and exatecan are conjugated to each other via the linker, and confirmed an excellent antitumor effect exhibited by the conjugate to thereby complete the present invention.

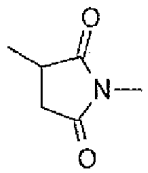
[0015]

Specifically, the present invention relates to the following. In one aspect, the present invention refers to an antibody-drug conjugate, wherein a linker and a drug represented by the following formula and anti-HER2 antibody are connected:

-(Succinimid-3-yl-N)-$CH_2CH_2CH_2CH_2CH_2$-C(=O)-GGFG-NH-CH_2-O-CH_2-C(=O)-(NH-DX)

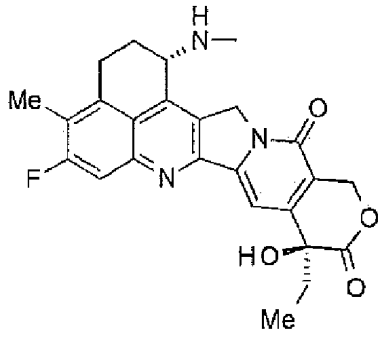
wherein

-(Succinimid-3-yl-N)- has a structure represented by the following formula:



which is connected to the antibody at position 3 thereof via a thioether bond and is connected to a methylene group in the linker structure containing this

structure on the nitrogen atom at position 1, and (NH-DX) represents a group represented by the following formula:

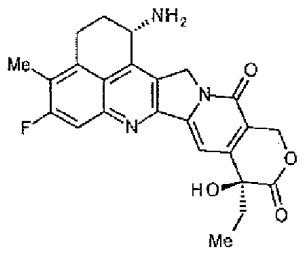


wherein the nitrogen atom of the amino group at position 1 is the connecting position. In another aspect, the present invention refers to a drug containing the antibody-drug conjugate according to the present invention, a salt thereof, or a hydrate thereof. In still another aspect, the present invention refers to an antitumor drug and/or anticancer drug containing the antibody-drug conjugate according to the present invention, a salt thereof, or a hydrate thereof. In yet another aspect, the present invention refers to a pharmaceutical composition containing the antibody-drug

conjugate according to the present invention, a salt thereof, or a hydrate thereof as an active component, and a pharmaceutically acceptable formulation component.

[1] Also described herein is an antibody-drug conjugate wherein an antitumor compound represented by the following formula:

[Formula 2]



is conjugated to an anti-HER2 antibody via a linker having a structure represented by the following formula:

$-L^1-L^2-L^P-NH-(CH_2)n^1-L^a-(CH_2)n^2-C(=O)-$

via a thioether bond which is formed at a disulfide bond moiety present in the hinge part of the anti-HER2 antibody.

[0016]

Here, the anti-HER2 antibody is connected to the terminal L^1,

the antitumor compound is connected to the carbonyl group of the $-(CH_2)n^2-C(=O)-$ moiety with the nitrogen

atom of the amino group at position 1 as the connecting position,

wherein

n^1 represents an integer of 0 to 6,

n^2 represents an integer of 0 to 5,

L^1 represents -(Succinimid-3-yl-N)-$(CH_2)n^3$-C(=O)-,

wherein n^3 represents an integer of 2 to 8,

L^2 represents -NH-$(CH_2CH_2-O)n^4$-CH_2CH_2-C(=O)- or a single bond,

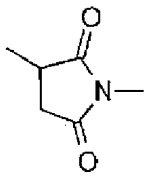
wherein n^4 represents an integer of 1 to 6,

L^P represents a peptide residue consisting of 2 to 7 amino acids,

L^a represents -O- or a single bond, and

-(Succinimid-3-yl-N)- has a structure represented by the following formula:

[Formula 3]



which is connected to the anti-HER2 antibody at position 3 thereof and is connected to the methylene group in the linker structure containing this structure on the nitrogen atom at position 1.

[0017]

The present disclosure further relates to each of the following.

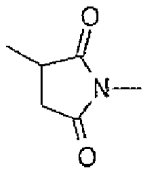
Claims

1. An antibody-drug conjugate, wherein a linker and a drug represented by the following formula and anti-HER2 antibody are connected:

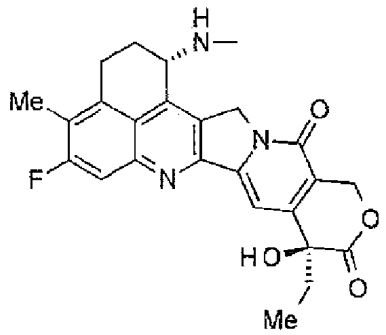
-(Succinimid-3-yl-N)-$CH_2CH_2CH_2CH_2CH_2$-C(=O)-GGFG-NH-CH_2-O-CH_2-C(=O)-(NH-DX)

wherein

-(Succinimid-3-yl-N)- has a structure represented by the following formula:



which is connected to the antibody at position 3 thereof via a thioether bond and is connected to a methylene group in the linker structure containing this structure on the nitrogen atom at position 1, and (NH-DX) represents a group represented by the following formula:



wherein the nitrogen atom of the amino group at position 1 is the connecting position.

2. The antibody-drug conjugate according to claim 1, wherein an average number of units of the drug-linker structure conjugated per antibody is in a range of from 2 to 8.

3. The antibody-drug conjugate according to claim 1, wherein an average number of units of the drug-linker structure conjugated per antibody is in a range of from 3 to 8.

4. A drug containing the antibody-drug conjugate according to any one of claims 1 to 3, a salt thereof, or a hydrate thereof.

5. An antitumor drug and/or anticancer drug containing the antibody-drug conjugate according to any one of claims 1 to 3, a salt thereof, or a hydrate thereof.

6. The antitumor drug and/or anticancer drug according to claim 5, which is for use against lung cancer, urothelial cancer, colorectal cancer, prostate cancer, ovarian cancer, pancreatic cancer, breast cancer, bladder cancer, gastric cancer, gastrointestinal stromal tumor, uterine cervix cancer, esophageal cancer, squamous cell carcinoma, peritoneal cancer, liver

cancer, hepatocellular cancer, colon cancer, rectal cancer, colorectal cancer, endometrial cancer, uterine cancer, salivary gland cancer, kidney cancer, vulval cancer, thyroid cancer, penis cancer, leukemia, malignant lymphoma, plasmacytoma, myeloma, or sarcoma.

7. A pharmaceutical composition containing the antibody-drug conjugate according to any one of claims 1 to 3, a salt thereof, or a hydrate thereof as an active component, and a pharmaceutically acceptable formulation component.

8. The pharmaceutical composition according to claim 7, which is for use against lung cancer, urothelial cancer, colorectal cancer, prostate cancer, ovarian cancer, pancreatic cancer, breast cancer, bladder cancer, gastric cancer, gastrointestinal stromal tumor, uterine cervix cancer, esophageal cancer, squamous cell carcinoma, peritoneal cancer, liver cancer, hepatocellular cancer, colon cancer, rectal cancer, colorectal cancer, endometrial cancer, uterine cancer, salivary gland cancer, kidney cancer, vulval cancer, thyroid cancer, penis cancer, leukemia, malignant lymphoma, plasmacytoma, myeloma, or sarcoma.