What is claimed:

1. An antibody or a fragment thereof that binds to human programmed death-ligand 1 (PD-L1) for use in treating cancer, the antibody or fragment thereof comprising:

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; or

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.

2. The antibody or fragment thereof of claim 1, wherein the cancer is lung cancer, melanoma, renal cell carcinoma (RCC), head and neck cancer, or bladder cancer.

3. The antibody or fragment thereof of claim 2, wherein the lung cancer is non-small cell lung cancer (NSCLC).

4. The antibody or fragment thereof of claim 1, wherein the cancer is a carcinoma.

5. The antibody or fragment thereof of claim 1, wherein the heavy chain comprises any one of SEQ ID NOs: 36, 37, 38, 39, 40 or 41, and the light chain comprises SEQ ID NO: 42.

6. The antibody or fragment thereof of claim 5, wherein the cancer is lung cancer, melanoma, renal cell carcinoma (RCC), head and neck cancer, or bladder cancer.

7. The antibody or fragment thereof of claim 6, wherein the lung cancer is non-small cell lung cancer (NSCLC).

8. The antibody or fragment thereof of claim 5, wherein the cancer is a carcinoma.

9. The antibody or fragment thereof of claim 1, wherein the heavy chain comprises any one of SEQ ID NOs: 51, 52, 53, 54, 55, or 56, and the light chain comprises SEQ ID NO: 42.

10. The antibody or fragment thereof of claim 9, wherein the cancer is lung cancer, melanoma, renal cell carcinoma (RCC), head and neck cancer, or bladder cancer.

11. The antibody or fragment thereof of claim 10, wherein the lung cancer is non-small cell lung cancer (NSCLC).

12. The antibody or fragment thereof of claim 9, wherein the cancer is a carcinoma.

13. The antibody or fragment thereof of claim 1, wherein the antibody or fragment thereof binds human PD-L1 with a K_D of at least $8.30x10^{-9}$M.

14. The antibody or fragment thereof of claim 1, wherein the antibody or fragment thereof is to be administered to a subject in combination with an additional therapeutic compound.

15. The antibody or fragment thereof of claim 14, wherein the additional therapeutic compound is a CAR-T cell, a tumor-targeting antibody, an immune response potentiating modality, or a small molecule drug.

16. An antibody or a fragment thereof that binds to human programmed death-ligand 1 (PD-L1) for use in treating a cancer selected from a carcinoma, lung cancer, melanoma, renal cell carcinoma (RCC), head and neck cancer, or bladder cancer, wherein the antibody or fragment thereof comprises a heavy chain comprising any one of SEQ ID NOs: 36, 37, 38, 39, 40, 41, 51, 52, 53, 54, 55, or 56 and a light chain comprising SEQ ID NO: 42.

17. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 36.

18. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 37.

19. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 38.

20. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 39.

21. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 40.

22. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 41.

23. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 51.

24. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 52.

25. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 53.

26. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 54.

27. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 55.

28. The antibody or fragment thereof of claim 16, wherein the heavy chain comprises SEQ ID NO: 56.

29. The antibody or fragment thereof of claim 16, wherein the cancer is lung cancer.

30. The antibody or fragment thereof of claim 29, wherein the lung cancer is NSCLC.

31. The antibody or fragment thereof of claim 16, wherein the cancer is melanoma.

32. The antibody or fragment thereof of claim 16, wherein the cancer is RCC.

33. The antibody or fragment thereof of claim 16, wherein the cancer is head and neck cancer.

34. The antibody or fragment thereof of claim 16, wherein the cancer is bladder cancer.

35. The antibody or fragment thereof of claim 16, wherein the cancer is a carcinoma.

36. The antibody or fragment thereof of claim 35, wherein the heavy chain comprises SEQ ID NO: 36 or 51.