

THE CLAIMS

1. An isolated antibody or antigen-binding fragment thereof specifically binding to CD73, comprising a heavy chain variable region that comprises HCDR1, HCDR2, HCDR3; and a light chain variable region that comprises LCDR1, LCDR2, LCDR3, wherein:
 - (a) HCDR1 comprises an amino acid sequence of SEQ ID NO: 43,
 - (b) HCDR2 comprises an amino acid sequence of SEQ ID NO: 44,
 - (c) HCDR3 comprises an amino acid sequence of SEQ ID NO: 45,
 - (d) LCDR1 comprises an amino acid sequence of SEQ ID NO: 48,
 - (e) LCDR2 comprises an amino acid sequence of SEQ ID NO: 49, and
 - (f) LCDR3 comprises an amino acid sequence of SEQ ID NO: 50.
2. The isolated antibody or antigen-binding fragment thereof of claim 1, which comprises:
 - a heavy chain variable region (VH) comprising an amino acid sequence which has at least 85% identity to the amino acid sequences selected from the group consisting of SEQ ID NOs: 41, 76, 77 and 78, and a light chain variable region (VL) comprising an amino acid sequence which has at least 85% identity to the amino acid sequence selected from the group consisting of SEQ ID NOs: 46, 79 and 80;preferably, the isolated antibody or antigen-binding fragment thereof comprises:
 - 1) a heavy chain variable region (VH) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 41, and a light chain variable region (VL) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 46;
 - 2) a heavy chain variable region (VH) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 76, and a light chain variable region (VL) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 79;

- 3) a heavy chain variable region (VH) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 76, and a light chain variable region (VL) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 80;
 - 4) a heavy chain variable region (VH) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 77, and a light chain variable region (VL) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 79;
 - 5) a heavy chain variable region (VH) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 77, and a light chain variable region (VL) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 80;
 - 6) a heavy chain variable region (VH) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 78, and a light chain variable region (VL) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 79;
 - 7) a heavy chain variable region (VH) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 78, and a light chain variable region (VL) that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 80.
3. The isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 2, wherein the isolated antibody is
- i) an IgG;
 - ii) an IgG1, IgG2 or IgG4; and/or

iii) a monoclonal antibody, a chimeric antibody, a humanized antibody, a human engineered antibody, a human antibody, Fv, a single chain antibody (scFv), Fab, Fab', Fab'-SH or F(ab')₂.

4. The isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 3, comprising

a heavy chain comprising an amino acid sequence which has at least 85% identity to the amino acid sequences selected from the group consisting of SEQ ID NOs: 51, 52, 81, 82, 83, 86, 87, 90, 91, 120, 124, 125, 126 and 127; and a light chain comprising an amino acid sequence which has at least 85% identity to the amino acid sequences selected from the group consisting of SEQ ID NOs: 53, 84, 85, 88, 89 and 121;

preferably, the isolated antibody or antigen-binding fragment thereof comprises:

- 1) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 51, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 53;
- 2) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 52, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 53;
- 3) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 81, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 84;
- 4) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 81, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 85;
- 5) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 82, and a light chain that

comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 84;

- 6) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 82, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 85;
- 7) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 83, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 84;
- 8) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 83, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 85;
- 9) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 90, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 84;
- 10) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 90, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 85;
- 11) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 91, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 84;
- 12) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 91, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 85;

- 13) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 86, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 88;
- 14) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 86, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 89;
- 15) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 87, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 88;
- 16) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 87, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 89;
- 17) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 124, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 84;
- 18) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 124, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 85;
- 19) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 125, and a light chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 84; or
- 20) a heavy chain that comprises an amino acid sequence which has at least 85% identity to the amino acid sequences of SEQ ID NO: 125, and a light chain

that comprises an amino acid sequence which has at least 85% identity to the amino acid sequence of SEQ ID NO: 85,

more preferably, the isolated antibody or antigen-binding fragment thereof comprises

- a) a heavy chain consisting essentially of SEQ ID NO: 81 and a light chain consisting essentially of SEQ ID NO: 85;
 - e) a heavy chain consisting essentially of SEQ ID NO: 82 and a light chain consisting essentially of SEQ ID NO: 84;
 - f) a heavy chain consisting essentially of SEQ ID NO: 83 and a light chain consisting essentially of SEQ ID NO: 85;
 - g) a heavy chain consisting essentially of SEQ ID NO: 124 and a light chain consisting essentially of SEQ ID NO: 85; or
 - h) a heavy chain consisting essentially of SEQ ID NO: 125 and a light chain consisting essentially of SEQ ID NO: 85.
5. The isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 4, which is an antagonist of CD73 or an antagonist of 5'-nucleotidase of CD73, preferably, the CD73 is human CD73.
 6. Use of the isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 5 in the manufacture of a medicament for decreasing adenosine levels in a tumor cell and/or a tumor microenvironment, for stimulating a T cell response in a subject with tumor, or for inhibiting the growth of tumor cells in a subject.
 7. The use of claim 6, wherein the subject is a subject with tumor, preferably, the subject has a tumor cell expressing CD73 and/or a tumor microenvironment containing CD73.
 8. The isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 5 for use in decreasing adenosine levels in a tumor cell and/or a tumor microenvironment, for use in stimulating a T cell response in a subject with tumor, or for use in inhibiting the growth of tumor cells in a subject.

9. The isolated antibody or antigen-binding fragment thereof for use according to claim 8, wherein the subject is a subject with tumor, preferably, the subject has a tumor cell expressing CD73 and/or a tumor microenvironment containing CD73.
10. A pharmaceutical composition comprising the isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 5, and a pharmaceutically acceptable excipient.
11. Use of the isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 5, or the pharmaceutical composition of claim 10 for the manufacture of a medicament for a treatment of tumor,
preferably, the tumor is selected from solid tumor or hematological tumor,
more preferably, the tumor is selected from bladder cancer, breast cancer, cervical cancer, ovarian cancer, prostate cancer, testicular cancer, esophageal cancer, gastrointestinal cancer, pancreatic cancer, colorectal cancer, colon cancer, renal cancer, head and neck cancer, lung cancer (small cell lung cancer or non-small cell lung cancer), stomach cancer, bone cancer, liver cancer, thyroid cancer, skin cancer, central nervous system tumor, lymphoma, leukemia, myeloma, sarcoma, and virus-associated cancer.
12. The isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 5, or the pharmaceutical composition of claim 10 for use in a treatment of tumor, preferably, the tumor is selected from solid tumor or hematological tumor, more preferably, the cancer is selected from bladder cancer, breast cancer, cervical cancer, ovarian cancer, prostate cancer, testicular cancer, esophageal cancer, gastrointestinal cancer, pancreatic cancer, colorectal cancer, colon cancer, renal cancer, head and neck cancer, lung cancer (small cell lung cancer or non-small cell lung cancer), stomach cancer, bone cancer, liver cancer, thyroid cancer, skin cancer, central nervous system tumor, lymphoma, leukemia, myeloma, sarcoma, and virus-associated cancer.
13. A nucleic acid composition, which comprises:
 - (I) a first nucleic acid comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 42, 102, 103 and 104; and a second

nucleic acid comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 47, 105 and 106; or

- (II) a first nucleic acid comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 107, 108, 109, 112, 113, 116 and 117; and a second nucleic acid comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 110, 111, 114 and 115;

preferably, the nucleic acid composition comprises:

- 1) the first nucleic acid comprising SEQ ID NO: 42 and the second nucleic acid comprising SEQ ID NO: 47;
- 2) the first nucleic acid comprising SEQ ID NO: 102 and the second nucleic acid comprising SEQ ID NO: 105;
- 3) the first nucleic acid comprising SEQ ID NO: 102 and the second nucleic acid comprising SEQ ID NO: 106;
- 4) the first nucleic acid comprising SEQ ID NO: 103 and the second nucleic acid comprising SEQ ID NO: 105;
- 5) the first nucleic acid comprising SEQ ID NO: 103 and the second nucleic acid comprising SEQ ID NO: 106;
- 6) the first nucleic acid comprising SEQ ID NO: 104 and the second nucleic acid comprising SEQ ID NO: 105;
- 7) the first nucleic acid comprising SEQ ID NO: 104 and the second nucleic acid comprising SEQ ID NO: 106;
- 8) the first nucleic acid comprising SEQ ID NO: 107 and the second nucleic acid comprising SEQ ID NO: 110;
- 9) the first nucleic acid comprising SEQ ID NO: 107 and the second nucleic acid comprising SEQ ID NO: 111;
- 10) the first nucleic acid comprising SEQ ID NO: 108 and the second nucleic acid comprising SEQ ID NO: 110;
- 11) the first nucleic acid comprising SEQ ID NO: 108 and the second nucleic acid comprising SEQ ID NO: 111;

- 12) the first nucleic acid comprising SEQ ID NO: 109 and the second nucleic acid comprising SEQ ID NO: 110;
 - 13) the first nucleic acid comprising SEQ ID NO: 109 and the second nucleic acid comprising SEQ ID NO: 111;
 - 14) the first nucleic acid comprising SEQ ID NO: 116 and the second nucleic acid comprising SEQ ID NO: 110;
 - 15) the first nucleic acid comprising SEQ ID NO: 116 and the second nucleic acid comprising SEQ ID NO: 111;
 - 16) the first nucleic acid comprising SEQ ID NO: 117 and the second nucleic acid comprising SEQ ID NO: 110;
 - 17) the first nucleic acid comprising SEQ ID NO: 117 and the second nucleic acid comprising SEQ ID NO: 111;
 - 18) the first nucleic acid comprising SEQ ID NO: 112 and the second nucleic acid comprising SEQ ID NO: 114;
 - 19) the first nucleic acid comprising SEQ ID NO: 112 and the second nucleic acid comprising SEQ ID NO: 115;
 - 20) the first nucleic acid comprising SEQ ID NO: 113 and the second nucleic acid comprising SEQ ID NO: 114; or
 - 21) the first nucleic acid comprising SEQ ID NO: 113 and the second nucleic acid comprising SEQ ID NO: 115.
14. An expression vector composition, which comprises:
- (I) a first expression vector comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 42, 102, 103 and 104; and a second expression vector comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 47, 105 and 106; or
 - (II) a first expression vector comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 107, 108, 109, 112, 113, 116 and 117; and a second expression vector comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 110, 111, 114 and 115;

preferably, the expression vector composition comprises:

- 1) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 42 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 47;
- 2) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 102 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 105;
- 3) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 102 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 106;
- 4) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 103 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 105;
- 5) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 103 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 106;
- 6) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 104 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 105;
- 7) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 104 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 106;
- 8) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 107 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 110;
- 9) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 107 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 111;

- 10) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 108
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 110;
- 11) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 108
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 111;
- 12) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 109
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 110;
- 13) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 109
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 111;
- 14) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 116
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 110;
- 15) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 116
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 111;
- 16) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 117
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 110;
- 17) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 117
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 111;
- 18) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 112
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 114;
- 19) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 112
and a second expression vector comprising a nucleotide sequence of SEQ ID
NO: 115;

20) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 113 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 114; or

21) a first expression vector comprising a nucleotide sequence of SEQ ID NO: 113 and a second expression vector comprising a nucleotide sequence of SEQ ID NO: 115.

15. An expression vector, which comprises:

- (I) a first nucleic acid sequence comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 42, 102, 103 and 104; and a second nucleic acid sequence comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 47, 105 and 106;
- (II) a first nucleic acid sequence comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 107, 108, 109, 112, 113, 116 and 117; and a second nucleic acid sequence comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 110, 111, 114 and 115;

preferably, the expression vector comprises:

- 1) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 42 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 47;
- 2) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 102 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 105;
- 3) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 102 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 106;
- 4) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 103 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 105;

- 5) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 103 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 106;
- 6) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 104 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 105;
- 7) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 104 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 106;
- 8) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 107 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 110;
- 9) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 107 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 111;
- 10) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 108 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 110;
- 11) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 108 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 111;
- 12) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 109 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 110;
- 13) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 109 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 111;
- 14) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 116 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 110;

- 15) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 116 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 111;
 - 16) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 117 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 110;
 - 17) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 117 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 111;
 - 18) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 112 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 114;
 - 19) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 112 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 115;
 - 20) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 113 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 114; or
 - 21) a first nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 113 and a second nucleic acid sequence comprising a nucleotide sequence of SEQ ID NO: 115.
- 16. A cell comprising the expression vector composition of claim 14 or the expression vector of claim 15.
 - 17. A method of preparing the isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 5, comprising expressing the isolated antibody or antigen-binding fragment thereof in the cell of claim 16, and isolating the isolated antibody or antigen-binding fragment from the cell.
 - 18. A kit comprising the isolated antibody or antigen-binding fragment thereof of any one of claims 1 to 5.