

CLAIMS

**1. A bispecific antibody, comprising:
a first protein functional region targeting VEGFA, and
a second protein functional region targeting PD-1;
wherein the number of the first protein functional region is 1, and the
number of the second protein functional region is 2;
the first protein functional region is an immunoglobulin, and the second
protein functional region is a single chain antibody;
the amino acid sequence of the heavy chain of the immunoglobulin is set
forth in SEQ ID NO: 24, and the amino acid sequence of the light chain
of the immunoglobulin is set forth in SEQ ID NO: 26;
the amino acid sequence of the heavy chain variable region of the single
chain antibody is set forth in SEQ ID NO: 9, and the amino acid
sequence of the light chain variable region of the single chain antibody is
set forth in SEQ ID NO: 17;
the single chain antibody is linked to the C-terminus of the heavy chain
of the immunoglobulin;
the first protein functional region is linked to the second protein
functional region via a first linker fragment; and the heavy chain
variable region of the single chain antibody is linked to the light chain
variable region of the single chain antibody via a second linker
fragment; the first linker fragment and the second linker fragment are
the same or different; and
the amino acid sequences of the first linker fragment and the second
linker fragment are independently selected from SEQ ID NO: 18 and
SEQ ID NO: 19.**

- 2. The bispecific antibody according to claim 1, wherein the amino acid sequences of the first linker fragment and second linker fragments are set forth in SEQ ID NO: 18.**
- 3. An isolated nucleic acid molecule, encoding the bispecific antibody according to any one of claims 1–2.**
- 4. A vector, comprising the isolated nucleic acid molecule according to claim 3.**
- 5. A host cell, comprising the isolated nucleic acid molecule according to claim 3 or the vector according to claim 4.**
- 6. A conjugate, comprising an antibody and a conjugated moiety, wherein the antibody is the bispecific antibody according to any one of claims 1–2, and the conjugated moiety is a detectable label.**
- 7. The conjugate according to claim 6, wherein the conjugated moiety is a radioisotope, a fluorescent substance, a luminescent substance, a colored substance, or an enzyme.**
- 8. A kit, comprising the bispecific antibody according to any one of claims 1–2 or the conjugate according to claim 6 or 7.**
- 9. The kit according to claim 8, wherein the kit further comprises a second antibody capable of specifically recognizing the immunoglobulin or the antigen binding fragment thereof.**

10. The kit according to claim 9, wherein the second antibody further comprises a detectable label.

11. The kit according to claim 10, wherein the detectable label is a radioisotope, a fluorescent substance, a luminescent substance, a colored substance, or an enzyme.

12. Use of the conjugate according to claim 6 or 7 in the preparation of a kit for detecting the presence or level of PD-1 and/or VEGFA in a sample.

13. A pharmaceutical composition, comprising the bispecific antibody according to any one of claims 1–2 or the conjugate according to claim 6 or 7.

14. The pharmaceutical composition according to claim 13, further comprising a pharmaceutically acceptable vector and/or excipient.

15. Use of the bispecific antibody according to any one of claims 1–2 or the conjugate according to claim 6 or 7 in the preparation of a medicament for treating a malignant tumor, wherein the malignant tumor is selected from colon cancer, rectal cancer, lung cancer, liver cancer, ovarian cancer, skin cancer, glioma, melanoma, lymphoma, renal tumor, prostate cancer, bladder cancer, gastrointestinal cancer, breast cancer, brain cancer, cervical cancer, esophageal cancer, microsatellite instability-high (MSI-H) and deficient mismatch repair (dMMR) cancer, urothelial cancer, mesothelioma, endometrial cancer, gastric adenocarcinoma, gastroesophageal junction adenocarcinoma

and leukemia.

16. The use according to claim 15, wherein:

the lung cancer is non-small cell lung cancer or small cell lung cancer;

the liver cancer is hepatocellular carcinoma;

the renal tumor is renal cell carcinoma;

the breast cancer is triple negative breast cancer; or

the urothelial cancer is bladder cancer.

17. The use according to claim 16, wherein the non-small cell lung cancer is EGFR and/or ALK sensitive mutant non-small cell lung cancer.

18. The bispecific antibody according to any one of claims 1–2 for use in the treatment of a malignant tumor, wherein the malignant tumor is selected from colon cancer, rectal cancer, lung cancer, liver cancer, ovarian cancer, skin cancer, glioma, melanoma, lymphoma, renal tumor, prostate cancer, bladder cancer, gastrointestinal cancer, breast cancer, brain cancer, cervical cancer, esophageal cancer, microsatellite instability-high (MSI-H) and deficient mismatch repair (dMMR) cancer, urothelial cancer, mesothelioma, endometrial cancer, gastric adenocarcinoma, gastroesophageal junction adenocarcinoma and leukemia.

19. The bispecific antibody for use according to claim 18, wherein:

the lung cancer is non-small cell lung cancer or small cell lung cancer;

the liver cancer is hepatocellular carcinoma;

the renal tumor is renal cell carcinoma;

**the breast cancer is triple negative breast cancer; or
the urothelial cancer is bladder cancer.**

20. The bispecific antibody for use according to claim 19, wherein the non-small cell lung cancer is EGFR and/or ALK sensitive mutant non-small cell lung cancer.

21. The conjugate according to claim 6 or 7 for use in the treatment of a malignant tumor, wherein the malignant tumor is selected from colon cancer, rectal cancer, lung cancer, liver cancer, ovarian cancer, skin cancer, glioma, melanoma, lymphoma, renal tumor, prostate cancer, bladder cancer, gastrointestinal cancer, breast cancer, brain cancer, cervical cancer, esophageal cancer, microsatellite instability-high (MSI-H) and deficient mismatch repair (dMMR) cancer, urothelial cancer, mesothelioma, endometrial cancer, gastric adenocarcinoma, gastroesophageal junction adenocarcinoma and leukemia.

**22. The conjugate for use according to claim 21, wherein:
the lung cancer is non-small cell lung cancer or small cell lung cancer;
the liver cancer is hepatocellular carcinoma;
the renal tumor is renal cell carcinoma;
the breast cancer is triple negative breast cancer; or
the urothelial cancer is bladder cancer.**

23. The conjugate for use according to claim 22, wherein the non-small cell lung cancer is EGFR and/or ALK sensitive mutant non-small cell lung cancer.