

What is claimed is

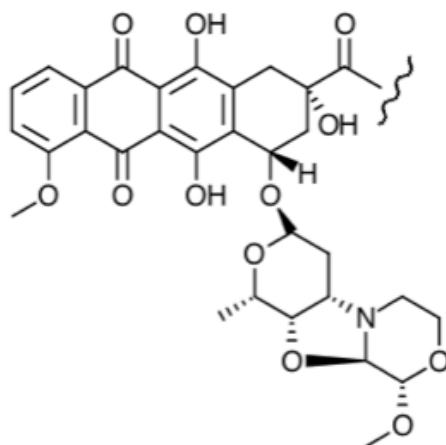
1. An antibody drug conjugate (ADC) comprising:

- an antibody, or antibody fragment or derivative retaining target binding properties, comprising at least one light chain constant region C-terminus, and
- an anthracycline-based small molecule,

wherein the anthracycline molecule(s) is/are exclusively linked to the light chain constant region C-terminus/i of the antibody, fragment or derivative, and

wherein the anthracycline-based small molecule is linked, via a linker comprising a peptidic sequence, to said antibody, fragment or derivative.

wherein the anthracycline-based small molecule is selected from PNU-159682, or from derivatives thereof, comprising the structure of formula (i)



formula (i)

2. The antibody drug conjugate according to claim 1, wherein the antibody or fragment or derivative is provided

- as dual variable domain immunoglobulin (DVD-Ig) format, or
- as single-chain variable fragment (scFv) fusions with IgA, IgD, IgE, IgG, or IgM.

3. The antibody drug conjugate according to any of the aforementioned claims, wherein the antibody or fragment or derivative binds to an antigen that

- is tumor specific or

- is expressed at a higher rate on tumor tissue than on healthy tissue.

4. The antibody drug conjugate according to any of the aforementioned claims, wherein the antibody or fragment or derivative does not bind to human and/or mouse CS1.

5. The antibody drug conjugate according to any of the aforementioned claims, wherein the antibody or fragment or derivative comprises the CDRs of hu4-2-17 (based on Kabat numbering)

- HC CDR1 (SYYMS)
- HC CDR2 (AIGISGNAYYASWAKS)
- HC CDR3 (DHPTYGMDL)
- LC CDR1 (EGNNIGSKAVH)
- LC CDR2 (DDDERPS), and
- LC CDR3 (QVWDSSAYV)

and wherein the CDRs are comprised in a suitable protein framework so as to be capable to bind to the antibody's target.

6. The antibody drug conjugate according to any of the aforementioned claims, wherein the antibody or fragment or derivative comprises the CDRs of huERCS-409 (based on Kabat numbering)

- HC CDR1 (SYGVI)
- HC CDR2 (IIGSSGNTYYASSVKG)
- HC CDR3 (YYGDSGFDS)
- LC CDR1 (RASQSIGSWLS)
- LC CDR2 (GASNLAS), and
- LC CDR3 (LGASPNGWA)

and wherein the CDRs are comprised in a suitable protein framework so as to be capable to bind to the antibody's target.

7. The antibody drug conjugate according to any of the aforementioned claims, wherein the antibody or fragment or derivative comprises at least one of the list consisting of:

- the variable domains of trastuzumab (variable domains of SEQ ID NO. 1 / 2)
- the variable domains of hu4-2-17 (variable domains of SEQ ID NO. 4 / 5), and/or
- the variable domains of huERCS-409 (variable domains of SEQ ID NO. 7 / 8).

8. The antibody drug conjugate according to any of the aforementioned claims, wherein at least one anthracycline-based small molecule is not doxorubicin.

9. The antibody drug conjugate according to any of the aforementioned claims, wherein the peptidic sequence of said linker comprises or consists of a peptidic motif resulting from specific cleavage of a sortase enzyme recognition motif.

10. The antibody drug conjugate according to claim 9, wherein said peptidic sequence of said linker comprises or consists of an oligoglycine sequence ("tag"), denoted G_n or Gly_n , where n is from 1 to 21 and preferably n is 1, 2, 3, 4 or 5.

11. The antibody drug conjugate according to claim 1 or 9, wherein the linker additionally comprises an alkyldiamino group of the form $NH_2-(CH_2)_m-NH_2$, where $m \geq 1$ and ≤ 11 , preferably $m=2$.

12. The antibody drug conjugate according to any of the aforementioned claims, wherein the linker further comprises at least one further cleavable or non cleavable linker, which linker is preferably selected from the group consisting of: a hydrazine linker, a thiourea linker, a self-immolative linker, a succinimidyl trans-4-(maleimidylmethyl)cyclohexane-1-carboxylate (SMCC) linker, a disulfide linker, a selenoether linker, an amide linker, a thioether linker, and/or a maleimide linker.

13. The antibody drug conjugate according to any of the aforementioned claims, which has a stoichiometric ratio between (i) antibody, fragment or derivative and (ii) anthracycline-based small molecule of any value between ≥ 1 and ≤ 2 .

14. A pharmaceutical composition comprising a therapeutically effective amount of the antibody drug conjugate according to any of the aforementioned claims, and a pharmaceutically acceptable carrier.

15. An antibody drug conjugate which is obtainable by means of site-specific sortase-enzyme mediated conjugation of:

- a) an antibody or fragment or derivative carrying a sortase enzyme recognition motif at the light chain C-terminus/i, and
- b) one or more anthracycline-based small molecules, each carrying an oligoglycine tag.

16 A method of producing an antibody drug conjugate according to any of the aforementioned claims, which method comprises the following steps:

- a) providing an antibody or fragment or derivative carrying a sortase enzyme recognition motif at the light chain C-terminus/i,
- b) providing one or more anthracycline-based small molecules each carrying an oligoglycine tag, and
- c) conjugating the antibody or fragment or derivative and the one or more anthracycline-based small molecules by means of sortase-mediated conjugation using a sortase enzyme that recognizes said sortase enzyme recognition motif.

17. The antibody drug conjugate according to any of the aforementioned claims for use in the (manufacture of a medicament for the) treatment of a subject that is suffering from, at risk of developing, and/or diagnosed with, a neoplastic disease.

18. A method for treating a patient suffering from, at risk of developing, and/or being diagnosed for a neoplastic disease, comprising administration of an antibody drug conjugate according to any one of claims 1 - 13 in a therapeutically effective amount or dosage.