

CLAIMS

1. An isolated anti-OX40 antibody, comprising

5 (1) heavy chain complementary determining regions (HCDRs), HCDR1, HCDR2 and HCDR3, wherein the HCDR1 comprises the amino acid sequence as set forth in SEQ ID NO: 11, the HCDR2 comprises the amino acid sequence as set forth in SEQ ID NO: 12, and the HCDR3 comprises the amino acid sequence as set forth in SEQ ID NO: 13;

10 (2) light chain complementary determining regions (LCDRs), LCDR1, LCDR2 and LCDR3, wherein the LCDR1 comprises the amino acid sequence as set forth in SEQ ID NO: 14, the LCDR2 comprises the amino acid sequence as set forth in SEQ ID NO: 15, and the LCDR3 comprises the amino acid sequence as set forth in SEQ ID NO: 16; and

(3) Fc region variant, which is human IgG1 N297A.

2. The antibody of claim 1, comprising a heavy chain variable region (VH) and a light chain variable region (VL), wherein the VH comprises the amino acid sequence as set forth in SEQ ID NO: 2, and wherein the VL comprises the amino acid sequence as set forth in SEQ ID NO: 7.

3. The antibody of any one of claims 1-2, which is a full-length antibody.

4. The antibody of any one of claims 1-3, which has a binding affinity (K_D) to human OX40 of less than 10 nM.

20 5. The antibody of any one of claims 1-4, which is an OX40 antibody antagonist and has an activity for blocking OX40-mediated signal transduction.

6. The antibody of claim 5, wherein the binding of the Fc region variant to FcγR is reduced or eliminated.

7. An isolated nucleic acid encoding the antibody of any one of claims 1-6.

8. A recombinant vector or an expression vector, comprising one or more nucleic acids of claim 7, wherein the vector is suitable for recombinant production of the antibody of any one of claims 1-6.

25 9. A host cell, comprising one or more recombinant vectors or expression vectors of claim 8.

10. An immunoconjugate or immune fusion, comprising the antibody of any one of claims 1-6.

11. A pharmaceutical composition, comprising the antibody of any one of claims 1-6, the nucleic acid of claim 7, the vector of claim 8, the host cell of claim 9, or the immunoconjugate or immune fusion of claim 10, and optionally comprising at least one pharmaceutically acceptable excipient.

30 12. Use of the antibody of any one of claims 1-6, the nucleic acid of claim 7, the vector of claim 8, the host cell of claim 9, or the immunoconjugate or immune fusion of claim 10 in the manufacture of a medicament for treating or preventing an OX40-related disease or condition.

13. The use of claims 11, wherein the OX40-related disease or condition is inflammation and/or autoimmune disease, such as graft-versus-host disease.

35 14. A method for treating or preventing an OX40-related disease or condition, comprising administering to a subject an effective amount of the antibody of any one of claims 1-6, the nucleic acid of claim 7, the vector of claim 8, the host cell of claim 9, or the immunoconjugate or immune fusion of claim 10.

15. The method of claims 14, wherein the OX40-related disease or condition is inflammation and/or autoimmune disease, such as graft-versus-host disease.

16. A method for detecting OX40 in a sample, comprising:

(a) contacting the sample with the antibody of any one of claims 1-6 or the immunoconjugate or immune fusion of claim 10; and

5 b) detecting the formation of the complex of the antibody or the immunoconjugate or the immune fusion with the OX40 protein.