Claims

1. Use of an IgG1 Fc multimer in the preparation of a medicament for the treatment of glomerulonephritis or anti-glomerular basement membrane (anti-GBM) disease in a subject, wherein the IgG1 Fc multimer lacks any mutation to increase binding affinity of the IgG1 Fc multimer to C1q, wherein the lacking mutation is at least one of S267E, H268F, S324T, N297A, T299A, P238D, E233P, G236R, L234V, E233P, L234A, L235A, P238D, D265A, D265W, N297A, N297Q, T299A, and L328F in an IgG1 Fc domain of the Fc multimer, wherein the residues of the IgG1 Fc domain are numbered according to the EU numbering system for IgG,

wherein the IgG1 Fc multimer is

(a) an IgG1 Fc hexamer comprising six IgG1 Fc fusion monomers, wherein each IgG1 Fc fusion monomer comprises two identical polypeptide chains, wherein each of the polypeptide chain comprises the amino acid sequence as shown in SEQ ID NO: 3; or

(b) an IgG1 Fc trimer comprising four polypeptide chains that form three Fc monomers, wherein the first polypeptide chain and the second polypeptide chain are identical, wherein the third polypeptide chain and the fourth polypeptide chain are identical, wherein the first, second, third and fourth polypeptide chains comprise amino acid sequences selected from the group consisting of:

(i) the first polypeptide chain and the second polypeptide chain each comprises the amino acid sequence SEQ ID NO:125, and the third polypeptide chain and the fourth polypeptide chain each comprises the amino acid sequence SEQ ID NO:124;

(ii) the first polypeptide chain and the second polypeptide chain each comprises the amino acid sequence SEQ ID NO:126, and the third polypeptide chain and the fourth polypeptide chain each comprises the amino acid sequence SEQ ID NO:122; and

(iii) the first polypeptide chain and the second polypeptide chain each comprises the amino acid sequence SEQ ID NO:107 or SEQ ID NO:108, and the third

polypeptide chain and the fourth polypeptide each comprises the amino acid sequence SEQ ID NO:113 or SEQ ID NO:114;

wherein the IgG1 Fc multimer is to be administered to the subject at a dose of 10 mg/kg body weight to 200 mg/kg body weight.

2. The use according to claim 1(a), wherein each polypeptide chain comprises an IgG1 Fc polypeptide and an Fc multimerization domain.

3. The use according to claim 2, wherein the Fc multimerization domain does not include an IgG2 hinge.

4. The use according to any one of claims 1-3, wherein the Fc multimer is not a stradomer.

5. The use according to claim 1(a), wherein the Fc multimer comprises six human IgG1 Fc fusion monomers, wherein each Fc fusion monomer comprises two human Fc fusion polypeptide chains and each Fc fusion polypeptide chain comprises a human IgG1 Fc polypeptide and a human IgM tailpiece.

6. The use of claim 5, wherein the IgM tailpiece in each Fc fusion polypeptide chain comprises 18 amino acids as shown in SEQ ID NO: 9, wherein the IgM tailpiece is fused to a C-terminus of a constant region of the IgG1 Fc polypeptide.

7. The use according to claim 5 or claim 6, wherein each IgG1 Fc polypeptide comprises a leucine to cysteine mutation at position 309 (according to EU numbering).

8. The use according to claim 1(b), wherein the first polypeptide chain has the formula A-L-B, wherein A comprises a first Fc polypeptide portion, L is a first linker, and B comprises a second Fc polypeptide portion; wherein the second polypeptide chain has the formula A'-L'-B', wherein A' comprises a third Fc polypeptide portion, L' is a second linker, B' comprises a fourth Fc polypeptide portion; wherein the third polypeptide chain comprises a fifth Fc polypeptide portion; wherein the fourth polypeptide chain comprises a sixth Fc polypeptide portion, wherein the first Fc polypeptide portion and the third Fc polypeptide portion form the first Fc monomer,

wherein the fifth Fc polypeptide portion and the second Fc polypeptide portion form the second Fc monomer, and wherein the sixth Fc polypeptide portion and fourth Fc polypeptide portion form the third Fc monomer.

9. The use according to any one of claims 1-8, wherein the Fc multimer inhibits complement-dependent cytotoxicity and/or antibody-dependent cellular cytotoxicity.

10. The use according to claim 1, wherein the IgG1 Fc multimer is to be administered to the subject at a dose of 50 mg/kg body weight.

11. The use according to claim 1(a), wherein the IgG1 Fc multimer is to be administered to the subject at a dose of 10 mg/kg, 20 mg/kg, 50 mg/kg, 100 mg/kg or 200 mg/kg body weight.

12. The use according to claim 11, wherein the IgG1 Fc multimer is to be administered to the subject at a dose of 10 mg/kg body weight.

13. The use according to claim 11, wherein the IgG1 Fc multimer is to be administered to the subject at a dose of 20 mg/kg body weight.

14. The use according to claim 11, wherein the IgG1 Fc multimer is to be administered to the subject at a dose of 100 mg/kg body weight.

15. The use according to claim 11, wherein the IgG1 Fc multimer is to be administered to the subject at a dose of 200 mg/kg body weight.