CLAIMS

1. An antibody comprising an antigen binding domain which specifically binds human PD-1, and comprises a heavy chain variable region (Vh) comprising CDR-H1 of SEQ ID NO: 31, CDR-H2 of SEQ ID NO: 32 and CDR-H3 of SEQ ID NO: 33 and/or a light chain variable region (Vk) comprising CDR-L1 of SEQ ID NO: 34, CDR-L2 of SEQ ID NO: 35 and CDR-L3 of SEQ ID NO: 36.

2. The antibody of claim 1, wherein the heavy chain variable region (Vh) comprises SEQ ID NO: 24 and/or the light chain variable region (Vk) comprises SEQ ID NO: 26.

3. The antibody of claim 1, which is scFv, F(ab) or $F(ab)_2$.

4. The antibody of claim 1, which is a full-length antibody.

5. The antibody of claim 4, which comprises an IgG4 Fc region.

6. The antibody of claim 5, wherein the IgG4 Fc region comprises an amino acid mutation at position 228 and at least one additional amino acid mutation at one or more positions selected from the group consisting of 233, 234, 235, 265, 309, and 409, according to EU numbering, wherein the at least one additional amino acid mutation causes the antibody to exhibit reduced binding to at least one Fcγ receptor relative to Fc binding of a reference IgG4 antibody having the amino acid mutation at position 228 and no additional amino acid mutation.

7. The antibody of claim 6, wherein the amino acid mutation at position 228 is S228R and/or wherein the at least one additional amino acid mutation is selected from the group consisting of E233P, F234V, L235A, D265A/D265T, L309V, and R409K.

8. The antibody of claim 7, wherein the IgG4 Fc region comprises (i) S228P; (ii) S228P, E233P, F234V, L235A; (iii) S228P, E233P, F234V, L235A, D265A; (iv) S228P, E233P, F234V, L235A, D265T; (v) S228P, E233P, F234V, L235A, D265A, R409K; or (vi) S228P, E233P, F234V, L235A, D265A, L309V, R409K.

9. The antibody of claim 6, wherein the binding of the IgG4 Fc region of the antibody to one or more Fcγ receptors is reduced to null.

10. The antibody of claim 6, wherein the at least one Fcγ receptor is selected from FcγRI, FcγRIIA, FcγRIIB, and Fcγ RIIIA.

11. The antibody of claim 6, wherein the antibody exhibits reduced effector function relative to the reference IgG4 antibody.

12. The antibody of claim 11, wherein the reduced effector function is antibody-dependent cell-mediated cytotoxicity (ADCC).

13. The antibody of claim 5, wherein the IgG4 Fc region comprises any one of SEQ ID NOs: 83-88.

14. The antibody of claim 13, wherein the IgG4 Fc region comprises SEQ ID NO: 87 or 88.

15. A polynucleotide encoding the antibody of any one of claims 1-14.

16. A vector comprising the polynucleotide of claim 15.

17. A cell comprising the polynucleotide of claim 15 or the vector of claim 16.

18. A composition comprising the antibody of any one of claims 1-14.

19. Use of the antibody of any one of claims 1-14 or the composition of claim 18 in the preparation of a medicament for treating a cancer in a subject.

20. Use of the antibody of any one of claims 1-14 or the composition of claim 18 in the preparation of a medicament for inhibiting tumor progression in a subject having a cancer.

21. Use of the antibody of any one of claims 1-14 or the composition of claim 18 in the preparation of a medicament for suppressing PD-1 mediated signal transduction in a subject having a cancer.

22. Use of the antibody of any one of claims 1-14 or the composition of claim 18 in the preparation of a medicament for activating immune cells in a subject having a cancer.

23. The use of any one of claims 19-22, wherein the cancer is selected from the group consisting of lung cancer, liver cancer, stomach cancer, breast cancer, ovarian cancer, pancreatic cancer, esophageal cancer, and melanoma.