, less than about 40 pM, less than about 30 pM, less than about 20 pM, and less than about 10 pM.

11. A composition comprising an isolated antibody or an antigen-binding fragment thereof as defined in any one of claims 1 to 10, etanercept, and optionally a pharmaceutically acceptable carrier.

12. Use of the composition of claim 11 in the manufacture of a medicament for prophylactically or therapeutically treating rheumatoid arthritis.