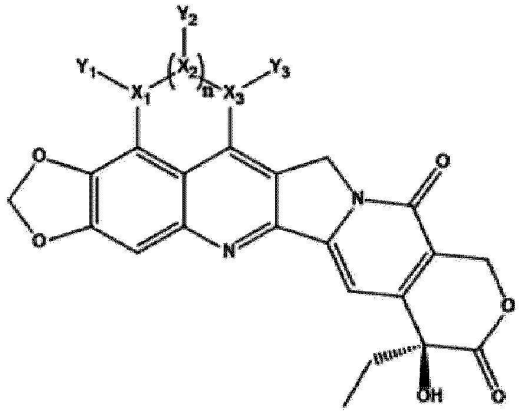
Claims:

1. An antibody-drug conjugate (ADC) comprising a structure, in which a compound according to Formula 1 below or a pharmaceutically acceptable salt, a stereoisomer, a tautomer, a prodrug, a hydrate, a solvate, or an isotopically labeled analog thereof is linked to an anti-Tissue factor antibody via a linker:

[Formula 1]



wherein:

X_1 and X_3 are each independently carbon, oxygen, nitrogen, or sulfur, and X_1 and X_3 are the same or different;

X_2 is carbon, oxygen, nitrogen, sulfur, a single bond, or a double bond;

n is 0, 1, or 2; and

Y_1, Y_2, and Y_3 are each independently hydrogen or a functional group comprising oxygen, nitrogen, phosphorus, or sulfur.

2. The antibody-drug conjugate of claim 1, wherein:

X_1, X_2, and X_3 are each independently carbon;

n is 1;

Y_1 and Y_2 are each independently hydrogen;

Y_3 is $-NZ_1Z_2$; and

Z_1 and Z_2 each comprise a functional group selected from the group consisting of hydrogen, halogen, hydroxyl, C_{1-3} alkyl, C(=O)H, C(=O)(C_{1-3} alkyl), C(=O)(C_{2-3}

alkenyl), C(=O)NH_2, C(=O)NH(C_{1-3} alkyl), $(CH_2)_{2-4}OH$, $(CH_2)_{2-4}O(C_{1-3}$ alkyl), $(CH_2)_{2-4}NH_2$, $(CH_2)_{2-4}NH(C_{1-3}$ alkyl), $(CH_2)_{2-4}N(C_{1-3}$ alkyl)$_2$, and $C(=O)CR^1R^2R^3$; and

wherein R^1, R^2, and R^3 are each independently hydrogen, hydroxyl, C_{1-3} alkyl, C_{3-7} cycloalkyl, or C_{1-3} haloalkyl.

3. The antibody-drug conjugate of claim 1, wherein:

X_1, X_2, and X_3 are each independently carbon;

n is 1;

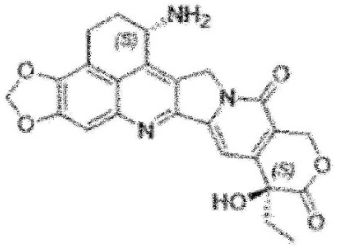
Y_1 and Y_2 are each independently hydrogen;

Y_3 is $-NZ_1Z_2$; and

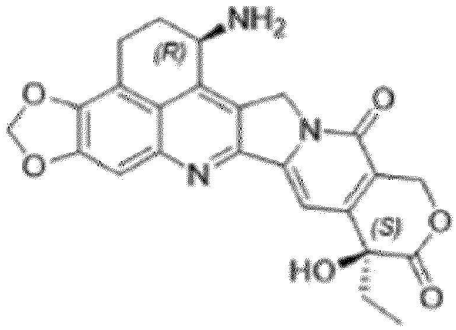
Z_1 is hydrogen, and Z_2 is C(=O)(C_{2-3} alkenyl) or $C(=O)CR^1R^2R^3$, wherein R^1, R^2, and R^3 are each independently hydrogen, hydroxyl, C_{1-3} alkyl, C_{3-7} cycloalkyl, or C_{1-3} haloalkyl.

4. The antibody-drug conjugate of claim 1, wherein the compound of Formula 1 is represented by any one of Formulas 2 to 11 below:

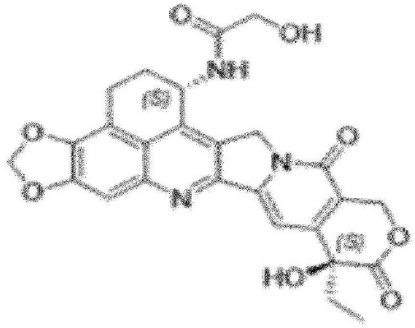
[Formula 2]



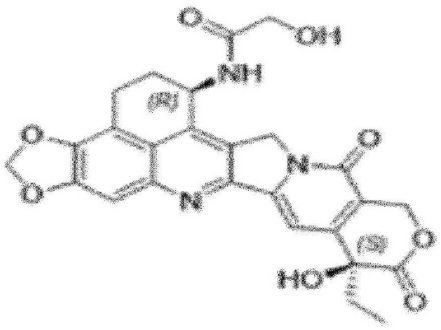
[Formula 3]



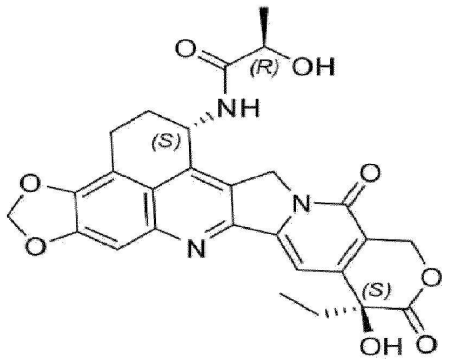
[Formula 4]



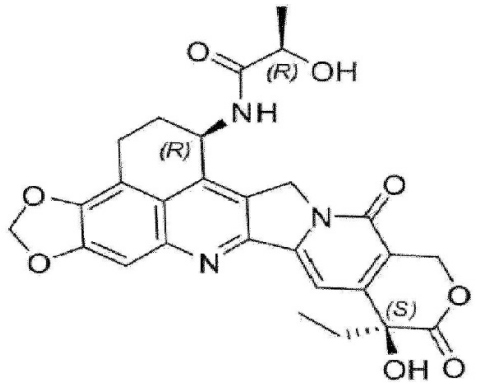
[Formula 5]



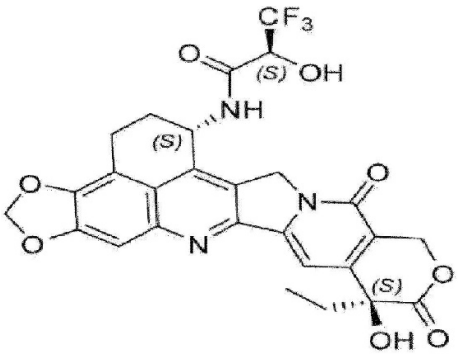
[Formula 6]



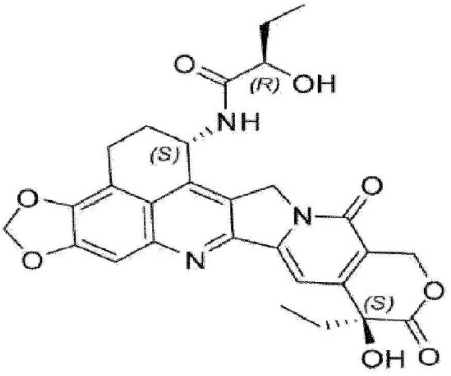
[Formula 7]



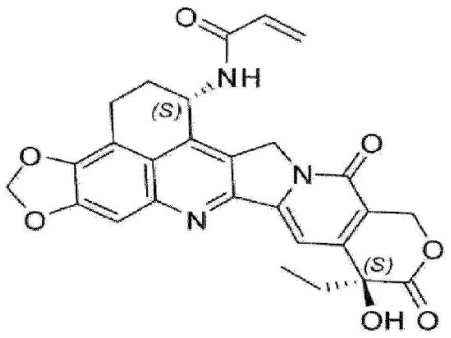
[Formula 8]



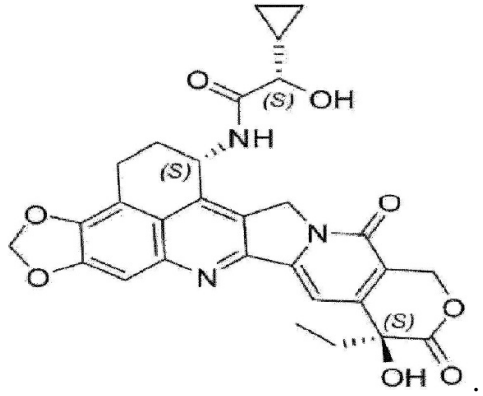
[Formula 9]



[Formula 10]

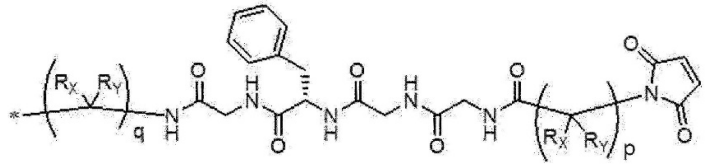


[Formula 11]



5. The antibody-drug conjugate (ADC) of claim 1, wherein the linker is represented by Formula 12 below:

[Formula 12]



wherein:

R_X and R_Y are each independently hydrogen or C_{1-6} alkyl;

p and q are each independently an integer of 1 to 6; and

* is the part that binds to a payload.

6. The antibody-drug conjugate of claim 1, wherein the anti-tissue factor

antibody is selected from the group consisting of antibodies of Tisotumab, XB-002, MRG-004A, AMB101, and STRO-004.

7. The antibody-drug conjugate of claim 1, wherein the anti-Tissue factor antibody is Tisotumab.

8. The antibody-drug conjugate of claim 1, wherein the anti-Tissue factor antibody is an antibody comprising i) a heavy chain comprising CDR-H1, CDR-H2, and CDR-H3 having the amino acid sequences of SEQ ID NOs: 1, 2 and 3, respectively, and ii) a light chain comprising CDR-L1, CDR-L2, and CDR-L3 having the amino acid sequences of SEQ ID NOs: 4, 5, and 6, respectively; or an antigen-binding fragment thereof.

9. The antibody-drug conjugate of claim 1, wherein the anti-Tissue factor antibody is an antibody comprising i) a heavy chain variable region having the amino acid sequence of SEQ ID NO: 7, and ii) a light chain variable region having the amino acid sequence of SEQ ID NO: 8; or an antigen-binding fragment thereof.

10. The antibody-drug conjugate of claim 1, wherein the anti-Tissue factor antibody is an antibody comprising i) a heavy chain having the amino acid sequence of SEQ ID NO: 9, and ii) a light chain having the amino acid sequence of SEQ ID NO: 10; or an antigen-binding fragment thereof.

11. A pharmaceutical composition for treating or preventing cancer, comprising the antibody-drug conjugate according to any one of claims 1 to 10 as an active ingredient.

12. The pharmaceutical composition of claim 11, wherein the cancer is selected

from the group consisting of pseudomyxoma, intrahepatic cholangiocarcinoma, hepatoblastoma, liver cancer, thyroid cancer, colon cancer, testicular cancer, myelodysplastic syndrome, glioblastoma, oral cancer, lip cancer, mycosis fungoides, acute myeloid leukemia, acute lymphoblastic leukemia, basal cell carcinoma, fallopian tube cancer, ovarian epithelial cancer, ovarian germ cell cancer, male breast cancer, brain cancer, pituitary adenoma, multiple myeloma, gallbladder cancer, biliary tract cancer, colorectal cancer, head and neck cancer, chronic myeloid leukemia, chronic lymphocytic leukemia, retinoblastoma, choroidal melanoma, ampulla of Vater cancer, bladder cancer, peritoneal cancer, parathyroid cancer, adrenal cancer, paranasal sinus and nasal cavity cancer, non-small cell lung cancer, tongue cancer, astrocytoma, small cell lung cancer, pediatric brain cancer, pediatric lymphoma, pediatric leukemia, small intestine cancer, meningioma, esophageal cancer, glioma, renal pelvis cancer, kidney cancer, heart cancer, duodenal cancer, malignant soft tissue cancer, malignant bone cancer, malignant lymphoma, malignant mesothelioma, malignant melanoma, eye cancer, vulvar cancer, ureteral cancer, uretheral cancer, cancer of unknown primary site, gastric lymphoma, gastric cancer, gastric carcinoid, gastrointestinal stromal cancer, Wilms' cancer, breast cancer, sarcoma, penile cancer, pharyngeal cancer, gestational trophoblastic disease, cervical cancer, endometrial cancer, uterine sarcoma, prostate cancer, metastatic bone cancer, metastatic brain cancer, mediastinal cancer, rectal cancer, rectal carcinoid, vaginal cancer, spinal cancer, acoustic neuroma, pancreatic cancer, salivary gland cancer, Kaposi's sarcoma, Paget's disease, tonsil cancer, squamous cell carcinoma, pulmonary adenocarcinoma, lung cancer, pulmonary squamous cell carcinoma, skin cancer, anal cancer, rhabdomyosarcoma, laryngeal cancer, pleural cancer, blood cancer, and thymic cancer.

13. The pharmaceutical composition of claim 11, wherein the cancer is selected from the group consisting of cervical cancer, endometrial cancer, ovarian cancer, peritoneal cancer, fallopian tube cancer, breast cancer, head and neck cancer, esophageal

cancer, bladder cancer, and pancreatic cancer.

14. Use of the antibody-drug conjugate according to any one of claims 1 to 10 in the manufacture of a pharmaceutical composition for treating or preventing cancer.