

WHAT IS CLAIMED IS:

1. A PD-1 antigen-binding protein comprising (a) a heavy chain (HC) complementarity-determining region (CDR) 1 amino acid sequence set forth in Table D or a sequence selected from the group consisting of: SEQ ID NOs: 352, 312, 322, 332, 342, 362, 372, and 382, or a variant sequence thereof which differs by only one or two amino acids or which has at least or about 70% sequence identity; (b) an HC CDR2 amino acid sequence set forth in Table D or a sequence selected from the group consisting of: SEQ ID NOs: 353, 313, 323, 333, 343, 363, 373, and 383, or a variant sequence thereof which differs by only one or two amino acids or which has at least or about 70% sequence identity; (c) an HC CDR3 amino acid sequence set forth in Table D or a sequence selected from the group consisting of: SEQ ID NOs: 354, 314, 324, 334, 344, 364, 374, and 384, or a variant sequence thereof which differs by only one or two amino acids or which has at least or about 70% sequence identity; (d) a light chain (LC) CDR1 amino acid sequence set forth in Table D or a sequence selected from the group consisting of: 355, 315, 325, 335, 345, 365, 375, and 385, or a variant sequence thereof which differs by only one or two amino acids or which has at least or about 70% sequence identity; (e) an LC CDR2 amino acid sequence set forth in Table D or a sequence selected from the group consisting of: 356, 316, 326, 336, 346, 366, 376, and 386, or a variant sequence thereof which differs by only one or two amino acids or which has at least or about 70% sequence identity; (f) an LC CDR3 amino acid sequence set forth in Table D or a sequence selected from the group consisting of: 357, 317, 327, 337, 347, 367, 377, and 387, or a variant sequence thereof which differs by only one or two amino acids or which has at least or about 70% sequence identity; or (g) a combination of any two or more of (a)-(f).
2. The PD-1 antigen-binding protein of claim 1, comprising six CDR amino acid sequences selected from the group consisting of: (a) SEQ ID NOs: 352-357; (b) SEQ ID NOs: 322-327; (c) SEQ ID NOs: 332-337; (d) SEQ ID NOs: 342-347; (e) SEQ ID NOs: 312-317; (f) SEQ ID NOs: 362-367; (g) SEQ ID NOs: 372-377; and (h) SEQ ID NOs: 382-387.
3. The PD-1 antigen-binding protein of claim 2, comprising a pair of amino acid sequences selected from the group consisting of: (a) SEQ ID NOs: 358 and 359; (b) SEQ ID NOs: 328 and 329; (c) SEQ ID NOs: 338 and 339; (d) SEQ ID NOs: 348 and 349; (e) SEQ ID NOs: 318 and 319; (f) SEQ ID NOs: 368 and 369; (g) SEQ ID NOs: 378 and 379; and (h) SEQ ID NOs: 388 and 389.
4. The PD-1 antigen-binding protein of claim 3, comprising a pair of amino acid sequences selected from the group consisting of: (a) SEQ ID NOs: 360 and 361; (b) SEQ ID NOs: 330 and 331; (c)

SEQ ID NOs: 340 and 341; (d) SEQ ID NOs: 350 and 351; (e) SEQ ID NOs: 320 and 321; (f) SEQ ID NOs: 370 and 371; (g) SEQ ID NOs: 380 and 381; and (h) SEQ ID NOs: 390 and 391.

5. The PD-1 antigen-binding protein of any one of claims 1-4, which is an antibody.
6. The PD-1 antigen-binding protein of any one of claims 1-4, which is an antigen-binding fragment of an antibody.
7. The PD-1 antigen-binding protein of any one of claims 1-4, which is an antibody protein product, optionally, an scFv.
8. A nucleic acid comprising a nucleotide sequence encoding the PD-1 antigen-binding protein of any one of the preceding claims.
9. The nucleic acid of claim 8, comprising the sequence of any one of SEQ ID NOs: 392-471.
10. A vector comprising the nucleic acid of claim 8 or 9.
11. A host cell comprising the nucleic acid of claim 8 or 9 or the vector of claim 10.
12. A kit comprising an PD-1 antigen-binding protein of any one of the preceding claims, the nucleic acid of claim 8 or 9, the vector of claim 10, the host cell of claim 11, or a combination thereof, and a container.
13. A pharmaceutical composition comprising an PD-1 antigen-binding protein of any one of the preceding claims, the nucleic acid of claim 8 or 9, the vector of claim 10, the host cell of claim 11, or a combination thereof, and a pharmaceutically acceptable carrier, excipient, or diluent.
14. A method of making PD-1 antigen-binding protein comprising culturing the host cell of claim 13 so as to express the PD-1 antigen-binding protein and harvesting the expressed PD-1 antigen-binding protein.
15. A method of treating a subject in need thereof, comprising administering to the subject in need thereof a pharmaceutical composition of claim 13 in an amount effective to treat the subject.
16. The method of claim 15, wherein the subject has a solid tumor and the pharmaceutical composition is administered to the subject in an amount effective to treat the solid tumor in the subject.