CLAIMS

1. A conjugate comprising an isolated antigen-binding protein which binds claudin-6 or antigen-binding fragment or variant thereof, a cytotoxic agent or a chemotherapeutic agent and a linker, wherein the antigen-binding protein is selected from (a) an antigen-binding protein comprising:

(i) an HC CDR1 comprising the amino acid sequence of FTFSXYX (SEQ ID NO: 455), wherein X at position 5 is N and X at position 7 is W;

(ii) an HC CDR2 comprising the amino acid sequence of IRLKXDXYAT (SEQ ID NO: 456), wherein X at position 5 is S and X at position 7 is N;

(iii) an HC CDR3 comprising the amino acid sequence of XDGPPSGX (SEQ ID NO: 457), wherein X at position 1 is N and X at position 8 is S;

(iv) an LC CDR1 comprising the amino acid sequence of EXIYSY (SEQ ID NO: 476), wherein X is N;

(v) an LC CDR2 comprising the amino acid sequence of XAK (SEQ ID NO: 477), wherein X at position 1 is N; and

(vi) an LC CDR3 comprising the amino acid sequence of QXHYXVPWT (SEQ ID NO: 454), wherein X at position 2 is H and X at position 5 is T; and.

(b) an antigen-binding protein comprising the heavy chain (HC) CDR1-3 amino acid sequences of SEQ ID NOs: 23, 24, and 25, and the light chain (LC) CDR1-3 amino acid sequences of SEQ ID NOs: 20, 21, and 22,

wherein the linker is between the antibody and the cytotoxic agent or chemotherapeutic agent and the linker is selected from the group consisting of VC-PAB, GGFG and CLA2

2. The conjugate according to claim 1, wherein the conjugate comprises VC-PAB-MMAE.

3. The conjugate according to claim1 or 2, wherein the protein is an antibody or an antigen-binding antibody fragment.

4. The conjugate according to any one of the preceding claims, wherein the protein is a monoclonal antibody.

5. The conjugate according to any one of the preceding claims, wherein the protein is a human, humanized, or chimeric antibody.

6. The conjugate according to any one of the preceding claims, wherein the protein is a humanized antibody comprising the heavy chain variable domain sequence as provided in SEQ ID NO: 387 and light chain variable domain sequence as provided in SEQ ID NO: 389 or a variant that has at least 95%, 96%, 97%, 98% or 99% sequence identity along the full length of the referenced amino acid sequence.

7. A pharmaceutical composition comprising a conjugate according to any one of the preceding claims and a pharmaceutically acceptable carrier, diluent or excipient.

8. The conjugate according to any one of claims 1 to 6, or the pharmaceutical composition according to claim 7 for use in treating cancer, inhibiting tumor growth, reducing tumor size, or preventing the recurrence of cancer.

9. Use of the conjugate according to any one of claims 1 to 6 in the preparation of a medicament for treating cancer, inhibiting tumor growth, reducing tumor size, or preventing the recurrence of cancer.

10. A method of producing a pharmaceutical composition comprising combining a pharmaceutically acceptable carrier, diluent, or excipient; and

(a) a conjugate of claim 1,

(b) a conjugate comprising the antigen-binding protein and linker of claim 1,

(c) a fusion protein comprising the antigen-binding protein and linker of claim 1,

(d) a nucleic acid encoding the antigen-binding protein and GGFG linker of claim 1,

(e) a vector comprising the nucleic acid of(d), or

(f) a combination thereof.

11. A method of producing a conjugate of claim 1 comprising an antigen binding protein that binds to a Claudin6 (CLDN6) protein, comprising:

(a) culturing a host cell in a cell culture medium, wherein the host cell comprises the nucleic acid of claim 10 comprising a nucleotide sequence encoding the antigen binding protein and GGFG linker,

(b) harvesting the antigen-binding protein and GGFG linker from the cell culture medium, and

(c) attaching the antigen binding protein and GGFG linker to a second moiety so as to produce the conjugate, wherein the second moiety is a cytotoxic agent or a chemotherapeutic agent.