CLAIMS

1. An anti-PD-1 monoclonal antibody, characterized in comprising light chains and heavy chains, wherein the light chain contains three complementarity determining regions (CDRs) which are named as LCDR1, LCDR2 and LCDR3; the LCDR1 comprises one of peptides whose amino acid sequences are shown as of SEQ ID NO. 18, SEQ ID NO. 19, SEQ ID NO. 20, SEQ ID NO. 21, SEQ ID NO. 22, SEQ ID NO. 23 or SEQ ID NO. 24; the LCDR2 comprises one of the peptide whose amino acid sequences are shown as SEQ ID NO. 25, SEQ ID NO. 26, SEQ ID NO. 27, SEQ ID NO. 28, SEQ ID NO. 29 or SEQ ID NO. 30; the LCDR3 comprises one of the peptides whose amino acid sequences shown as SEQ ID NO. 31, SEQ ID NO. 32, SEQ ID NO. 33, SEQ ID NO. 34, SEQ ID NO. 35, SEQ ID NO. 36 or SEQ ID NO. 37.

2. The anti-PD-1 monoclonal antibody according to claim 1, wherein the light chain contains a light chain variable region that is selected from one of the peptides having amino acid sequences shown as SEQ ID NO.5, SEQ ID NO.6, SEQ ID NO.7, SEQ ID NO. 8, SEQ ID NO.9, SEQ ID NO.10 or SEQ ID NO.11.

3. An anti-PD-1 monoclonal antibody, characterized in comprising light chains and heavy chains, wherein the heavy chain contains three complementarity determining regions which are named as HCDR1, HCDR2 and HCDR3; the HCDR1 comprises one of peptides whose amino acid sequences are shown as SEQ ID NO. 38 or SEQ ID NO. 39; the HCDR2 comprises one of peptides whose amino acid sequences are shown as SEQ ID NO. 40, SEQ ID NO. 41 or SEQ ID NO. 42; the HCDR3 comprises one of peptides whose amino acid sequences are shown as SEQ ID NO. 43 or SEQ ID NO. 44.

4. The anti-PD-1 monoclonal antibody according to claim 3, wherein the heavy chain contains a heavy chain variable region that is selected from one of the peptides having amino acid sequences shown as SEQ ID NO.1, SEQ ID NO.2, SEQ ID NO.3 or SEQ ID NO. 4.

5. An antibody, a polypeptide or a protein, wherein the antibody, the polypeptide or the protein contains light chains or heavy chains according to any one of claims 1 to 4.

6. A polynucleotide or combination of polynucleotides, wherein the polynucleotide sequence or the combination encodes light chains or heavy chains according to any one of claims 1 to 4.

7. A recombinant DNA expression vector, wherein the recombinant DNA expression vector contains a polynucleotide sequence or combination according to claim 6.

8. A host cell, wherein the host cell is used when transfecting the recombinant DNA expression vector, and the host cell is selected from prokaryotic cells, yeasts, insects or mammalian cells.

9. The anti-PD-1 monoclonal antibody according to any one of claims 1 to 4, wherein the anti-PD-1 monoclonal antibody is a human antibody; the heavy chain having a constant region selected from IgG1, IgG2, IgG3 or IgG4; the light chain having a constant region that is C_κ or C_λ.

10. A whole antibody, a single-chain antibody, a single domain antibody, a bi-specific antibody, a drug-conjugated antibody or chimeric antigen receptor T-cell immunotherapy, containing light chains or heavy chains according to any one of claims 1 to 4 .

11. A monoclonal antibody, an artificial vector, a drug or a combination of drugs thereof, wherein the monoclonal antibody, the artificial vector, the drug or the combinations of drugs contains light chains or heavy chains according to any one of claims 1 to 4.

12. A detection reagent or a kit thereof, wherein the detection reagent or the kit contains light chains or heavy chains according to any one of claims 1 to 4.

Amended CLAIMS

Amendment under Art 19 PCT

Received by the International Bureau on August 5, 2016 (05.08.2016)

1. An anti-PD-1 monoclonal antibody, characterized in comprising light chains and heavy chains, wherein the light chain contains three complementarity determining regions (CDRs) which are named as LCDR1, LCDR2 and LCDR3; the LCDR1 comprises one of peptides whose amino acid sequences are shown as of SEQ ID NO. 18, SEQ ID NO. 19, SEQ ID NO. 20, SEQ ID NO. 21, SEQ ID NO. 22, SEQ ID NO. 23 or SEQ ID NO. 24; the LCDR2 comprises one of the peptide whose amino acid sequences are shown as SEQ ID NO. 25, SEQ ID NO. 26, SEQ ID NO. 27, SEQ ID NO. 28, SEQ ID NO. 29 or SEQ ID NO. 30; the LCDR3 comprises one of the peptides whose amino acid sequences shown as SEQ ID NO. 31, SEQ ID NO. 32, SEQ ID NO. 33, SEQ ID NO. 34, SEQ ID NO. 35, SEQ ID NO. 36 or SEQ ID NO. 37.

2. The anti-PD-1 monoclonal antibody according to claim 1, wherein the light chain contains a light chain variable region that is selected from one of the peptides having amino acid sequences shown as SEQ ID NO.5, SEQ ID NO.6, SEQ ID NO.7, SEQ ID NO. 8, SEQ ID NO.9, SEQ ID NO.10 or SEQ ID NO.11.

3. An anti-PD-1 monoclonal antibody, characterized in comprising light chains and heavy chains, wherein the heavy chain contains three complementarity determining regions which are named as HCDR1, HCDR2 and HCDR3; the HCDR1 comprises one of peptides whose amino acid sequences are shown as SEQ ID NO. 38 or SEQ ID NO. 39; the HCDR2 comprises one of peptides whose amino acid sequences are shown as SEQ ID NO. 40, SEQ ID NO. 41 or SEQ ID NO. 42; the HCDR3 comprises one of peptides whose amino acid sequences are shown as SEQ ID NO. 43 or SEQ ID NO. 44.

4. The anti-PD-1 monoclonal antibody according to claim 3, wherein the heavy chain contains a heavy chain variable region that is selected from one of the peptides having amino acid sequences shown as SEQ ID NO.1, SEQ ID NO.2, SEQ ID NO.3 or SEQ ID NO. 4.

5. An antibody, a polypeptide or a protein, wherein the antibody, the polypeptide or the

protein contains light chains or heavy chains according to any one of claims 1 to 4.

6. A polynucleotide or combination of polynucleotides, wherein the polynucleotide sequence or the combination encodes light chains or heavy chains according to any one of claims 1 to 4.

7. A recombinant DNA expression vector, wherein the recombinant DNA expression vector contains a polynucleotide sequence or combination according to claim 6.

8. A host cell transfecting the recombinant DNA expression vector of claim 7, wherein the host cell is selected from prokaryotic cells, yeasts, insects or mammalian cells.

9. The anti-PD-1 monoclonal antibody according to any one of claims 1 to 4, wherein the anti-PD-1 monoclonal antibody is a human antibody; the heavy chain having a constant region selected from IgG1, IgG2, IgG3 or IgG4; the light chain having a constant region that is C_κ or C_λ.

10. A whole antibody, a single-chain antibody, a single domain antibody, a bi-specific antibody, a drug-conjugated antibody, containing light chains or heavy chains according to any one of claims 1 to 4 .

11. A monoclonal antibody, an artificial vector, a drug or a combination of drugs thereof, wherein the monoclonal antibody, the artificial vector, the drug or the combinations of drugs contains light chains or heavy chains according to any one of claims 1 to 4.

12. A detection reagent or a kit thereof, wherein the detection reagent or the kit contains light chains or heavy chains according to any one of claims 1 to 4.

CLAIMS

1. An anti-PD-1 monoclonal antibody, characterized in comprising light chains and heavy chains, wherein the light chain contains three complementarity determining regions (CDRs) which are named as LCDR1, LCDR2 and LCDR3; the LCDR1 comprises one of peptides whose amino acid sequences are shown as of SEQ ID NO. 18, SEQ ID NO. 19, SEQ ID NO. 20, SEQ ID NO. 21, SEQ ID NO. 22, SEQ ID NO. 23 or SEQ ID NO. 24; the LCDR2 comprises one of the peptide whose amino acid sequences are shown as SEQ ID NO. 25, SEQ ID NO. 26, SEQ ID NO. 27, SEQ ID NO. 28, SEQ ID NO. 29 or SEQ ID NO. 30; the LCDR3 comprises one of the peptides whose amino acid sequences shown as SEQ ID NO. 31, SEQ ID NO. 32, SEQ ID NO. 33, SEQ ID NO. 34, SEQ ID NO. 35, SEQ ID NO. 36 or SEQ ID NO. 37.

2. The anti-PD-1 monoclonal antibody according to claim 1, wherein the light chain contains a light chain variable region that is selected from one of the peptides having amino acid sequences shown as SEQ ID NO.5, SEQ ID NO.6, SEQ ID NO.7, SEQ ID NO. 8, SEQ ID NO.9, SEQ ID NO.10 or SEQ ID NO.11.

3. An anti-PD-1 monoclonal antibody, characterized in comprising light chains and heavy chains, wherein the heavy chain contains three complementarity determining regions which are named as HCDR1, HCDR2 and HCDR3; the HCDR1 comprises one of peptides whose amino acid sequences are shown as SEQ ID NO. 38 or SEQ ID NO. 39; the HCDR2 comprises one of peptides whose amino acid sequences are shown as SEQ ID NO. 40, SEQ ID NO. 41 or SEQ ID NO. 42; the HCDR3 comprises one of peptides whose amino acid sequences are shown as SEQ ID NO. 43 or SEQ ID NO. 44.

4. The anti-PD-1 monoclonal antibody according to claim 3, wherein the heavy chain contains a heavy chain variable region that is selected from one of the peptides having amino acid sequences shown as SEQ ID NO.1, SEQ ID NO.2, SEQ ID NO.3 or SEQ ID NO. 4.

5. An antibody, a polypeptide or a protein, wherein the antibody, the polypeptide or the protein contains one or more complementarity determining regions of claim 1 or 3.

6. A polynucleotide or combination of polynucleotides, wherein the polynucleotide sequence or the combination encodes one or more complementarity determining regions of claim 1 or 3.

7. A recombinant DNA expression vector, wherein the recombinant DNA expression vector contains a polynucleotide sequence or combination encoding one or more complementarity determining regions of claims 1 or 3.

8. The recombinant DNA expression vector according to claim 7, wherein the recombinant DNA expression vector is transfected into a host cell, the host cell is selected from prokaryotic cells, yeasts, insects or mammalian cells.

9. The anti-PD-1 monoclonal antibody according to any one of claims 1 to 4, wherein the anti-PD-1 monoclonal antibody is a human antibody; the heavy chain having a constant region selected from IgG1, IgG2, IgG3 or IgG4; the light chain having a constant region that is C_κ or C_λ.

10. A whole antibody, a single-chain antibody, a single domain antibody, a bi-specific antibody or a drug-conjugated antibody, containing one or more complementarity determining regions of claim 1 or 3.

11. A monoclonal antibody, an artificial vector, a drug or a combination of drugs thereof, wherein the monoclonal antibody, the artificial vector, the drug or the combinations of drugs contains one or more complementarity determining regions of claim 1 or 3.

12. A detection reagent or a kit thereof, wherein the detection reagent or the kit contains one or more complementarity determining regions of claim 1 or 3.