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.

~~a heavy chain comprising: CDRH1 comprising amino acids 1-3 and 7-9 of SEQ ID NO: 1, wherein amino acids 4-6 are not SSY; CDRH2 comprising amino acids 9-17 of SEQ ID NO: 8; and CDRH3 comprising SEQ ID NO: 15; and~~

~~a light chain comprising CDRL1 comprising SEQ ID NO: 20; CDRL2 comprising SEQ ID NO: 21; and CDRL3 comprising SEQ ID NO: 22, SEQ ID NO: 75, or SEQ ID NO: 76.~~

~~2. The antibody or fragment thereof according to claim 1, wherein the CDRH1 region comprises an amino acid sequence selected from the group consisting of SEQ ID NOS: 2, 3, 4, 5, 6 and 7.~~

~~3. The antibody or fragment thereof according to claim 1, wherein the CDRH2 region comprises an amino acid sequence selected from the group consisting of SEQ ID NOS: 8, 9, 10, 11, 12, 13 and 14.~~

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.

~~4~~10. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 1 comprises SEQ ID NO. 26.

~~5~~11. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 1 comprises SEQ ID NO. 27.

~~6~~12. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 2 comprises SEQ ID NO. 28.

~~7~~13. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 3 comprises SEQ ID NO. 29.

~~8~~14. The antibody or fragment thereof according to claim 1, wherein the variable heavy framework region 4 comprises SEQ ID NO. 30.

~~9~~15. The antibody or fragment thereof according to claim 1, wherein the variable light framework region 1 comprises SEQ ID NO. 31.

~~10~~16. The antibody or fragment thereof according to claim 1, wherein the variable light framework region 2 comprises SEQ ID NO. 32.

~~11~~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.

~~12~~18. The antibody or fragment thereof according to claim 1, wherein the variable light framework region 4 comprises SEQ ID NO. 34.

~~13~~19. The antibody or fragment thereof according to claim 1, wherein the antibody or fragment thereof comprises a variable heavy chain ~~sequence~~ region comprising~~es~~ 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.

~~14~~26. The antibody or fragment thereof according to claim 1, wherein the antibody or fragment thereof comprises a variable heavy chain ~~sequence~~ region comprisinges 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.

~~15~~33. The antibody or fragment thereof according to claim 1, wherein the antibody or fragment thereof comprises a variable light chain ~~sequence~~ region comprisinge~~s~~ an amino acid sequence of SEQ ID NO: 42.

~~16~~34. A pharmaceutical composition comprising the antibody or fragment thereof according to claim 1.

~~17. An antibody or a fragment thereof that binds to human programmed death-ligand 1 (PD-L1), wherein the antibody or fragment thereof comprises a heavy chain comprising SEQ ID NO: 35.~~

~~18. An antibody or fragment thereof that binds human PD-L1 for use in treating cancer in a subject, wherein the antibody or fragment thereof binds to human PD-L1 with a K_D of at least $8.30x10^{-9}$, comprises a CDRH2 comprising SEQ ID NO: 9, 10, 11, 12, 13, or 14, and comprises CDRH3 comprising SEQ ID NO: 15.~~

~~19. The antibody or fragment thereof of claim 18, wherein the cancer is a hematological cancer, a neurological cancer, breast cancer, a gastrointestinal cancer, renal cell carcinoma, or a genitourinary cancer.~~

~~20. The antibody or fragment thereof of claim 18, wherein the antibody or fragment thereof is to be administered to the subject in combination with an additional therapeutic compound.~~

~~21. The antibody or fragment thereof of claim 20, wherein the additional therapeutic compound is a CAR-T cell, a tumor-targeting antibody, an immune response potentiating modality, or a small molecule drug.~~

~~22. An antibody or fragment thereof that binds human PD-L1 for use in treating cancer in a subject, wherein the antibody or fragment thereof binds to human PD-L1 with a K_D of at least $2.50x10^{-8}$ and comprises a CDRH3 comprising amino acids 6-13 of SEQ ID NO: 18.~~

~~23. The antibody or fragment thereof of claim 22, wherein the antibody or fragment thereof is to be administered to the subject in combination with an additional therapeutic compound.~~

~~24. The antibody or fragment thereof of claim 23, wherein the additional therapeutic compound is a CAR-T cell, a tumor-targeting antibody, an immune response potentiating modality, or a small molecule drug.~~

~~25. The antibody or fragment thereof of claim 18, wherein the antibody or fragment that binds human PD-L1 comprises a CDRH1 comprising SEQ ID NO: 2, 3, 4, 5, 6, or 7.~~

~~26. The antibody or fragment thereof of claim 25, wherein the antibody or fragment that binds human PD-L1 comprises a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 22.~~

~~27. The antibody or fragment thereof of claim 25, wherein the antibody or fragment that binds human PD-L1 comprises a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 75 or 76.~~

~~28. The antibody or fragment thereof of claim 22, wherein the antibody or fragment that binds human PD-L1 comprises a CDRH1 comprising SEQ ID NO: 16 and a CDRH2 comprising SEQ ID NO: 17.~~

~~29. The antibody or fragment thereof of claim 28, wherein the antibody or fragment that binds human PD-L1 comprises a CDRL1 comprising SEQ ID NO: 23, a CDRL2 comprising SEQ ID NO: 24, and a CDRL3 comprising SEQ ID NO: 25.~~

~~30. An anti-PD-L1 antibody for use as a medicine, the anti-PD-L1 antibody comprising:~~

~~(i) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 2, a CDRH2 comprising SEQ ID NO: 9, and a CDRH3 comprising SEQ ID NO: 15; and a light chain comprising a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 22;~~

~~(ii) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 3, a CDRH2 comprising SEQ ID NO: 10, and a CDRH3 comprising SEQ ID NO: 15; and a light chain comprising a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 22;~~

~~(iii) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 4, a CDRH2 comprising SEQ ID NO: 11, and a CDRH3 comprising SEQ ID NO: 15; and a light chain comprising a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 22;~~

~~(iv) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 5, a CDRH2 comprising SEQ ID NO: 12, and a CDRH3 comprising SEQ ID NO: 15; and a light chain comprising a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 22;~~

~~(v) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 6, a CDRH2 comprising SEQ ID NO: 13, and a CDRH3 comprising SEQ ID NO: 15; and a light chain comprising a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 22;~~

~~(vi) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 7, a CDRH2 comprising SEQ ID NO: 14, and a CDRH3 comprising SEQ ID NO: 15; and a light chain comprising a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 22;~~

~~(vii) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 2, a CDRH2 comprising SEQ ID NO: 9, and a CDRH3 comprising SEQ ID NO: 15; and a light chain comprising a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 75; or~~

(viii) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 2, a CDRH2 comprising SEQ ID NO: 9, and a CDRH3 comprising SEQ ID NO: 15; and a light chain comprising a CDRL1 comprising SEQ ID NO: 20, a CDRL2 comprising SEQ ID NO: 21, and a CDRL3 comprising SEQ ID NO: 76.

31. An anti-PD-L1 antibody for use as a medicine, the anti-PD-L1 antibody comprising:

(i) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 16, a CDRH2 comprising SEQ ID NO: 17, and a CDRH3 comprising SEQ ID NO: 18; and a light chain comprising a CDRL1 comprising SEQ ID NO: 23, a CDRL2 comprising SEQ ID NO: 24, and a CDRL3 comprising SEQ ID NO: 25; or

(ii) a heavy chain comprising a CDRH1 comprising SEQ ID NO: 16, a CDRH2 comprising SEQ ID NO: 17, and a CDRH3 comprising SEQ ID NO: 19; and a light chain comprising a CDRL1 comprising SEQ ID NO: 23, a CDRL2 comprising SEQ ID NO: 24, and a CDRL3 comprising SEQ ID NO: 25.