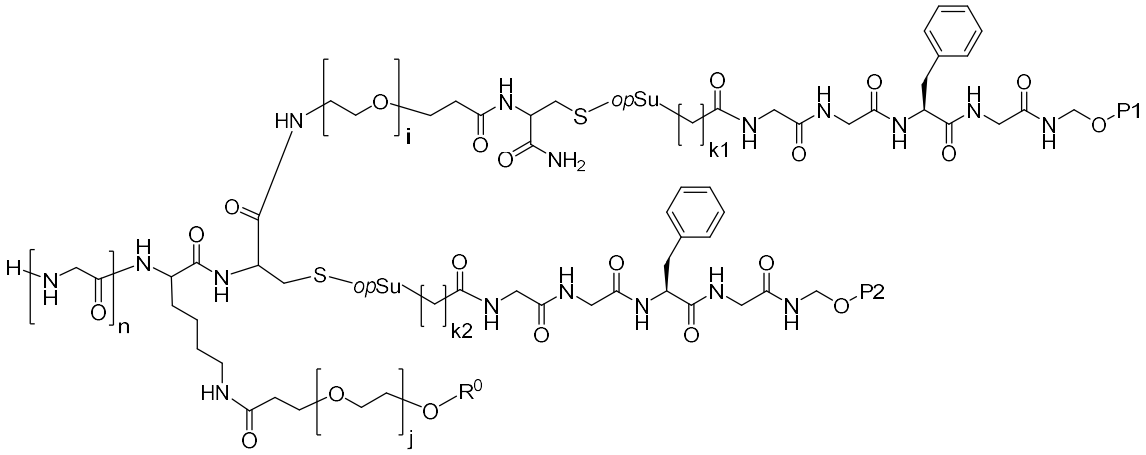
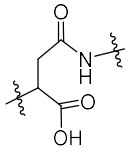
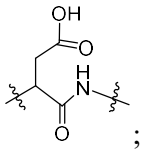
Claim

1. A compound of formula (I):



(I)

wherein,

*op*Su is  or ;

R^0 is C_{1-3} alkyl;

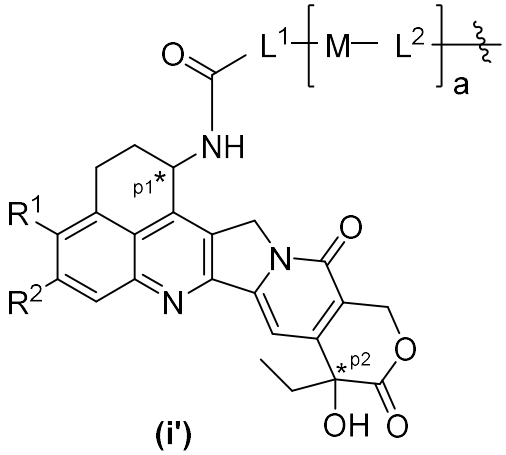
n is any integer of 2 to 5;

k1 and k2 are independently an integer of 1 to 7;

i is an integer of 1-20;

j is an integer of 1-20;

P1 and P2 are independently a payload having the structure of formula (i'):



(i')

wherein,

a is 0 or 1;

the carbon atoms marked with p1* and p2* each is asymmetric center, and the

asymmetric center is *S* configured, *R* configured or racemic;

L^1 is selected from C_{1-6} alkylene, which is unsubstituted or substituted with at least one substituent selected from halogen, -OH and $-NH_2$;

M is $-CH_2-$, -NH- or -O-;

L^2 is C_{1-3} alkylene;

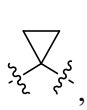
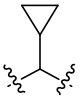
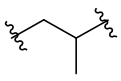
R^1 is selected from Cl and Br;

R^2 is F.

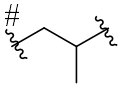
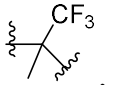
2. The compound of claim 1, wherein in formula (i'):

L^1 is selected from C_{1-6} linear alkylene, C_{1-6} branched alkylene, C_{3-6} cyclic alkylene and C_{3-4} cyclic alkyl–C_{1-2} linear alkylene group, which are each independently unsubstituted or substituted with at least one substituent selected from halogen, -OH and $-NH_2$.

3. The compound of claim 2, wherein in formula (i'):

L^1 is selected from $-CH_2-$, $-C_2H_4-$, , , , , , which are each independently unsubstituted or substituted with at least one substituent selected from halogen, -OH and $-NH_2$.

4. The compound of claim 3, wherein in formula (i'):

L^1 is selected from $-CH_2-$, , , , , wherein "#" marks the position attached to carbonyl.

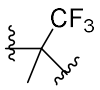
5. The compound of any one of the claims 1 to 4, wherein a is 0.

6. The compound of any one of the claims 1 to 4, wherein in formula (i'):
the carbon atom marked with p1* is *S* configured.

7. The compound of any one of the claims 1 to 4, wherein in formula (i'):
the carbon atom marked with p2* is *S* configured.

8. The compound of any one of the claims 1 to 4, wherein in formula (i'), R^1 is Cl.

9. The compound of any one of the claims 1 to 4, wherein a is 0, R^1 is Cl, R^2 is F, and L^1

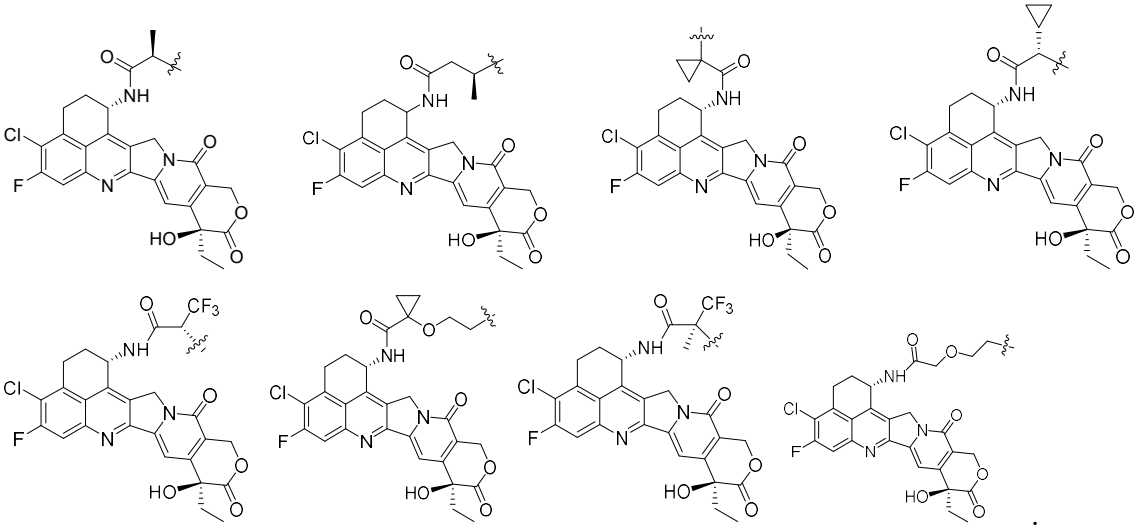
is selected from -CH_2-, , 

and 

.

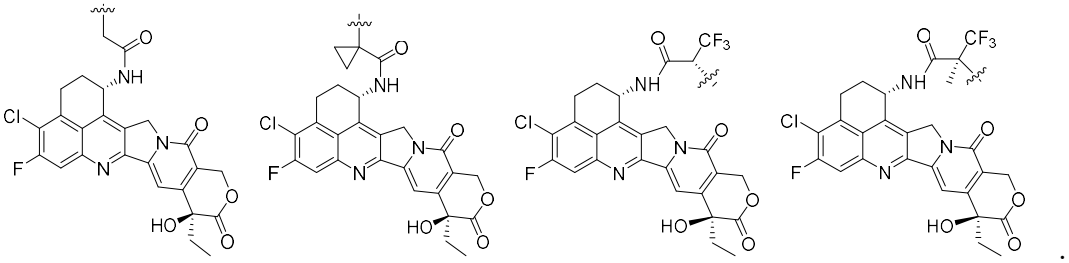
10. The compound of any one of the claims 1 to 4, wherein a is 0, R^1 is Cl, R^2 is F, and L^1 is .

11. The compound of any one of the claims 1 to 4, wherein the payload is selected from:



.

12. The compound of any one of the claims 1 to 4, wherein the payload is selected from:



.

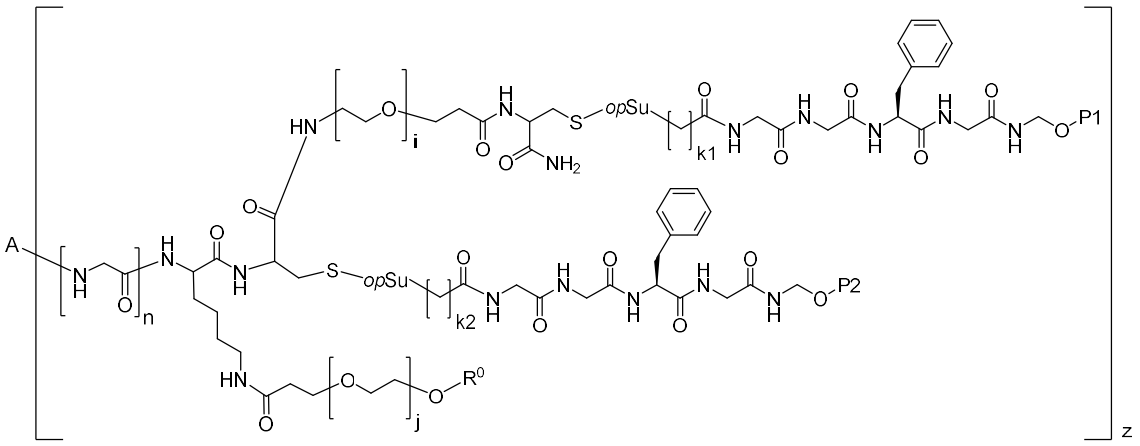
13. The compound of any one of the claims 1 to 4, wherein n is 3.

14. The compound of any one of the claims 1 to 4, wherein k1 and k2 are 5.

15. The compound of any one of the claims 1 to 4, wherein i is 2 to 8.

16. The compound of any one of the claims 1 to 4, wherein j is 8 to 12.

17. A conjugate having the structure of formula (II):



(II)

wherein,

A is an antibody or an antigen binding fragment thereof;

z is an integer of 1 to 4;

P1, P2, R^0, *op*Su, n , k1, k2, i and j are as defined in any one of claims 1 to 16.

18. The conjugate of claim 17, wherein the antibody or antigen binding fragment is modified to connect with the $(Gly)_n$ moiety in the compound of formula (I).

19. The conjugate of claim 18, wherein z is 2.

20. The conjugate of any one of the claims 17 to 19, wherein the antibody is an anti-HER2 antibody.

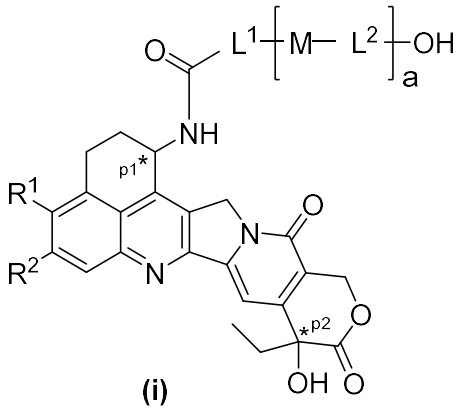
21. A pharmaceutical composition comprising a prophylactically or therapeutically effective amount of a conjugate of any one of the claims 17 to 20, and at least one pharmaceutically acceptable carrier.

22. Use of the conjugate of any one of the claims 17 to 20 or the pharmaceutical composition of claim 21 in the manufacture of a medicament for treating a disease; wherein the disease is a tumor.

23. The use of claim 22, wherein the disease is a tumor comprising HER2-positive tumor cells.

24. A compound, or a pharmaceutically acceptable salt thereof, wherein the compound has

the structure of formula (i):



(i)

wherein,

a is 0 or 1;

the carbon atoms marked with p1* and p2* each is asymmetric center, and the asymmetric center is *S* configured, *R* configured or racemic;

L^1 is selected from

C_{1-6} alkylene, which is unsubstituted or substituted with at least one substituent selected from halogen, -OH and $-NH_2$;

M is $-CH_2-$, -NH- or -O-;

L^2 is C_{1-3} alkylene;

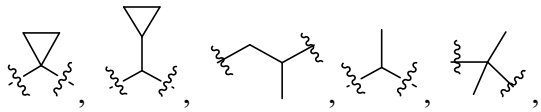
R^1 is selected from Cl and Br;

R^2 is F.

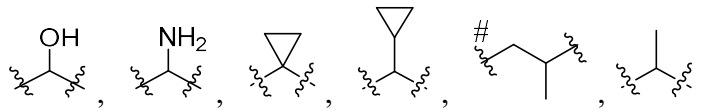
25. The compound of claim 24, wherein in formula (i'):

L^1 is selected from C_{1-6} linear alkylene, C_{1-6} branched alkylene, C_{3-6} cyclic alkylene and C_{3-4} cyclic alkyl–C_{1-2} linear alkylene group, which are each independently unsubstituted or substituted with at least one substituent selected from halogen, -OH and $-NH_2$.

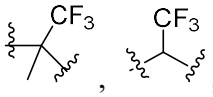
26. The compound of claim 25, wherein in formula (i'):

L^1 is selected from $-CH_2-$, $-C_2H_4-$, , which are each independently unsubstituted or substituted with at least one substituent selected from halogen, -OH and $-NH_2$.

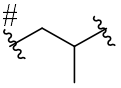
27. The compound of claim 25, wherein in formula (i'):

L^1 is selected from $-CH_2-$, 

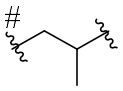
,


, wherein "#" marks the position attached to carbonyl.

28. The compound of claim 27, wherein in formula (i'):

L^1 is selected from -CH_2-, , , , , wherein "#" marks the position attached to carbonyl.

29. The compound of claim 28, wherein in formula (i'):

L^1 is selected from -CH_2-,  and , wherein "#" marks the position attached to carbonyl.

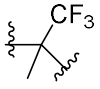
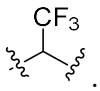
30. The compound of any one of the claims 24 to 29, wherein a is 0.

31. The compound of any one of the claims 24 to 29, wherein in formula (i'):
the carbon atom marked with p1* is *S* configured or racemic.

32. The compound of claim 31, wherein in formula (i'):
the carbon atom marked with p1* is *S* configured.

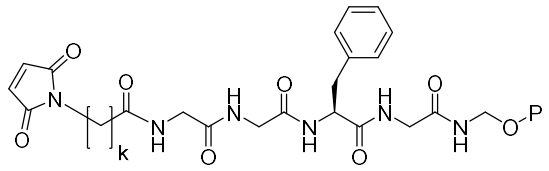
33. The compound of any one of the claims 24 to 29, wherein in formula (i'):
the carbon atom marked with p2* is *S* configured.

34. The compound of any one of the claims 24 to 29, wherein in formula (i'), R^1 is Cl.

35. The compound of any one of the claims 24 to 29, wherein a is 0, R^1 is Cl, R^2 is F, and L^1 is selected from -CH_2-, ,  and .

36. The compound of any one of the claims 24 to 29, wherein a is 0, R^1 is Cl, R^2 is F, and L^1 is .

37. A compound of formula (1):



(1)

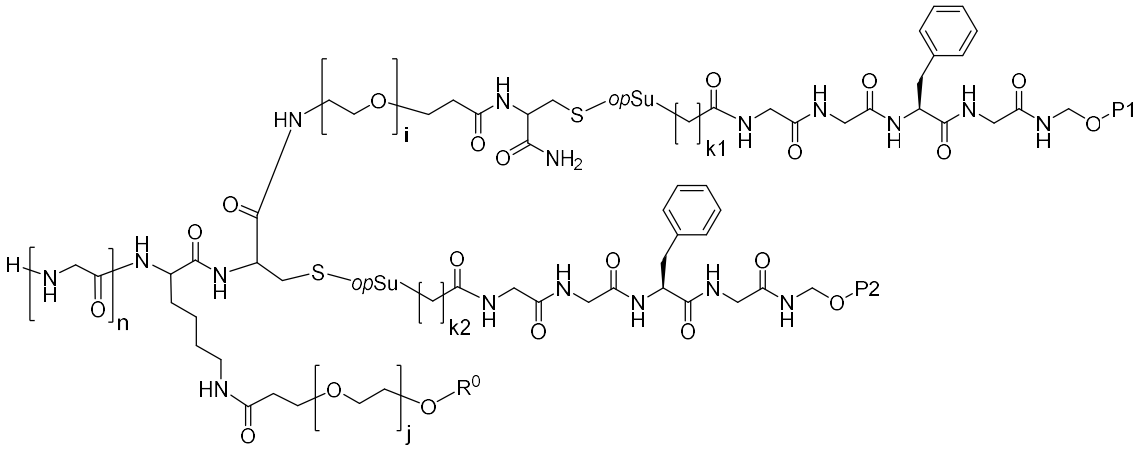
wherein,

k is an integer of 1 to 7;

P is a payload having the structure of formula (i'), wherein the structure of formula (i') is as defined in any one of claims 1 to 16.

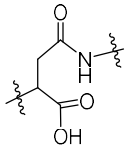
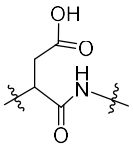
38. The compound of claim 37, wherein k is 1, or 3 or 5.

39. A compound of formula (I):



(I)

wherein,

*op*Su is  or ;

R^0 is C_{1-3} alkyl;

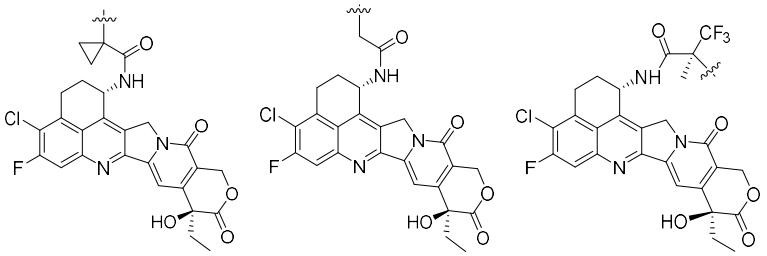
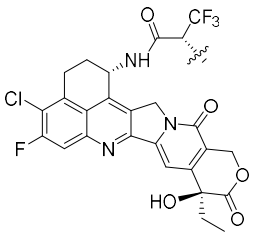
n is any integer of 2 to 5;

k1 and k2 are independently 1, or 3 or 5;

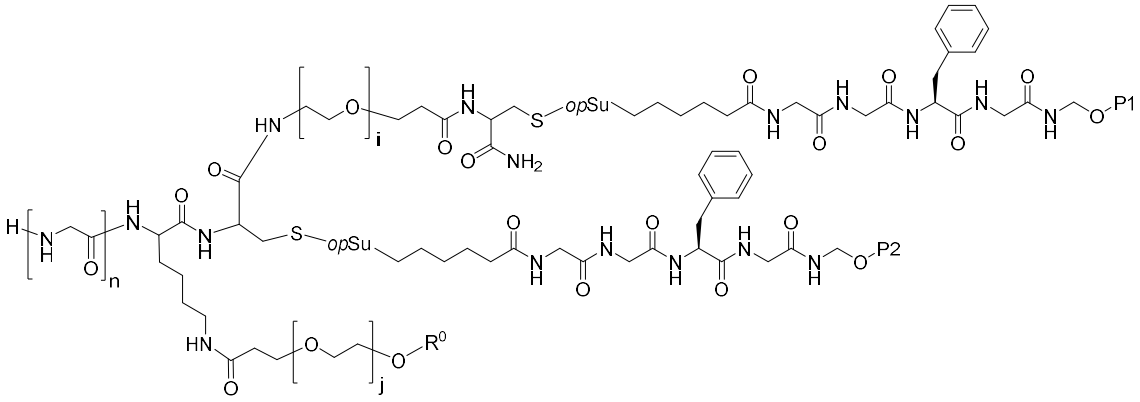
i is independently an integer of 1 to 20;

j is independently an integer of 1 to 20;

P1 and P2 are independently a payload having the following structure:


or

.

40. The compound of claim 39, having the structure of formula (I-1)



(I-1)

wherein,

P1, P2, R^0, *op*Su, n , i and j are as defined in claim 39.

41. The compound of claim 39 or 40, wherein

R^0 is methyl; and/or

n is 3; and/or

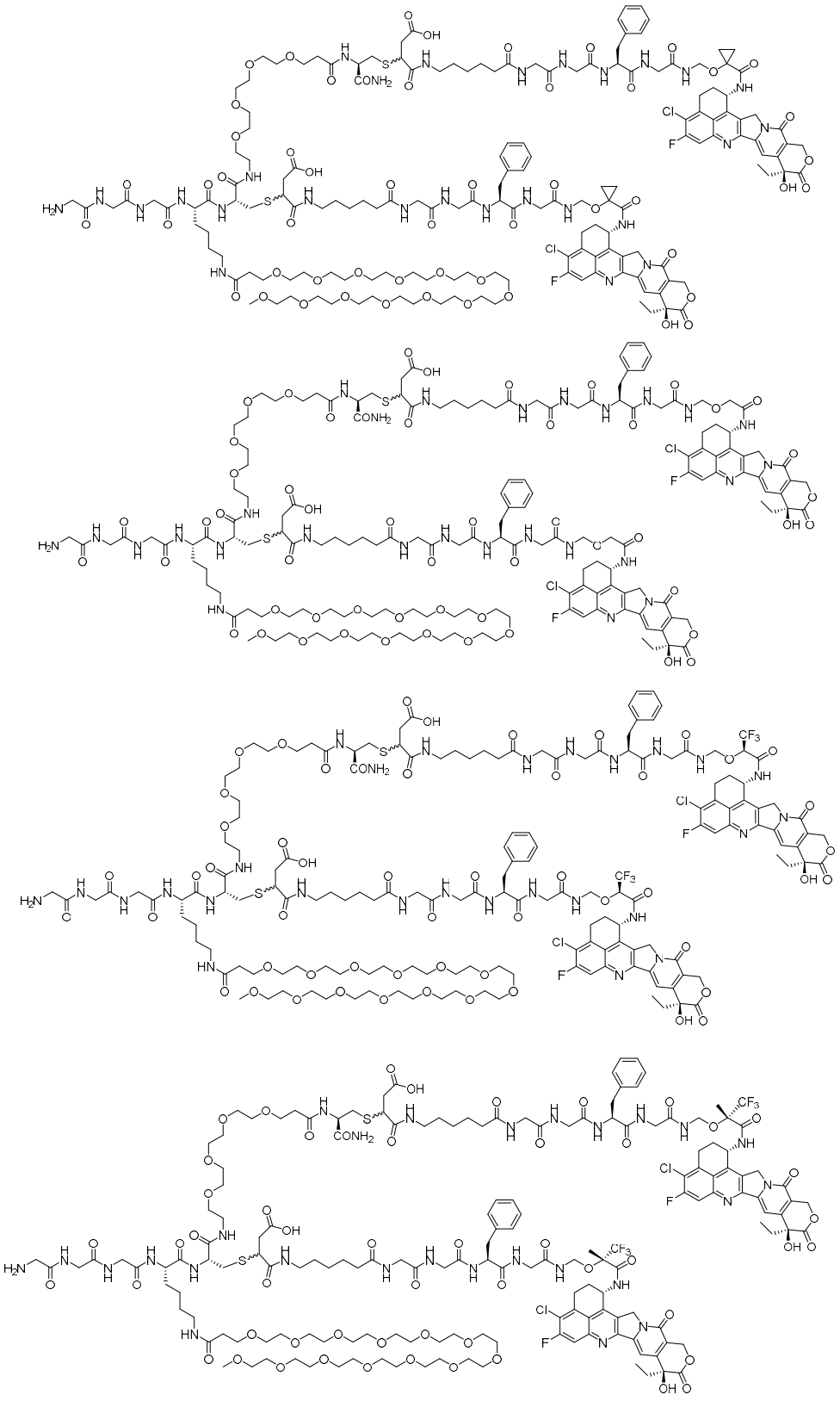
i is 4; and/or

j is 8 or 12.

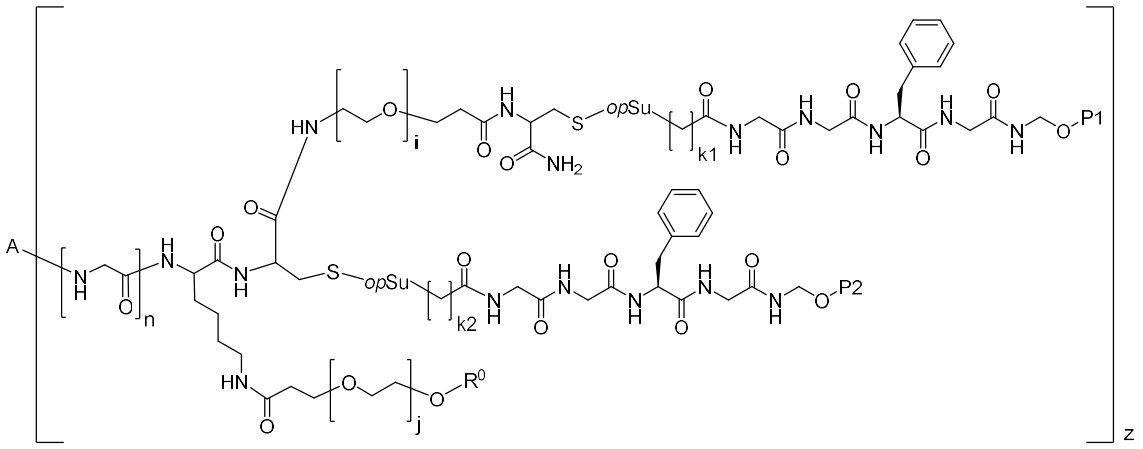
42. The compound of claim 39 or 40, wherein

R^0 is methyl; n is 3; i is 4; j is 12.

43. The compound of claim 39 or 40, which is selected from



44. A conjugate having the structure of formula (II):



(II)

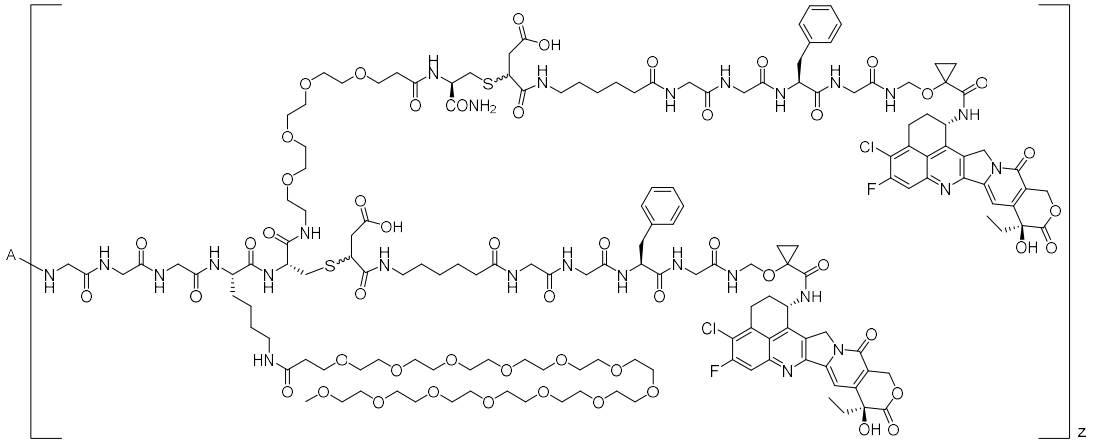
wherein,

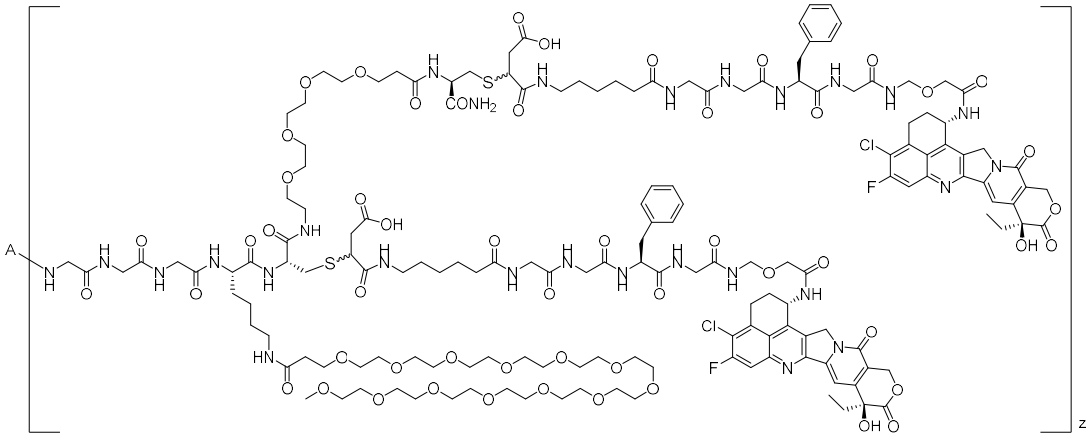
A is an anti-HER2 antibody; the antibody is modified to connect with the $(Gly)_n$ moiety in the compound of formula (I);

z is an integer of 1 to 4;

P1, P2, R^0, *op*Su, n , k1, k2, i and j are as defined in any one of claims 39 to 43.

45. The conjugate of claim 44, which is selected from:





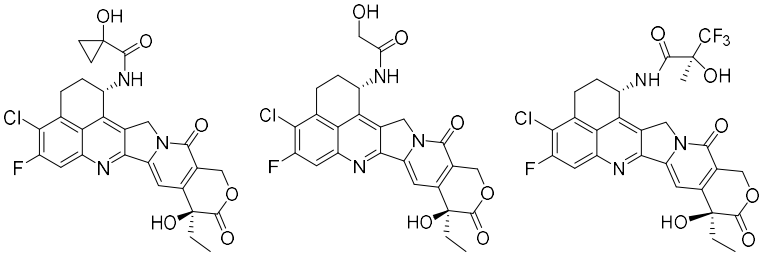
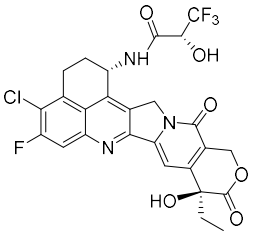
.

46. The conjugate of claim 44 or 45, wherein the antibody is Trastuzumab.

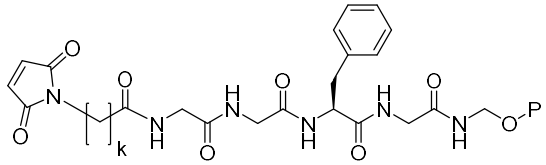
47. A pharmaceutical composition comprising a prophylactically or therapeutically effective amount of a conjugate of any one of the claims 44 to 46, and at least one pharmaceutically acceptable carrier.

48. Use of the conjugate of any one of the claims 44 to 46 or the pharmaceutical composition of claim 47 in the manufacture of a medicament for treating a disease; wherein the disease is a tumor.

49. A compound, or a pharmaceutically acceptable salt thereof, wherein the compound has a structure selected from the following formulae:


and

.

50. A compound of formula (1):

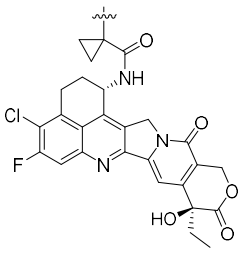
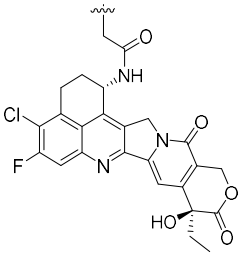
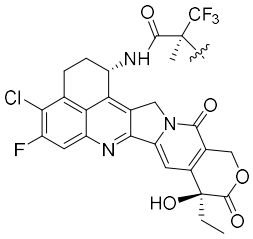
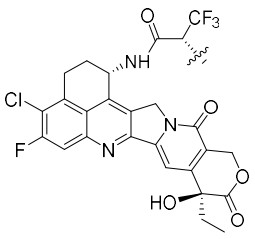


(1)

wherein,

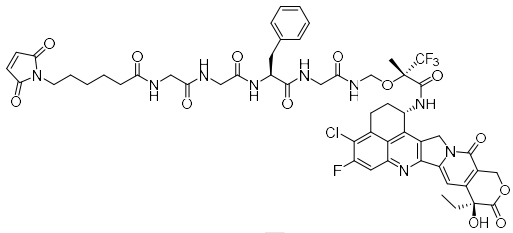
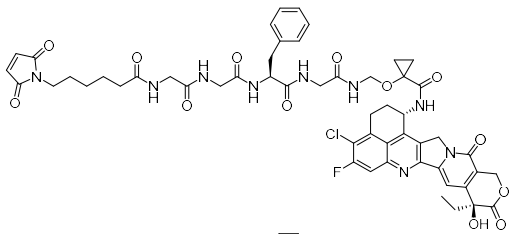
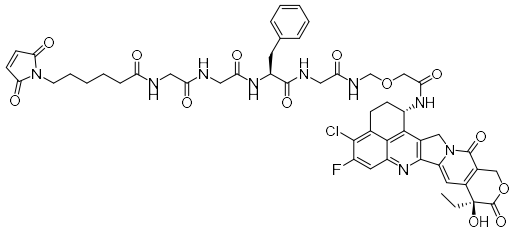
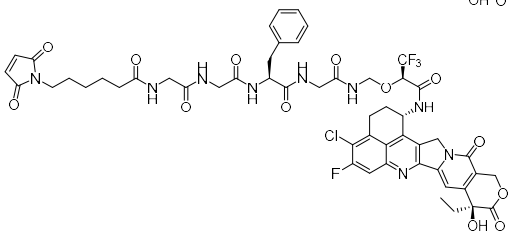
k is an integer of 1 to 7;

P has a structure of the following:




or

.

51. The compound of claim 50, wherein k is 1, or 3 or 5.

52. The compound of claim 50, which is selected from:

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