platinum-sensitive recurrent ovarian cancer, fallopian tube cancer or primary peritoneal cancer with germline BRCA mutations who had undergone two or more lines of previous chemotherapy. In addition, veliparib ER, ABT-472, ABT-767, Stenoparib, AST-6828, AG-PD, ANG-2864, ANG-3038, ANG-3186, AZD-5305, AZ-0108, AZD-2461, AMXI-5001, AMXI-2001, AMXI-3001, AMXI-7001, AMXI-9001, pamiparib, ZYTP-1, CK-102, XZ-120312, YHP-743, iobenguane I 131, rucaparib camsylate, CVL-218, CPH-101, CPH-102, CBX-11, CBX-15, minocycline, DB-207, DPS-102, E-7016, iobenguane I 131, MK-2512, HCX-014, HWH-340, IDX-1197, IDX-1197, senaparib, IMP-04100, IMP-04111, IMP-04149, IMP-04249, IMP-04307, IMP-04356, JPI-289, JPI-547, JPI-283, fluzoparib, GT-1620, iobenguane I 131, DR-2313, MP-124, H-10, NT-125, BGP-15, NMSP-293, NMSP-118, NMSP-648, NMSP-914, DB-207, NUV-1156, NUV-1176, JPI-289, Stenoparib, OX-401, NU-1025, NU-1085, PLX-376, R-554, RBN-2397, RBN-012759, PJ-34, INO-1001, WW-46, BSI-401, iniparib, SOMCL-9112, SC-10914, HTMC-0435, SRX-3128, TSL-1502, PJ-34, CEP-8983, CK-102, THG-009, talazoparib SR, L-2286, mitoparib and WB-1340 are under development.

Bifunctional antibodies, also known as bispecific antibodies, are specific therapies that target two different antigens simultaneously, and can be produced by immunoselection purification. In addition, bispecific antibodies can also be produced by genetic engineering, and have certain advantages due to corresponding flexibility in aspects such as the optimization of binding sites, considerations of synthetic form and yield. Currently, the bispecific antibody has been demonstrated to exist in over 45 forms (Müller D, Kontermann RE. Bispecific antibodies for cancer immunotherapy: current perspectives. *BioDrugs*, 2010; 24:89-98). A

fluzoparib, GT-1620, iobenguane I 131, DR-2313, MP-124, H-10, NT-125, BGP-15, NMSP-293, NMSP-118, NMSP-648, NMSP-914, DB-207, NUV-1156, NUV-1176, JPI-289, Stenoparib, OX-401, NU-1025, NU-1085, PLX-376, R-554, RBN-2397, RBN-012759, PJ-34, INO-1001, WW-46, BSI-401, iniparib, SOMCL-9112, SC-10914, HTMC-0435, SRX-3128, TSL-1502, PJ-34, CEP-8983, CK-102, THG-009, talazoparib SR, L-2286, mitoparib and WB-1340.

In some embodiments of the present invention, the therapeutic combination further comprises one or more anti-tumor chemotherapeutics;

preferably, the anti-tumor chemotherapeutic is selected from a topoisomerase II (TOP2) inhibitor, and preferably, the topoisomerase II (TOP2) inhibitor is etoposide;

preferably, the anti-tumor chemotherapeutic is selected from a taxane, and preferably, the taxane is selected from paclitaxel, albumin-bound paclitaxel, liposome paclitaxel and docetaxel;

preferably, the anti-tumor chemotherapeutic is selected from a platinum-based drug, preferably, the platinum-based drug is selected from cisplatin, carboplatin, and oxaliplatin;

preferably, the anti-tumor chemotherapeutic is selected from one or more of gemcitabine, pemetrexed and capecitabine.

In some embodiments of the present invention, the therapeutic combination is a fixed combination, e.g., in the form of a solid pharmaceutical composition or a liquid pharmaceutical composition; or

the therapeutic combination is a non-fixed combination, e.g., the bispecific antibody, the PARP inhibitor and the anti-tumor chemotherapeutic are each in the form of a pharmaceutical composition.

CLAIMS

1. A therapeutic combination comprising at least one bispecific antibody and at least one PARP inhibitor,
wherein, the bispecific antibody comprises:
a first protein functional region targeting PD-1, and
a second protein functional region targeting VEGFA;
wherein:
the first protein functional region is an immunoglobulin, and the second protein functional region is a single-chain antibody; wherein the immunoglobulin comprises a heavy chain variable region comprising HCDR1-HCDR3 having amino acid sequences set forth in SEQ ID NOs: 34-36, respectively, and a light chain variable region comprising LCDR1-LCDR3 having amino acid sequences set forth in SEQ ID NOs: 37-39, respectively; the single chain antibody comprises a heavy chain variable region comprising HCDR1-HCDR3 having amino acid sequences set forth in SEQ ID NOs: 28-30, respectively, and a light chain variable region comprising LCDR1-LCDR3 having amino acid sequences set forth in SEQ ID NOs: 31-33, respectively;
or,
the first protein functional region is a single-chain antibody, and the second protein functional region is an immunoglobulin; wherein the immunoglobulin comprises a heavy chain variable region comprising HCDR1-HCDR3 having amino acid sequences set forth in SEQ ID NOs: 28-30, respectively, and a light chain variable region comprising LCDR1-LCDR3 having amino acid sequences set forth in SEQ ID NOs: 31-33, respectively; the single chain antibody comprises a heavy chain variable region comprising HCDR1-HCDR3 having amino acid

sequences set forth in SEQ ID NOs: 34-36, respectively, and a light chain variable region comprising LCDR1-LCDR3 having amino acid sequences set forth in SEQ ID NOs: 37-39, respectively;
the immunoglobulin is of human IgG1 subtype;
according to the EU numbering system, the immunoglobulin comprises a heavy chain constant region having mutations at any 2 or 3 of positions 234, 235 and 237, and the affinity constant of the bispecific antibody for FcγRIIIa and/or C1q is reduced after the mutation as compared to that before the mutation; preferably, the affinity constant is measured by a Fortebio Octet system.

2. The therapeutic combination according to claim 1, wherein, according to the EU numbering system, the heavy chain constant region of the immunoglobulin has the following mutations:
L234A and L235A; or
L234A and G237A; or
L235A and G237A;
or
L234A, L235A and G237A.

3. A therapeutic combination comprising at least one bispecific antibody and at least one PARP inhibitor,
wherein, the bispecific antibody comprises:
a first protein functional region targeting PD-1, and
a second protein functional region targeting VEGFA;
wherein:
the first protein functional region is an immunoglobulin, and the second protein functional region is a single-chain antibody; wherein the

immunoglobulin comprises a heavy chain variable region comprising HCDR1-HCDR3 having amino acid sequences set forth in SEQ ID NOs: 34-36, respectively, and a light chain variable region comprising LCDR1-LCDR3 having amino acid sequences set forth in SEQ ID NOs: 37-39, respectively; the single chain antibody comprises a heavy chain variable region comprising HCDR1-HCDR3 having amino acid sequences set forth in SEQ ID NOs: 28-30, respectively, and a light chain variable region comprising LCDR1-LCDR3 having amino acid sequences set forth in SEQ ID NOs: 31-33, respectively;

or,

the first protein functional region is a single-chain antibody, and the second protein functional region is an immunoglobulin; wherein the immunoglobulin comprises a heavy chain variable region comprising HCDR1-HCDR3 having amino acid sequences set forth in SEQ ID NOs: 28-30, respectively, and a light chain variable region comprising LCDR1-LCDR3 having amino acid sequences set forth in SEQ ID NOs: 31-33, respectively; the single chain antibody comprises a heavy chain variable region comprising HCDR1-HCDR3 having amino acid sequences set forth in SEQ ID NOs: 34-36, respectively, and a light chain variable region comprising LCDR1-LCDR3 having amino acid sequences set forth in SEQ ID NOs: 37-39, respectively;

the immunoglobulin is of human IgG1 subtype;

according to an EU numbering system, the immunoglobulin comprises a heavy chain constant region having the following mutations:

L234A and L235A; or

L234A and G237A; or

L235A and G237A; or

L234A, L235A and G237A.

4. The therapeutic combination according to any of claims 1 to 3, wherein, according to the EU numbering system, the heavy chain constant region of the immunoglobulin has one or more mutations selected from:
N297A, D265A, D270A, P238D, L328E, E233D, H268D, P271G, A330R, C226S, C229S, E233P, P331S, S267E, L328F, A330L, M252Y, S254T, T256E, N297Q, P238S, P238A, A327Q, A327G, P329A, K322A, T394D, G236R, G236A, L328R, A330S, P331S, H268A, E318A and K320A.

5. The therapeutic combination according to any of claims 1 to 4, wherein the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 3; the heavy chain variable region of the single chain antibody has an amino acid sequence selected from SEQ ID NO: 5 and SEQ ID NO: 9, and the light chain variable region of the single chain antibody has an amino acid sequence selected from SEQ ID NO: 7, SEQ ID NO: 11 and SEQ ID NO: 17;
or,
the heavy chain variable region of the immunoglobulin has an amino acid sequence selected from SEQ ID NO: 5 and SEQ ID NO: 9, and the light chain variable region of the immunoglobulin has an amino acid sequence selected from SEQ ID NO: 7, SEQ ID NO: 11 and SEQ ID NO: 17; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 3.

6. The therapeutic combination according to any of claims 1 to 5, wherein the therapeutic combination is selected from any one of the following (1)-(12):

(1)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 3; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 5, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 7;

(2)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 3; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 5, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 11;

(3)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 3; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 5, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 17;

(4)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 3; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 9, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 7;

(5)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 3; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 9, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 11;

(6)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 3; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 9, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 17;

(7)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 5, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID

NO: 7; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 3;

(8)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 5, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 11; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 3;

(9)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 5, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 17; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 3;

(10)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 9, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 7; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 3;

(11)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 9, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 11; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 3; and

(12)

the heavy chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 9, and the light chain variable region of the immunoglobulin has an amino acid sequence set forth in SEQ ID NO: 17; the heavy chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 1, and the light chain variable region of the single chain antibody has an amino acid sequence set forth in SEQ ID NO: 3.

7. The therapeutic combination according to any of claims 1 to 6, wherein the immunoglobulin comprises a heavy chain having an amino acid sequence set forth in SEQ ID NO: 24, and a light chain having an amino acid sequence set forth in SEQ ID NO: 26.

8. The therapeutic combination according to any of claims 1 to 7, wherein the bispecific antibody or an antigen-binding fragment thereof binds to FcγRI with an affinity constant less than about 10^{-6} M, for example, less than about 10^{-7} M, 10^{-8} M, 10^{-9} M or less; preferably, the affinity constant is measured by a Fortebio Octet system.

9. The therapeutic combination according to any of claims 1 to 8, wherein the bispecific antibody or an antigen-binding fragment thereof binds to C1q with an affinity constant less than about 10^{-9} M, for example, less than about 10^{-7} M, 10^{-8} M, 10^{-9} M or less; preferably, the affinity constant is measured by a Fortebio Octet system.

10. The therapeutic combination according to any of claims 1 to 9, wherein the first protein functional region is linked to the second protein functional region either directly or via a linker fragment; and/or the heavy chain variable region of the single chain antibody is linked to the light chain variable region of the single chain antibody either directly or via a linker fragment.

11. The therapeutic combination according to claim 10, wherein the linker fragment is (GGGGS)n; n is a positive integer, and preferably, n is 1, 2, 3, 4, 5 or 6.

12. The therapeutic combination according to any of claims 1 to 11, wherein the numbers of the first protein functional region and the second protein functional region are each independently 1, 2 or more.

13. The therapeutic combination according to any of claims 1 to 12, wherein the single chain antibody is linked to the C terminus of the heavy chain of the immunoglobulin.

14. The therapeutic combination according to any of claims 1 to 13, wherein the heavy chain constant region of the immunoglobulin is selected from a heavy chain constant region of human IgG1, IgG2, IgG3

or IgG4, and the immunoglobulin comprises a light chain constant region selected from a light chain constant region of human IgG1, IgG2, IgG3 or IgG4;

preferably, the heavy chain constant region of the immunoglobulin is human Ig gamma-1 chain C region or human Ig gamma-4 chain C region, and the light chain constant region of the immunoglobulin is human Ig kappa chain C region;

preferably, the heavy chain constant region of the immunoglobulin is human Ig gamma-1 chain C region, ACCESSION: P01857; the light chain constant region of the immunoglobulin is human Ig kappa chain C region, ACCESSION: P01834; or

preferably, the heavy chain constant region of the immunoglobulin is human Ig gamma-4 chain C region, ACCESSION: P01861.1; the light chain constant region of the immunoglobulin is human Ig kappa chain C region, ACCESSION: P01834.

15. A therapeutic combination comprising at least one bispecific antibody and at least one PARP inhibitor,

wherein, the bispecific antibody comprises:

a first protein functional region targeting PD-1, and

a second protein functional region targeting VEGFA;

the number of the first protein functional region is 1, and the number of the second protein functional region is 2;

wherein the first protein functional region is an immunoglobulin, and the second protein functional region is a single chain antibody;

the immunoglobulin comprises a heavy chain having an amino acid sequence set forth in SEQ ID NO: 24, and a light chain having an amino acid sequence set forth in SEQ ID NO: 26;

the single chain antibody comprises a heavy chain variable region having an amino acid sequence set forth in SEQ ID NO: 9, and a light chain variable region having an amino acid sequence set forth in SEQ ID NO: 17; or

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; 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 identical or different;

preferably, 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;

preferably, amino acid sequences of the first linker fragment and the second linker fragment are set forth in SEQ ID NO: 18.

16. The therapeutic combination according to any of claims 1 to 15, wherein the PARP inhibitor is selected from one or more of olaparib, rucaparib, niraparib, talazoparib, fluzoparib, veliparib ER, ABT-472, ABT-767, stenoparib, AST-6828, AG-PD, ANG-2864, ANG-3038, ANG-3186, AZD-5305, AZ-0108, AZD-2461, AMXI-5001, AMXI-2001, AMXI-3001, AMXI-7001, AMXI-9001, pamiparib, ZYTP-1, CK-102, XZ-120312, YHP-743, iobenguane I 131, rucaparib camsylate, CVL-218, CPH-101, CPH-102, CBX-11, CBX-15, minocycline, DB-207, DPS-102, E-7016, iobenguane I 131, MK-2512, HCX-014, HWH-340, IDX-1197, IDX-1197, senaparib, IMP-04100, IMP-04111, IMP-04149, IMP-04249,

IMP-04307, IMP-04356, JPI-289, JPI-547, JPI-283, fluzoparib, GT-1620, iobenguane I 131, DR-2313, MP-124, H-10, NT-125, BGP-15, NMSP-293, NMSP-118, NMSP-648, NMSP-914, DB-207, NUV-1156, NUV-1176, JPI-289, Stenoparib, OX-401, NU-1025, NU-1085, PLX-376, R-554, RBN-2397, RBN-012759, PJ-34, INO-1001, WW-46, BSI-401, iniparib, SOMCL-9112, SC-10914, HTMC-0435, SRX-3128, TSL-1502, PJ-34, CEP-8983, CK-102, THG-009, talazoparib SR, L-2286, mitoparib and WB-1340.

17. The therapeutic combination according to any of claims 1 to 16, further comprising one or more anti-tumor chemotherapeutics, wherein,
preferably, the anti-tumor chemotherapeutic is selected from a topoisomerase II (TOP2) inhibitor, and preferably, the topoisomerase II (TOP2) inhibitor is etoposide;
preferably, the anti-tumor chemotherapeutic is selected from a taxane, and preferably, the taxane is selected from paclitaxel, albumin-bound paclitaxel, liposome paclitaxel and docetaxel;
preferably, the anti-tumor chemotherapeutic is selected from a platinum-based drug, preferably, the platinum-based drug is selected from cisplatin, carboplatin, and oxaliplatin;
preferably, the anti-tumor chemotherapeutic is selected from one or more of gemcitabine, pemetrexed and capecitabine.

18. The therapeutic combination according to any of claims 1 to 17, wherein
the therapeutic combination is a fixed combination, e.g., in the form of a solid pharmaceutical composition or a liquid pharmaceutical composition; or

the therapeutic combination is a non-fixed combination, e.g., the bispecific antibody and the PARP inhibitor are each in the form of a pharmaceutical composition.

19. The therapeutic combination according to claim 18, wherein the pharmaceutical composition further comprises a pharmaceutically acceptable carrier and/or excipient.

20. A kit product, comprising: the therapeutic combination according to any of claims 1 to 19, and a package insert.

21. Use of the therapeutic combination according to any of claims 1 to 19 or the kit product according to claim 20 in preparing a medicament for treating and/or preventing a malignant tumor, wherein,
preferably, the malignant tumor is selected from ovarian cancer, endometrial cancer, breast cancer, cervical cancer, fallopian tube cancer, peritoneal cancer, pancreatic cancer, colon cancer, rectal cancer, lung cancer, liver cancer, skin cancer, glioma, melanoma, lymphoma, renal tumor, prostate cancer, bladder cancer, gastrointestinal cancer, brain cancer, oesophageal cancer such as oesophageal squamous cancer, microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) cancer, urothelial carcinoma, mesothelioma, gastric adenocarcinoma, gastroesophageal junction adenocarcinoma, leukemia, myeloma, thyroid cancer, head and neck cancer, bone cancer, biliary tract cancer and testicular cancer;
preferably, the tumor is a tumor with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the tumor is a tumor without deficient repair function mediated by homologous recombination;
preferably, the lung cancer is non-small cell lung cancer or small cell lung cancer;
preferably, the non-small cell lung cancer is a non-small cell lung cancer with EGFR and/or ALK-sensitive mutation;
preferably, the non-small cell lung cancer is a non-small cell lung cancer without EGFR and/or ALK-sensitive mutation;
preferably, the liver cancer is hepatocellular carcinoma;
preferably, the renal cancer is renal cell carcinoma;
preferably, the breast cancer is triple negative breast cancer;
preferably, the urothelial carcinoma is bladder cancer;
preferably, the peritoneal cancer is primary peritoneal cancer;
preferably, the ovarian cancer is an ovarian cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the fallopian tube cancer is a fallopian tube cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the peritoneal cancer is a peritoneal cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the breast cancer is a breast cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation).

22. The therapeutic combination according to any of claims 1 to 19 or the kit product according to claim 20 for use in treating and/or preventing a

malignant tumor, wherein,

preferably, the malignant tumor is selected from ovarian cancer, endometrial cancer, breast cancer, cervical cancer, fallopian tube cancer, peritoneal cancer, pancreatic cancer, colon cancer, rectal cancer, lung cancer, liver cancer, skin cancer, glioma, melanoma, lymphoma, renal tumor, prostate cancer, bladder cancer, gastrointestinal cancer, brain cancer, oesophageal cancer such as oesophageal squamous cancer, microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) cancer, urothelial carcinoma, mesothelioma, gastric adenocarcinoma, gastroesophageal junction adenocarcinoma, leukemia, myeloma, thyroid cancer, head and neck cancer, bone cancer, biliary tract cancer and testicular cancer;

preferably, the tumor is a tumor with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the tumor is a tumor without deficient repair function mediated by homologous recombination;

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

preferably, the non-small cell lung cancer is a non-small cell lung cancer with EGFR and/or ALK-sensitive mutation;

preferably, the non-small cell lung cancer is a non-small cell lung cancer without EGFR and/or ALK-sensitive mutation;

preferably, the liver cancer is hepatocellular carcinoma;

preferably, the renal cancer is renal cell carcinoma;

preferably, the breast cancer is triple negative breast cancer;

preferably, the urothelial carcinoma is bladder cancer;

preferably, the peritoneal cancer is primary peritoneal cancer;

preferably, the ovarian cancer is an ovarian cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the fallopian tube cancer is a fallopian tube cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the peritoneal cancer is a peritoneal cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the breast cancer is a breast cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation).

23. A method for treating and/or preventing a malignant tumor, comprising: administering to a subject in need an effective amount of the therapeutic combination according to any of claims 1 to 19 or the kit product according to claim 20, wherein,
preferably, the malignant tumor is selected from ovarian cancer, endometrial cancer, breast cancer, cervical cancer, fallopian tube cancer, peritoneal cancer, pancreatic cancer, colon cancer, rectal cancer, lung cancer, liver cancer, skin cancer, glioma, melanoma, lymphoma, renal tumor, prostate cancer, bladder cancer, gastrointestinal cancer, brain cancer, oesophageal cancer such as oesophageal squamous cancer, microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) cancer, urothelial carcinoma, mesothelioma, gastric adenocarcinoma, gastroesophageal junction adenocarcinoma, leukemia, myeloma, thyroid cancer, head and neck cancer, bone cancer, biliary tract cancer and testicular cancer;

preferably, the tumor is a tumor with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the tumor is a tumor without deficient repair function mediated by homologous recombination;

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

preferably, the non-small cell lung cancer is a non-small cell lung cancer with EGFR and/or ALK-sensitive mutation;

preferably, the non-small cell lung cancer is a non-small cell lung cancer without EGFR and/or ALK-sensitive mutation;

preferably, the liver cancer is hepatocellular carcinoma;

preferably, the renal cancer is renal cell carcinoma;

preferably, the breast cancer is triple negative breast cancer;

preferably, the urothelial carcinoma is bladder cancer;

preferably, the peritoneal cancer is primary peritoneal cancer;

preferably, the ovarian cancer is an ovarian cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the fallopian tube cancer is a fallopian tube cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the peritoneal cancer is a peritoneal cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the breast cancer is a breast cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation).

24. The method according to claim 23, wherein the administration is performed before or after surgery and/or before or after radiotherapy.

25. The method according to any of claims 23 to 24, wherein
the bispecific antibody is administered at a unit dose of 0.1-100 mg per kg body weight, preferably 5-50 mg or 5-15 mg per kg body weight,
administered once every 3 days, 4 days, 5 days, 6 days, 10 days, 1 week, 2 weeks or 3 weeks,
and/or
administered by intravenous drip infusion or intravenous injection.

26. The method according to any of claims 23 to 25, wherein
the PARP inhibitor is administered at a unit dose of 0.1-100 mg per kg body weight, preferably 5-50 mg or 5-15 mg per kg body weight,
administered once every 3 days, 4 days, 5 days, 6 days, 10 days, 1 week, 2 weeks or 3 weeks,
and/or
administered by intravenous drip infusion or intravenous injection.

27. Use of the bispecific antibody in the therapeutic combination according to any of claims 1 to 19 in preparing a medicament for treating and/or preventing a malignant tumor, wherein the malignant tumor is selected from ovarian cancer, fallopian tube cancer, peritoneal cancer and breast cancer;
preferably, the ovarian cancer is an ovarian cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the fallopian tube cancer is a fallopian tube cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the peritoneal cancer is a peritoneal cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the breast cancer is a breast cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation).

28. A method for treating and/or preventing a malignant tumor, comprising: administering to a subject in need an effective amount of the bispecific antibody in the therapeutic combination according to any of claims 1 to 19, wherein the malignant tumor is selected from ovarian cancer, fallopian tube cancer, peritoneal cancer and breast cancer;
preferably, the ovarian cancer is an ovarian cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the fallopian tube cancer is a fallopian tube cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the peritoneal cancer is a peritoneal cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);
preferably, the breast cancer is a breast cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation).

29. The bispecific antibody in the therapeutic combination according to any of claims 1 to 19 for use in treating and/or preventing a malignant tumor, wherein the malignant tumor is selected from ovarian cancer, fallopian tube cancer, peritoneal cancer and breast cancer;

preferably, the ovarian cancer is an ovarian cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the fallopian tube cancer is a fallopian tube cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the peritoneal cancer is a peritoneal cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation);

preferably, the breast cancer is a breast cancer with deficient repair function mediated by homologous recombination (e.g., a BRCA1 mutation and/or a BRCA2 mutation).