

**What is claimed:**

1. An antibody or a fragment thereof that binds to human programmed death-ligand 1 (PD-L1), wherein the antibody or fragment thereof comprises:

- a) a HCDR1 comprising SEQ ID NO: 2, a HCDR2 comprising SEQ ID NO: 9, a HCDR3 comprising SEQ ID NO: 15, a LCDR1 comprising SEQ ID NO: 20, a LCDR2 comprising SEQ ID NO: 21, and a LCDR3 comprising SEQ ID NO: 22;
- b) a HCDR1 comprising SEQ ID NO: 3, a HCDR2 comprising SEQ ID NO: 10, a HCDR3 comprising SEQ ID NO: 15, a LCDR1 comprising SEQ ID NO: 20, a LCDR2 comprising SEQ ID NO: 21, and a LCDR3 comprising SEQ ID NO: 22;
- c) a HCDR1 comprising SEQ ID NO: 4, a HCDR2 comprising SEQ ID NO: 11, a HCDR3 comprising SEQ ID NO: 15, a LCDR1 comprising SEQ ID NO: 20, a LCDR2 comprising SEQ ID NO: 21, and a LCDR3 comprising SEQ ID NO: 22;
- d) a HCDR1 comprising SEQ ID NO: 5, a HCDR2 comprising SEQ ID NO: 12, a HCDR3 comprising SEQ ID NO: 15, a LCDR1 comprising SEQ ID NO: 20, a LCDR2 comprising SEQ ID NO: 21, and a LCDR3 comprising SEQ ID NO: 22;
- e) a HCDR1 comprising SEQ ID NO: 6, a HCDR2 comprising SEQ ID NO: 13, a HCDR3 comprising SEQ ID NO: 15, a LCDR1 comprising SEQ ID NO: 20, a LCDR2 comprising SEQ ID NO: 21, and a LCDR3 comprising SEQ ID NO: 22;
- f) a HCDR1 comprising SEQ ID NO: 7, a HCDR2 comprising SEQ ID NO: 14, a HCDR3 comprising SEQ ID NO: 15, a LCDR1 comprising SEQ ID NO: 20, a LCDR2 comprising SEQ ID NO: 21, and a LCDR3 comprising SEQ ID NO: 22;
- g) a HCDR1 comprising SEQ ID NO: 2, a HCDR2 comprising SEQ ID NO: 9, a HCDR3 comprising SEQ ID NO: 15, a LCDR1 comprising SEQ ID NO: 20, a LCDR2 comprising SEQ ID NO: 21, and a LCDR3 comprising SEQ ID NO: 75; or
- h) a HCDR1 comprising SEQ ID NO: 2, a HCDR2 comprising SEQ ID NO: 9, a HCDR3 comprising SEQ ID NO: 15, a LCDR1 comprising SEQ ID NO: 20, a LCDR2 comprising SEQ ID NO: 21, and a LCDR3 comprising SEQ ID NO: 76.

2. The antibody or fragment thereof according to claim 1, wherein the CDRH1 comprises the amino acid sequence of SEQ ID NO: 2; the CDRH2 comprises the amino acid

sequence of SEQ ID NO: 9; the CDRH3 comprises the amino acid sequence of SEQ ID NO: 15; the CDRL1 comprises the amino acid sequence of SEQ ID NO: 20; the CDRL2 comprises the amino acid sequence of SEQ ID NO: 21; and the CDRL3 comprises the amino acid sequence of SEQ ID NO: 22.

3. The antibody or fragment thereof according to claim 1, wherein the CDRH1 comprises the amino acid sequence of SEQ ID NO: 2; the CDRH2 comprises the amino acid sequence of SEQ ID NO: 9; the CDRH3 comprises the amino acid sequence of SEQ ID NO: 15; the CDRL1 comprises the amino acid sequence of SEQ ID NO: 20; the CDRL2 comprises the amino acid sequence of SEQ ID NO: 21; and the CDRL3 comprises the amino acid sequence of SEQ ID NO: 75.

4. The antibody or fragment thereof according to claim 1, wherein the CDRH1 comprises the amino acid sequence of SEQ ID NO: 2; the CDRH2 comprises the amino acid sequence of SEQ ID NO: 9; the CDRH3 comprises the amino acid sequence of SEQ ID NO: 15; the CDRL1 comprises the amino acid sequence of SEQ ID NO: 20; the CDRL2 comprises the amino acid sequence of SEQ ID NO: 21; and the CDRL3 comprises the amino acid sequence of SEQ ID NO: 76.

5. The antibody or fragment thereof according to claim 1, wherein the CDRH1 comprises the amino acid sequence of SEQ ID NO: 3; the CDRH2 comprises the amino acid sequence of SEQ ID NO: 10; the CDRH3 comprises the amino acid sequence of SEQ ID NO: 15; the CDRL1 comprises the amino acid sequence of SEQ ID NO: 20; the CDRL2 comprises the amino acid sequence of SEQ ID NO: 21; and the CDRL3 comprises the amino acid sequence of SEQ ID NO: 22.

6. The antibody or fragment thereof according to claim 1, wherein the CDRH1 comprises the amino acid sequence of SEQ ID NO: 4; the CDRH2 comprises the amino acid sequence of SEQ ID NO: 11; the CDRH3 comprises the amino acid sequence of SEQ ID NO: 15; the CDRL1 comprises the amino acid sequence of SEQ ID NO: 20; the CDRL2 comprises the amino acid sequence of SEQ ID NO: 21; and the CDRL3 comprises the amino acid sequence of SEQ ID NO: 22.

7. The antibody or fragment thereof according to claim 1, wherein the CDRH1 comprises the amino acid sequence of SEQ ID NO: 5; the CDRH2 comprises the amino acid

sequence of SEQ ID NO: 12; the CDRH3 comprises the amino acid sequence of SEQ ID NO: 15; the CDRL1 comprises the amino acid sequence of SEQ ID NO: 20; the CDRL2 comprises the amino acid sequence of SEQ ID NO: 21; and the CDRL3 comprises the amino acid sequence of SEQ ID NO: 22.

8. The antibody or fragment thereof according to claim 1, wherein the CDRH1 comprises the amino acid sequence of SEQ ID NO: 6; the CDRH2 comprises the amino acid sequence of SEQ ID NO: 13; the CDRH3 comprises the amino acid sequence of SEQ ID NO: 15; the CDRL1 comprises the amino acid sequence of SEQ ID NO: 20; the CDRL2 comprises the amino acid sequence of SEQ ID NO: 21; and the CDRL3 comprises the amino acid sequence of SEQ ID NO: 22.

9. The antibody or fragment thereof according to claim 1, wherein the CDRH1 comprises the amino acid sequence of SEQ ID NO: 7; the CDRH2 comprises the amino acid sequence of SEQ ID NO: 14; the CDRH3 comprises the amino acid sequence of SEQ ID NO: 15; the CDRL1 comprises the amino acid sequence of SEQ ID NO: 20; the CDRL2 comprises the amino acid sequence of SEQ ID NO: 21; and the CDRL3 comprises the amino acid sequence of SEQ ID NO: 22.

10. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 1 comprises SEQ ID NO. 26.

11. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 1 comprises SEQ ID NO. 27.

12. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 2 comprises SEQ ID NO. 28.

13. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 3 comprises SEQ ID NO. 29.

14. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 4 comprises SEQ ID NO. 30.

15. The antibody or fragment thereof according to claim 1, wherein the variable light framework region 1 comprises SEQ ID NO. 31.

16. The antibody or fragment thereof according to claim 1, wherein the variable light framework region 2 comprises SEQ ID NO. 32.

17. The antibody or fragment thereof according to claim 1, wherein the variable light framework region 3 comprises SEQ ID NO. 33, SEQ ID NO. 77, or SEQ ID NO. 78.

18. The antibody or fragment thereof according to claim 1, wherein the variable light framework region 4 comprises SEQ ID NO. 34.

19. The antibody or fragment thereof according to claim 1, wherein the antibody or fragment thereof comprises a variable heavy chain region comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 36, 37, 38, 39, 40 and 41.

20. The antibody or fragment thereof according to claim 19, wherein the variable heavy chain region comprises SEQ ID NO: 36, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

21. The antibody or fragment thereof according to claim 19, wherein the variable heavy chain region comprises SEQ ID NO: 37, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

22. The antibody or fragment thereof according to claim 19, wherein the variable heavy chain region comprises SEQ ID NO: 38, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

23. The antibody or fragment thereof according to claim 19, wherein the variable heavy chain region comprises SEQ ID NO: 39, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

24. The antibody or fragment thereof according to claim 19, wherein the variable heavy chain region comprises SEQ ID NO: 40, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

25. The antibody or fragment thereof according to claim 19, wherein the variable heavy chain region comprises SEQ ID NO: 41, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

26. The antibody or fragment thereof according to claim 1, wherein the antibody or fragment thereof comprises a variable heavy chain region comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 51, 52, 53, 54, 55 and 56.

27. The antibody or fragment thereof according to claim 26, wherein the variable heavy chain region comprises SEQ ID NO: 51, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

28. The antibody or fragment thereof according to claim 26, wherein the variable heavy chain region comprises SEQ ID NO: 52, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

29. The antibody or fragment thereof according to claim 26, wherein the variable heavy chain region comprises SEQ ID NO: 53, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

30. The antibody or fragment thereof according to claim 26, wherein the variable heavy chain region comprises SEQ ID NO: 54, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

31. The antibody or fragment thereof according to claim 26, wherein the variable heavy chain region comprises SEQ ID NO: 55, and wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

32. The antibody or fragment thereof according to claim 26, wherein the variable heavy chain region comprises SEQ ID NO: 56, and wherein the antibody or fragment thereof

comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

33. The antibody or fragment thereof according to claim 1, wherein the antibody or fragment thereof comprises a variable light chain region comprising an amino acid sequence of SEQ ID NO: 42.

34. A pharmaceutical composition comprising the antibody or fragment thereof according to claim 1.