CLAIMS

1. An anti-PD1 antibody or an antigen-binding portion thereof, wherein the antibody or antigen-binding portion comprises a heavy chain variable (VH) region and a light chain variable (VL) region, wherein

(a) the VH region amino acid sequence comprises HCDR1 of GFTFSSYGMS (SEQ ID NO:33), HCDR2 of VANIWQDGSTKYVDSVKG (SEQ ID NO:34), and HCDR3 of AYGNYWYIDR (SEQ ID NO:35); and the VL region amino acid sequence comprises LCDR1 of KSSQSVTNDVA (SEQ ID NO:36), LCDR2 of YAYHRFT (SEQ ID NO:37), and LCDR3 of HQAYSTPYT (SEQ ID NO:46); or

(b) the VH region amino acid sequence comprises HCDR1 of GFSLSSYGMS (SEQ ID NO:39), HCDR2 of VAVIWQDGSTNYVDSVKG (SEQ ID NO:40), and HCDR3 of AYGNYWYIDR (SEQ ID NO:35); and the VL region amino acid sequence comprises LCDR1 of KSSQSVTNDVA (SEQ ID NO:36), LCDR2 of YAYHRFT (SEQ ID NO:37), and LCDR3 of HQAYSTPYT (SEQ ID NO:46).

2. The antibody or antigen-binding portion of claim 1, wherein

(a) the VH region amino acid sequence comprises SEQ ID NO:1 and the VL region amino acid sequence comprises SEQ ID NO:2; or

(b) the VH region amino acid sequence comprises SEQ ID NO:3 and the VL region amino acid sequence comprises SEQ ID NO:4.

3. The antibody or antigen-binding portion of claim 1 or 2, wherein the antibody is humanized or chimeric.

4. The antibody or antigen-binding portion of any one of claims 1-3, wherein the VH region, the VL region, or both the VH and the VL region comprise one or more human framework region amino acid sequences.

5. The antibody or antigen-binding portion of any one of claims 1-4, wherein the VH region, the VL region, or both the VH and the VL region comprise a human variable region framework scaffold amino acid sequence into which the CDRs have been inserted.

6. The antibody or antigen-binding portion of claim 1, wherein the VH region comprises an IGHV3-7 human germline scaffold amino acid sequence into which the HCDR1, HCDR2 and HCDR3 amino acid sequences have been inserted.

7. The antibody or antigen-binding portion of any one of claims 1 and 6, wherein the VL region comprises an IGKV4-1 human germline scaffold amino acid sequence into which the LCDR1, LCDR2 and LCDR3 amino acid sequences have been inserted.

8. The antibody or antigen-binding portion of any one of claims 1-7, wherein the antibody comprises an immunoglobulin constant region.

9. The antibody or antigen-binding portion of claim 8, wherein the immunoglobulin constant region is IgG, IgE, IgM, IgD, IgA or IgY.

10. The antibody or antigen-binding portion of claim 9, wherein the immunoglobulin constant region is IgG1, IgG2, IgG3, IgG4, IgA1 or IgA2.

11. The antibody or antigen-binding portion of claim 8, wherein the immunoglobulin constant region is immunologically inert.

12. The antibody or antigen-binding portion of claim 8, wherein the immunoglobulin constant region is a wild-type human IgG4 constant region, a human IgG4 constant region comprising the amino acid substitution S228P, a wild-type human IgG1 constant region, a human IgG1 constant region comprising the amino acid substitutions L234A, L235A and G237A or a wild-type human IgG2 constant region, wherein numbering is according to the EU index as in Kabat.

13. The antibody or antigen-binding portion of claim 8, wherein the immunoglobulin constant region comprises any one of SEQ ID NOS:9-15.

14. The antigen-binding portion of any one of claims 1-13, wherein the antibody or antigen-binding portion is an Fab, an Fab', an $F(ab')_2$, an Fv, an scFv, a maxibody, a minibody, a diabody, a triabody, a tetrabody or a bis-scFv.

15. The antibody or antigen-binding portion of any one of claims 1-14, wherein the antibody is monoclonal.

16. The antibody or antigen-binding portion of any one of claims 1-15, wherein the antibody is a tetrameric antibody, a tetravalent antibody or a multispecific antibody.

17. The antibody or antigen-binding portion of any one of claims 1-16, wherein the antibody is a bispecific antibody that binds specifically to a first antigen and a second antigen, wherein the first antigen is PD1 and the second antigen is not PD1.

18. The antibody or antigen-binding portion of any one of claims 1-17, wherein the antibody or antigen-binding portion binds specifically to (a) human PD1 or (b) human PD1 and cynomolgus PD1.

19. An immunoconjugate comprising the antibody or antigen-binding portion of any one of claims 1-18 linked to a therapeutic agent.

20. The immunoconjugate of claim 19, wherein the therapeutic agent is a cytotoxin, a radioisotope, a chemotherapeutic agent, an immunomodulatory agent, a cytostatic enzyme, a cytolytic enzyme, a therapeutic nucleic acid, an anti-angiogenic agent, an anti-proliferative agent, or a pro-apoptotic agent.

21. A pharmaceutical composition comprising the antibody or antigen-binding portion of any one of claims 1-18 or the immunoconjugate of claim 19 or 20, and a pharmaceutically acceptable carrier, diluent or excipient.

22. A nucleic acid molecule encoding
the VH amino acid sequence and the VL region amino acid sequences
of the antibody or antigen-binding portion of any one of claims 1-18.

23. An expression vector comprising the nucleic acid molecule of claim 22.

24. A recombinant host cell comprising the nucleic acid molecule of claim 22 or the expression vector of claim 23.

25. A method of producing an anti-PD1 antibody or an antigen-binding portion thereof, the method comprising:
culturing a recombinant host cell comprising the expression vector of claim 23 under conditions whereby the nucleic acid molecule is expressed, thereby producing the antibody or antigen-binding portion; and
isolating the antibody or antigen-binding portion from the host cell or culture.

26. Use of a therapeutically effective amount of the antibody or antigen-binding portion of any one of claims 1-18, the immunoconjugate of claim 19 or 20 or the pharmaceutical composition of claim 21 in the manufacture of a medicament for the treatment of cancer in a subject, wherein the medicament is to be administered to the subject.

27. The use of claim 26, wherein the cancer is pancreatic cancer, melanoma, breast cancer, lung cancer, bronchial cancer, colorectal cancer, prostate cancer, stomach cancer, ovarian cancer, urinary bladder cancer, brain or central nervous system cancer, peripheral nervous system cancer, esophageal cancer, cervical cancer, uterine or endometrial cancer, cancer of the oral cavity or pharynx, liver cancer, kidney cancer, testicular cancer, biliary tract cancer, small bowel or appendix cancer, salivary gland cancer, thyroid gland cancer, adrenal gland cancer, osteosarcoma, chondrosarcoma, or cancer of hematological tissues.

28. The antibody or antigen-binding portion of any one of claims 1-18, the immunoconjugate of claim 19 or 20 or the pharmaceutical composition of claim 21 for use in the treatment of cancer.

29. The antibody or antigen-binding portion, the immunoconjugate or the pharmaceutical composition for use according to claim 28, wherein the cancer is pancreatic cancer, melanoma, breast cancer, lung cancer, bronchial cancer, colorectal cancer, prostate cancer, stomach cancer, ovarian cancer, urinary bladder cancer, brain or central nervous system cancer, peripheral nervous system cancer, esophageal cancer, cervical cancer, uterine or endometrial cancer, cancer of the oral cavity or pharynx, liver cancer, kidney cancer, testicular cancer, biliary tract cancer, small bowel or appendix cancer, salivary gland cancer, thyroid gland cancer, adrenal gland cancer, osteosarcoma, chondrosarcoma, or cancer of hematological tissues.

30. The antibody or antigen-binding portion of any one of claims 1-18, the immunoconjugate of claim 19 or 20 or the pharmaceutical composition of claim 21, for use as a medicament.