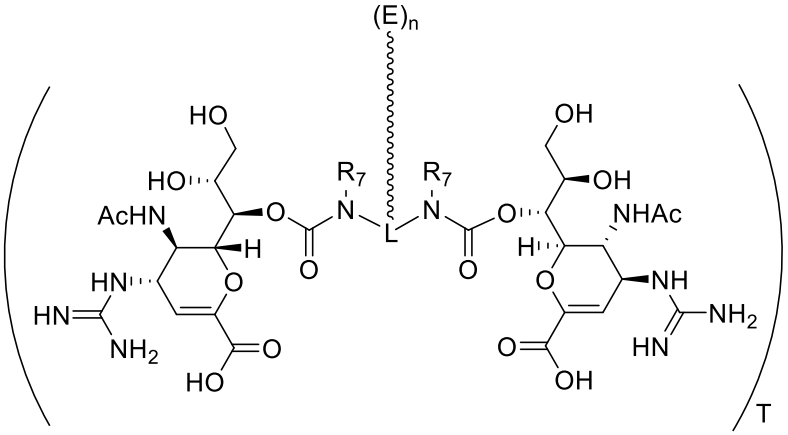
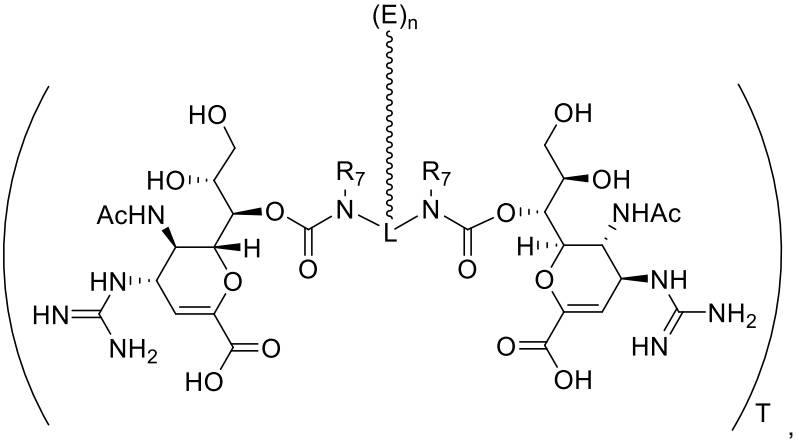
In one aspect, the present disclosure provides a conjugate described by formula (D-II-6):



(D-II-6)

wherein each E comprises an Fc domain monomer;
n is 1 or 2;
T is an integer from 1 to 20;
L is a linker;
R_7 is C_1-C_{20} alkyl; and
the squiggly line indicates that L is covalently attached to E,
or a pharmaceutically acceptable salt thereof.

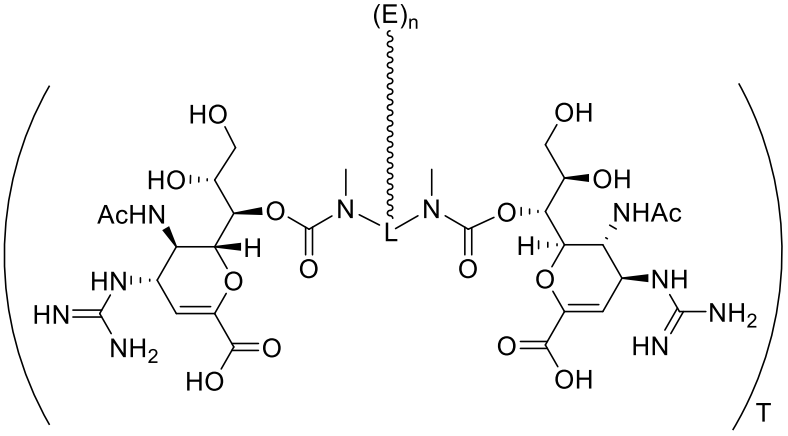
In some examples, the conjugate is described by formula (D-II-6):



(D-II-6)

wherein R_7 is selected from H, C1-C20 alkyl, C3-C20 cycloalkyl, C3-C20 heterocycloalkyl; C5-C15 aryl, and C2-C15 heteroaryl; or a pharmaceutically acceptable salt thereof. In some examples, R_7 is selected from C1-C20 alkyl (e.g., methyl, ethyl, propyl, or butyl).

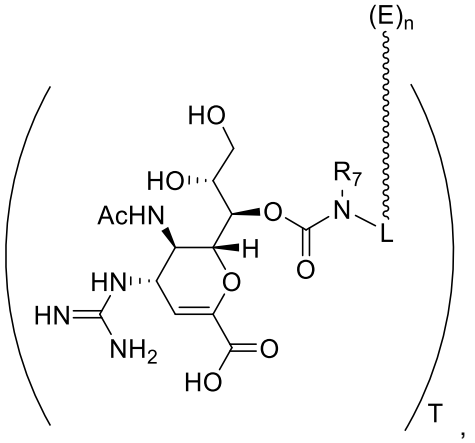
In some examples, the conjugate is described by formula (D-II-7):



(D-II-7)

or a pharmaceutically acceptable salt thereof.

In another aspect, the present disclosure provides a conjugate described by formula (M-II-6):

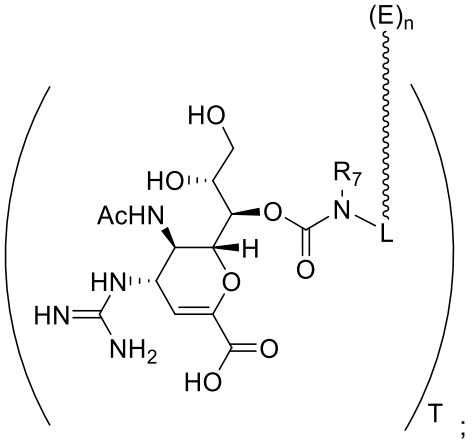


(M-II-6)

wherein R_7 is C_1-C_{20} alkyl,

or a pharmaceutically acceptable salt thereof.

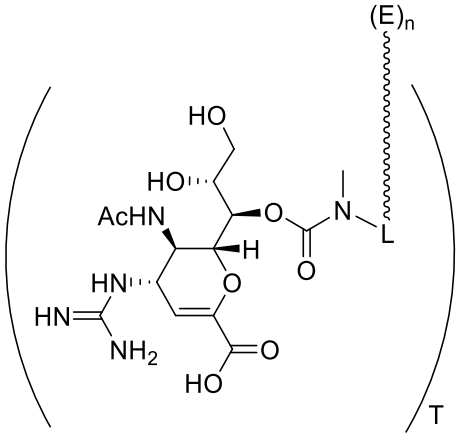
In some examples, the conjugate is described by formula (M-II-6):



(M-II-6)

wherein R_7 is selected from H, C1-C20 alkyl, C3-C20 cycloalkyl, C3-C20 heterocycloalkyl; C5-C15 aryl, and C2-C15 heteroaryl; or a pharmaceutically acceptable salt thereof. In some examples, R_7 is selected from C1-C20 alkyl (e.g., methyl, ethyl, propyl, or butyl).

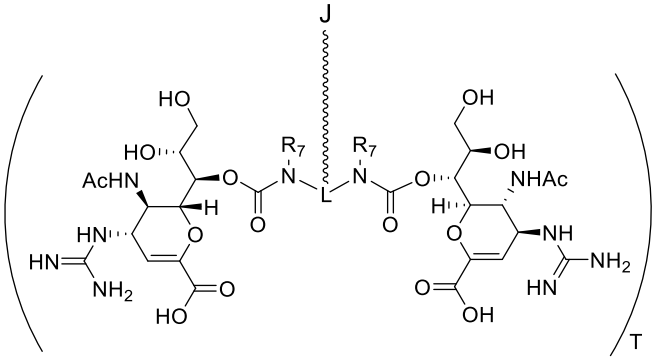
In some examples, the conjugate is described by formula (M-II-7):



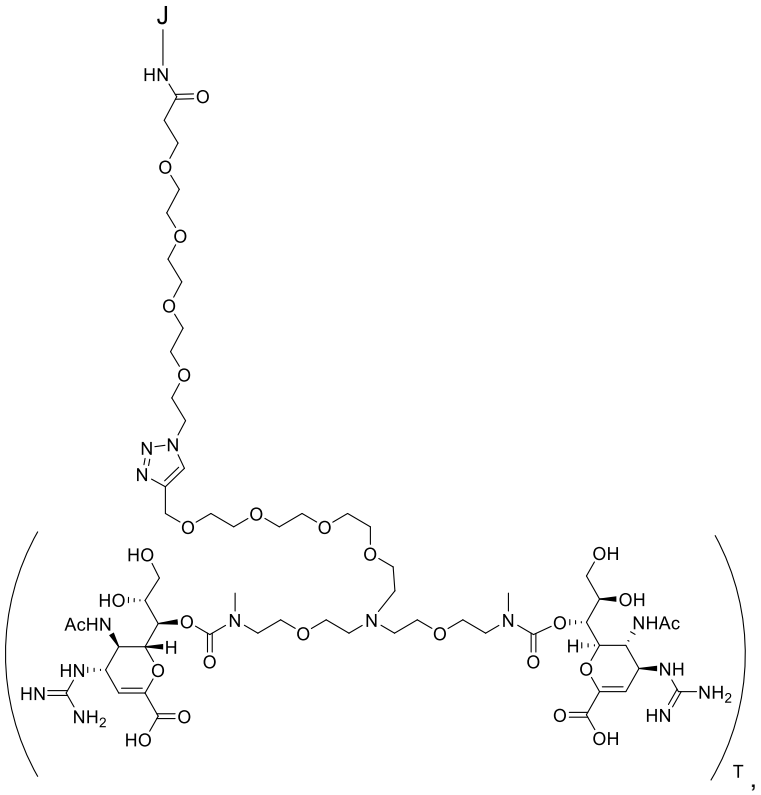
(M-II-7)

or a pharmaceutically acceptable salt thereof.

In one aspect, the present disclosure provides a conjugate described by the structure:

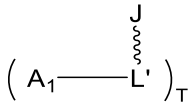


wherein J is an Fc domain comprising two Fc domain monomers;
T is an integer from 1 to 20,
L is a linker;
R_7 is C_1-C_{20} alkyl; and
the squiggly line indicates that L is covalently attached to J,
or a pharmaceutically acceptable salt thereof.
In some examples, the conjugate has the structure of



or a pharmaceutically acceptable salt thereof.

In some examples, n is 2, each E is an Fc domain monomer, each E dimerizes to form an Fc domain, and the conjugate is described by formula (M-I-1):



(M-I-1)

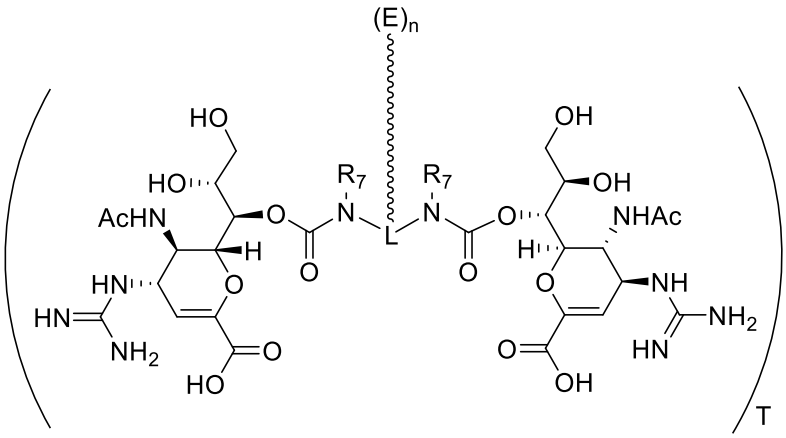
wherein J is an Fc domain; and T is an integer from 1 to 20 (e.g., T is 1 ,2 ,3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20), or a pharmaceutically acceptable salt thereof.

In some examples or aspects described herein, E has the sequence of any one of SEQ ID NOs: 1-138.

In some examples or aspects described herein, E is an albumin protein, an albumin protein-binding peptide, or an Fc-binding peptide. In some examples, where E is an albumin protein, an albumin protein-binding peptide, or an Fc-binding peptide, n is 1.

CLAIMS

1. A conjugate described by formula (D-II-6):



(D-II-6)

wherein each E comprises an Fc domain monomer;

n is 1 or 2;

T is an integer from 1 to 20;

L is a linker;

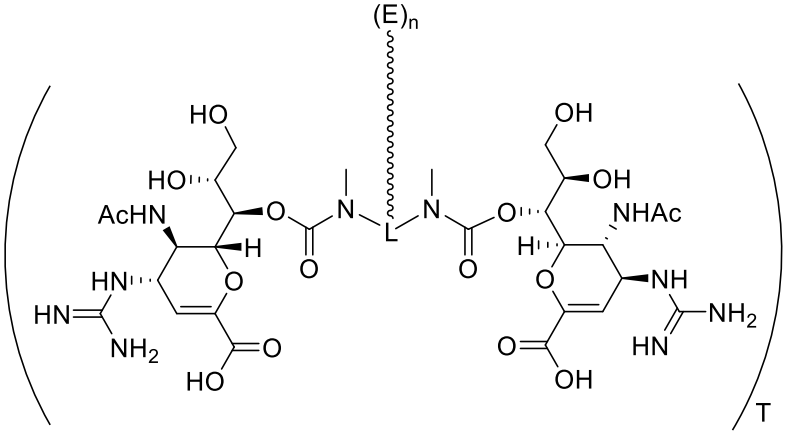
R_7 is C_1-C_{20} alkyl; and

the squiggly line indicates that L is covalently attached to E,

or a pharmaceutically acceptable salt thereof.

2. The conjugate of claim 1, wherein R_7 is methyl, ethyl, propyl, or butyl.

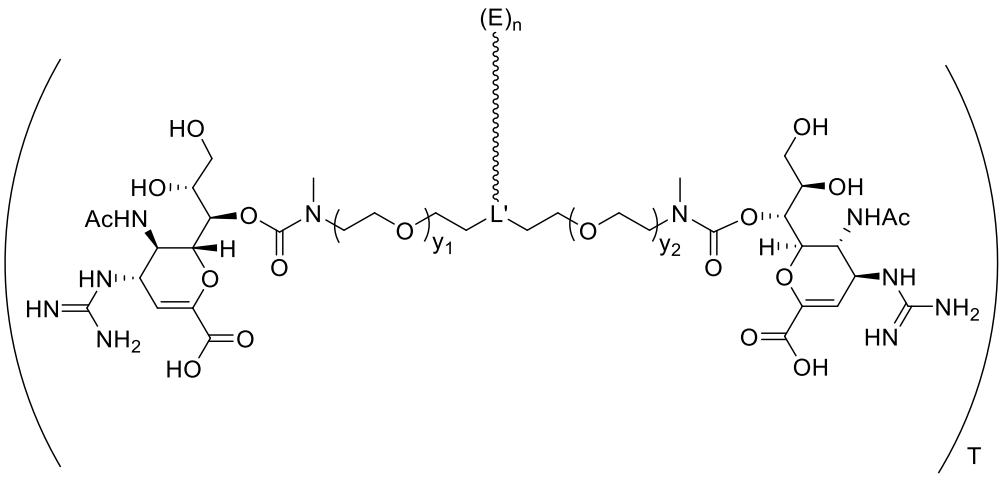
3. The conjugate of claim 1 or 2, wherein the conjugate is described by formula (D-II-7):



(D-II-7)

or a pharmaceutically acceptable salt thereof.

4. The conjugate of claim 3, wherein the conjugate is described by formula (D-II-8):



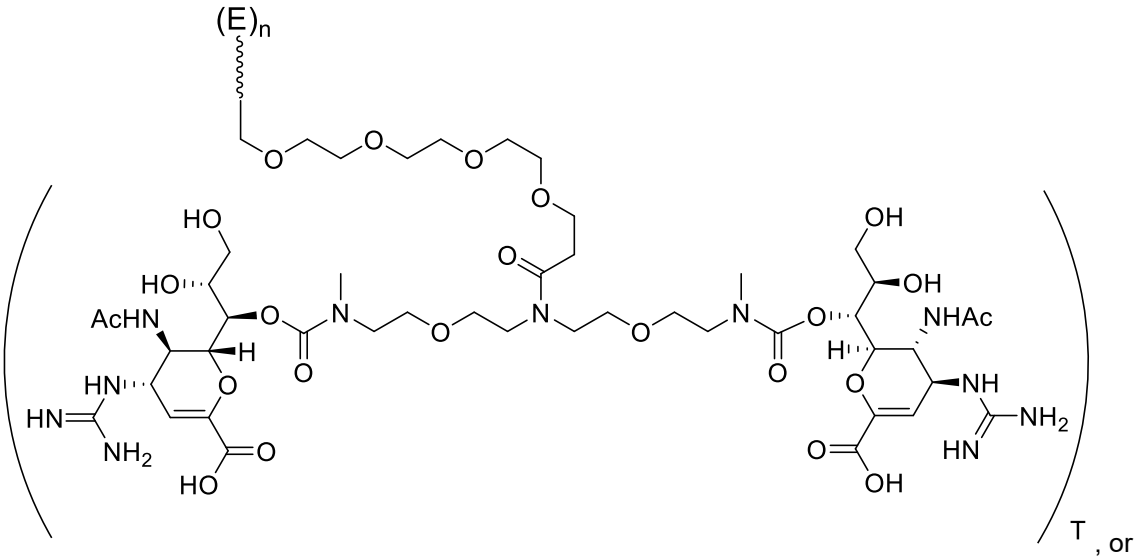
(D-II-8)

wherein L' is the remainder of L, and

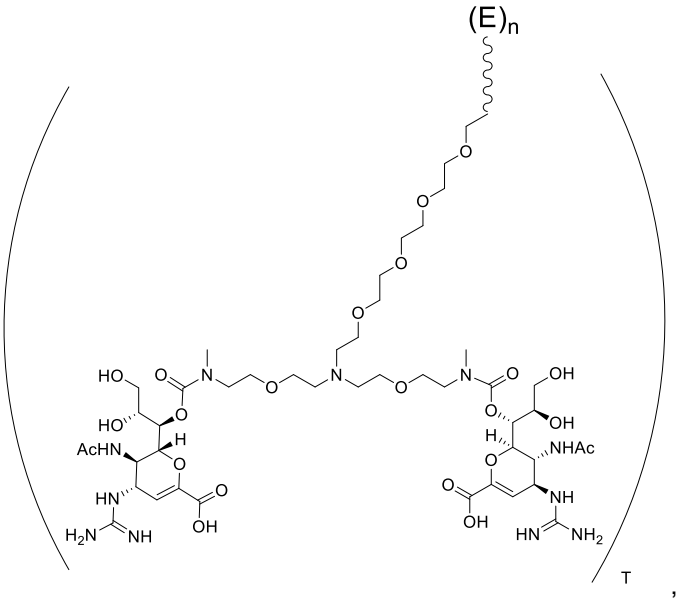
y_1 and y_2 are each independently an integer from 1-20,

or a pharmaceutically acceptable salt thereof.

5. The conjugate of claim 4, wherein the conjugate has the structure of:



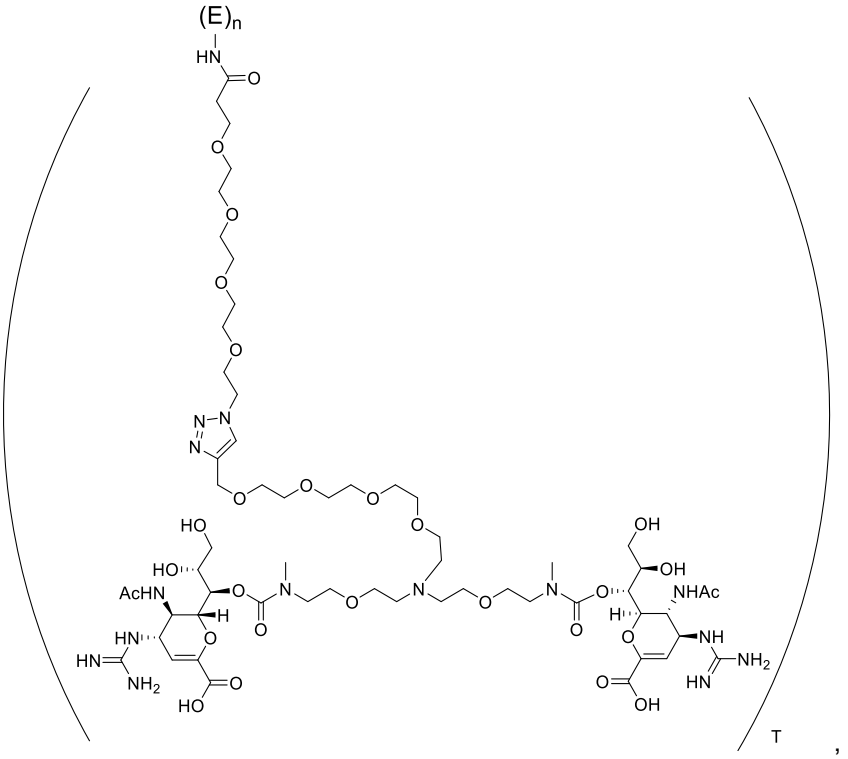
, or



,

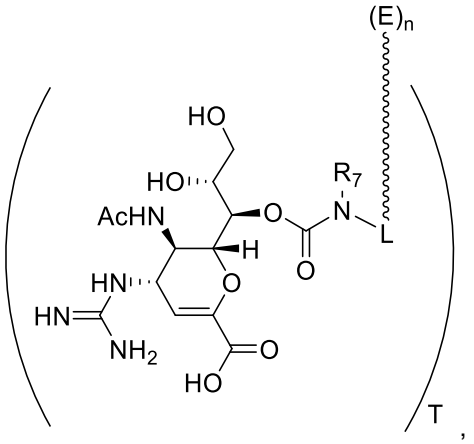
or a pharmaceutically acceptable salt thereof.

6. The conjugate of claim 5, wherein the conjugate has the structure of:



or a pharmaceutically acceptable salt thereof.

7. A conjugate described by formula (M-II-6):



(M-II-6)

wherein R_7 is C_1-C_{20} alkyl,

or a pharmaceutically acceptable salt thereof.

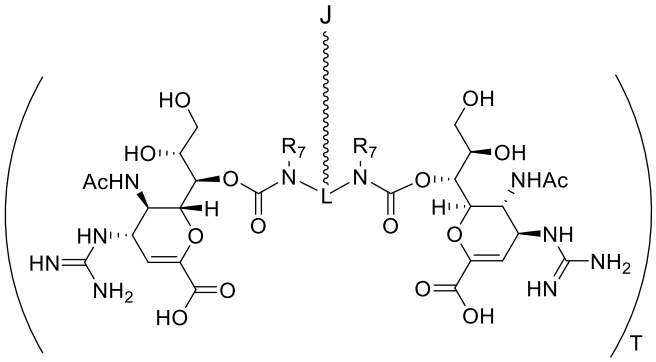
8. The conjugate of claim 7, wherein R_7 is methyl, ethyl, propyl, or butyl.

9. The conjugate of any one of claims 1 to 8, wherein the squiggly line indicates that L is covalently attached to a nitrogen atom of a solvent-exposed lysine of E.

10. The conjugate of any one of claims 1 to 8, wherein the squiggly line indicates that L is covalently attached to a sulfur atom of a solvent-exposed cysteine of E.

11. The conjugate of any one of claims 1 to 10, wherein n is 2, and the two Es dimerize with each other to form an Fc domain.

12. A conjugate described by the structure:



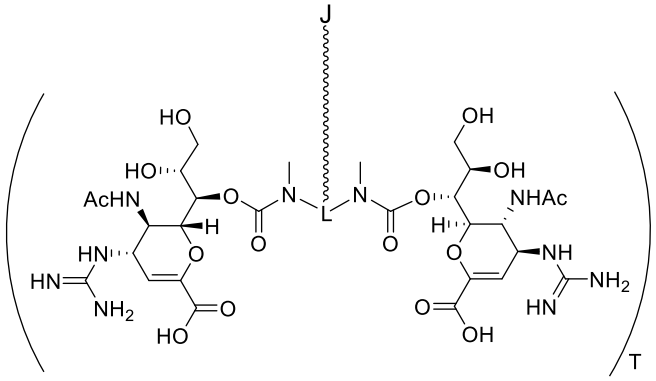
wherein J is an Fc domain comprising two Fc domain monomers;
T is an integer from 1 to 20,
L is a linker;
R_7 is C_1-C_{20} alkyl; and
the squiggly line indicates that L is covalently attached to J,
or a pharmaceutically acceptable salt thereof.

13. The conjugate of claim 12, wherein the squiggly line indicates that L is covalently attached to a nitrogen atom of a solvent-exposed lysine of J.

14. The conjugate of claim 12, wherein the squiggly line indicates that L is covalently attached to a sulfur atom of a solvent-exposed cysteine of J.

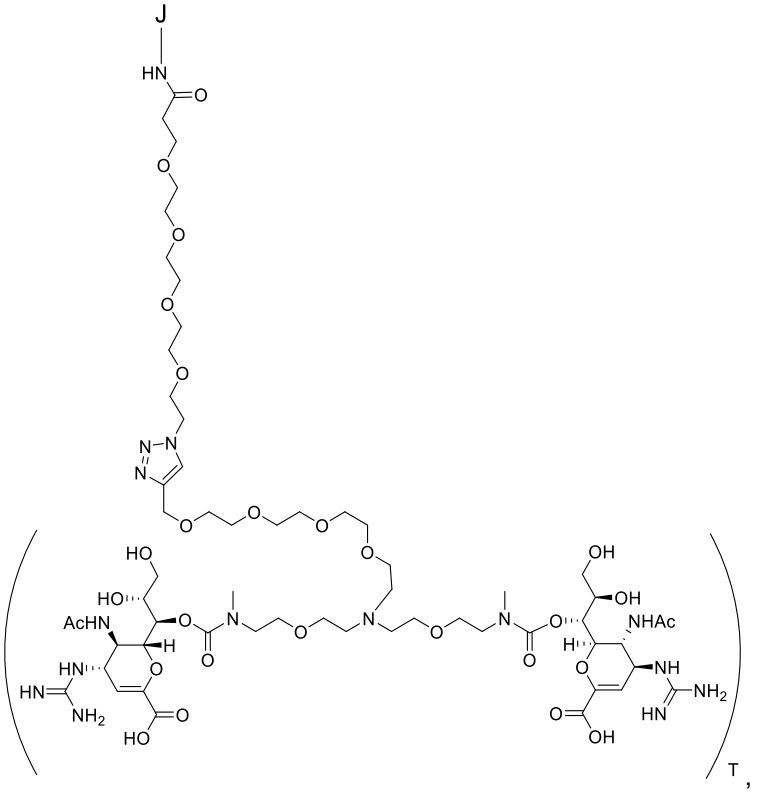
15. The conjugate of any one of claims 12 to 14, wherein R_7 is methyl, ethyl, propyl, or butyl.

16. The conjugate of any one of claims 12 to 15, wherein the conjugate has the structure of:



or a pharmaceutically acceptable salt thereof.

17. The conjugate of claim 16, wherein the conjugate has the structure of:



or a pharmaceutically acceptable salt thereof.

18. The conjugate of any one of claims 1 to 17, wherein each Fc domain monomer comprises an amino acid sequence independently selected from any one of SEQ ID NOs: 1-138.

19. The conjugate of claim 18, wherein each Fc domain monomer comprises an amino acid sequence independently selected from any one of SEQ ID NO: 62, SEQ ID NO: 63, SEQ ID NO: 64, SEQ ID NO: 67, SEQ ID NO: 68, SEQ ID NO: 72, SEQ ID NO: 73, SEQ ID NO: 76, SEQ ID NO: 77, SEQ ID NO: 80, SEQ ID NO: 81, SEQ ID NO: 82, SEQ ID NO: 85, SEQ ID NO: 86, SEQ ID NO: 90, SEQ ID NO: 91, SEQ ID NO: 94, and SEQ ID NO: 95.

20. The conjugate of claim 19, wherein each Fc domain monomer comprises the amino acid sequence of SEQ ID NO: 72.

21. The conjugate of claim 19, wherein each Fc domain monomer comprises the amino acid sequence of SEQ ID NO: 73.

22. The conjugate of claim 19, wherein each Fc domain monomer comprises the amino acid sequence of SEQ ID NO: 76.

23. The conjugate of claim 19, wherein each Fc domain monomer comprises the amino acid sequence of SEQ ID NO: 77.

24. The conjugate of any one of claims 1 to 23, wherein T is 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10.

25. A population of conjugates of any one of claims 1 to 24, wherein the average value of T is 1 to 10.

26. A pharmaceutical composition comprising the conjugate or the population of conjugates of any one of claims 1 to 25, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable excipient.

27. Use of the conjugate of any one of claims 1-24, the population of conjugates of claim 25, or the pharmaceutical composition of claim 26 in the manufacture of a medicament for the treatment of a subject having a viral infection or presumed to have a viral infection.

28. Use of the conjugate of any one of claims 1-24, the population of conjugates of claim 25, or the pharmaceutical composition of claim 26 in the manufacture of a medicament for the prophylactic treatment of a viral infection in a subject in need thereof.

29. The use of claim 27 or 28, wherein the viral infection is caused by an influenza virus or a parainfluenza virus.

30. The use of claim 29, wherein the influenza virus is influenza virus A, B, or C.

31. Use of the conjugate of any one of claims 1-24, the population of conjugates of claim 25, or the pharmaceutical composition of claim 26 in the manufacture of a medicament for preventing a secondary infection in a subject diagnosed with an influenza infection.

32. The use of any one of claims 27 to 31, wherein the subject is to be treated with a second therapeutic agent.

33. The conjugate of any one of claims 1-24, the population of conjugates of claim 25, or the pharmaceutical composition of claim 26 for use in treating or preventing a viral infection in a subject, wherein the subject is to be administered a second therapeutic agent.

34. The use of claim 32 or the conjugate, population of conjugates, or pharmaceutical composition for use of claim 33, wherein the second therapeutic agent is an antiviral agent.

35. The use or the conjugate, population of conjugates, or pharmaceutical composition for use of claim 34, wherein the antiviral agent is pimovidir, oseltamivir, zanamivir, peramivir, laninamivir, amantadine, baloxavir marboxil, baloxavir acid, rimantadine, or a pharmaceutically acceptable salt thereof.

36. The use or the conjugate, population of conjugates, or pharmaceutical composition for use of any one of claims 33 to 35, wherein the viral infection is caused by an influenza virus or a parainfluenza virus.