

WHAT IS CLAIMED IS:

1. A conjugate, comprising:
an antibody that binds to a cell surface molecule of a target cell; conjugated to
a sialidase, wherein the sialidase is a prokaryotic sialidase, a eukaryotic sialidase,
or a derivative thereof.
2. The conjugate of Claim 1, wherein the antibody is an IgG, an IgG1, a single chain Fv
(scFv), Fab, (Fab)₂, or (scFv')₂.
3. The conjugate of Claim 1 or Claim 2, wherein the antibody is a monoclonal
antibody, optionally wherein the antibody is a humanized or human antibody.
4. The conjugate of any one of Claims 1 to 3, wherein the sialidase is conjugated to a
light chain of the antibody, a heavy chain of the antibody, an Fc region of the antibody, or
the C-terminus of a heavy chain of the antibody.
5. The conjugate of any one of Claims 1 to 4, wherein the sialidase is site-specifically
conjugated to the targeting moiety, optionally wherein the targeting moiety comprises a
non-natural amino acid to which the sialidase is site-specifically conjugated.
6. The conjugate of any one of Claims 1 to 5, wherein the sialidase is conjugated to the
targeting moiety via a linker.
7. The conjugate of Claim 6, wherein the linker is a peptide.
8. The conjugate of Claim 7, wherein the conjugate is a fusion protein.
9. The conjugate of any one of Claims 1 to 8, wherein the target cell is a cancer cell,
optionally wherein the cancer cell is a carcinoma cell.

10. The conjugate of Claim 9, wherein the cell surface molecule is a tumor-associated cell surface molecule or a tumor-specific cell surface molecule.
11. The conjugate of Claim 9 or Claim 10, wherein the cancer cell is selected from the group consisting of: a breast cancer cell, an ovarian cancer cell, a gastric cancer cell, and a colon cancer cell, optionally wherein the cell surface molecule is human epidermal growth factor receptor 2 (HER2), optionally wherein the targeting moiety is trastuzumab.
12. The conjugate of any one of Claims 1 to 8, wherein the targeting moiety is selected from the group consisting of: cetuximab, daratumumab, girentuximab, panitumumab, ofatumumab, and rituximab.
13. The conjugate of any one of Claims 1 to 12, wherein the sialidase is selected from the group consisting of: a *Salmonella typhimurium* sialidase, a *Vibrio cholerae* sialidase, a mammalian neuraminidase, a human neuraminidase, human neuraminidase 1, human neuraminidase 2, human neuraminidase 3, and human neuraminidase 4.
14. A composition, comprising:
the conjugate of any one of Claims 1 to 13; and
a pharmaceutically acceptable carrier.
15. A method comprising administering to an individual in need thereof the conjugate of any one of Claims 1 to 13 or the composition of Claim 14.
16. A method of treating cancer comprising administering to an individual having cancer the conjugate of any one of Claims 1 to 13 or the composition of Claim 14.
17. A method of enhancing antibody-dependent cellular cytotoxicity (ADCC) comprising administering to an individual in need of ADCC the conjugate of any one of Claims 1 to 13 or the composition of Claim 14.

18. The method according to any one of Claims 15 to 17, wherein the sialidase is selected from the group consisting of: a *Salmonella typhimurium* sialidase, a *Vibrio cholerae* sialidase, a mammalian neuraminidase, a human neuraminidase, human neuraminidase 1, human neuraminidase 2, human neuraminidase 3, and human neuraminidase 4.

19. The method according to any one of Claims 15 to 18, wherein the individual has cancer, and wherein the conjugate comprises a targeting moiety that binds to a tumor-associated cell surface molecule or tumor-specific cell surface molecule on the surface of a cancer cell of the individual, optionally wherein the cancer cell is a carcinoma cell.

20. The method according to Claim 19, wherein the cancer cell is selected from the group consisting of: a breast cancer cell, an ovarian cancer cell, a gastric cancer cell, and a colon cancer cell, optionally wherein the cell surface molecule is human epidermal growth factor receptor 2 (HER2), optionally wherein the targeting moiety is trastuzumab.

21. The method according to any one of Claims 15 to 18, wherein the targeting moiety is selected from the group consisting of: cetuximab, daratumumab, girentuximab, panitumumab, ofatumumab, and rituximab.

22. A kit comprising the conjugate of any one of Claims 1 to 13 or the composition of Claim 14.

23. A method, comprising:

conjugating a prokaryotic sialidase, a eukaryotic sialidase, or a derivative thereof to an antibody that binds to a cell surface molecule on the surface of a target cell.

24. The method according to Claim 23, wherein the conjugate is a fusion protein.

25. A nucleic acid encoding the fusion protein of Claim 24, optionally wherein the nucleic acid is present in an expression vector comprising a promoter operably linked to the nucleic acid.

26. A host cell comprising the nucleic acid or the expression vector of Claim 25.