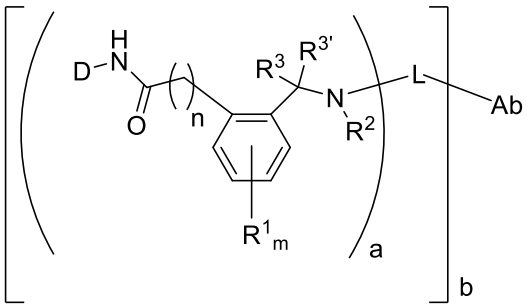
WHAT IS CLAIMED IS:

1. A compound of formula (I):



(I),

or a pharmaceutically acceptable salt thereof, wherein:

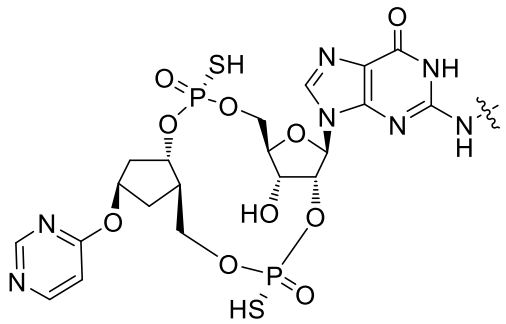
a is an integer from 1 to 20;

b is an integer from 1 to 20;

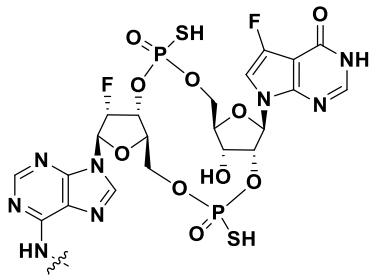
m is 0, 1, 2, 3, or 4;

n is 0 or 1;

D-NH- is a portion of an amino-substituted compound, wherein the amino-substituted compound has the formula D-NH_2 wherein D-NH_2 is a STING modulator, wherein the STING modulator is a compound having a formula selected from:



and



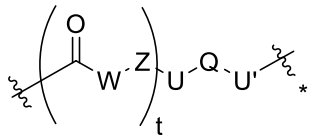
;

or a pharmaceutically acceptable salt thereof, wherein  is the point of attachment to the carbonyl group of formula (I);

each R^1 is independently selected from C_1-C_4alkyl, O-C_1-C_4alkyl, and halogen;

R^2 is selected from C_1-C_4alkyl and $–(CH_2CH_2O)_s$-CH_3, wherein s is an integer from 1 to 10;

R^3 and $R^{3'}$ are each independently selected from hydrogen and C_1-C_3alkyl;

L is  ;

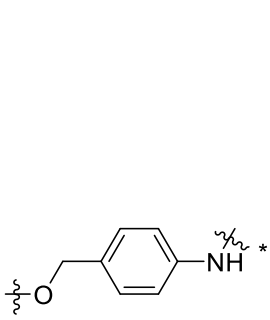
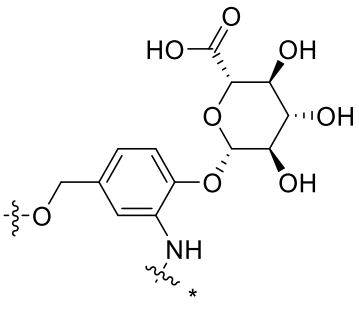
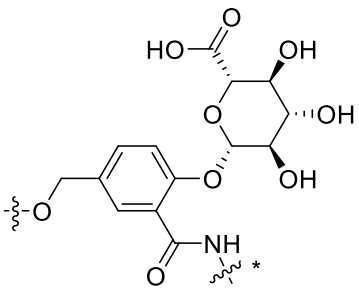
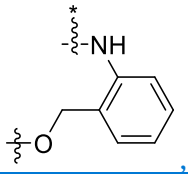
wherein:

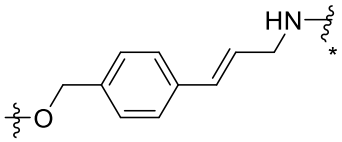
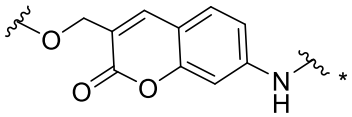
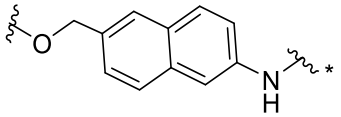
 is the point of attachment to the nitrogen atom;

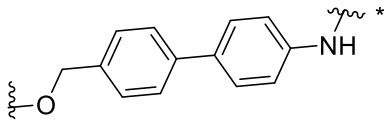
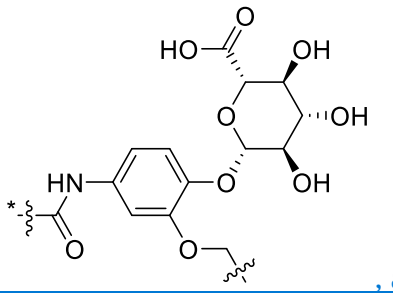
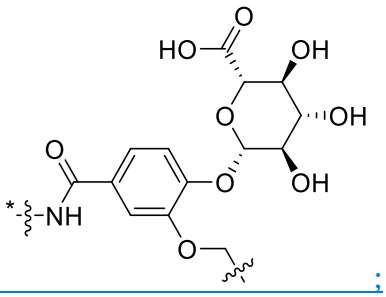
 is the point of attachment to Ab;

t is an integer from 1 and 10;

W is absent or a selected from

, , , ,

, , 

, , and ;

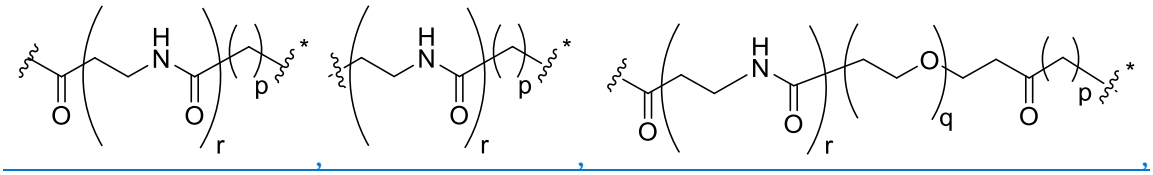
wherein:

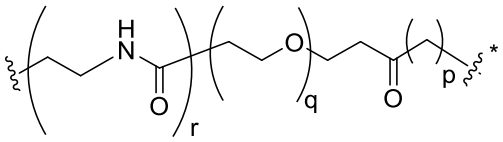
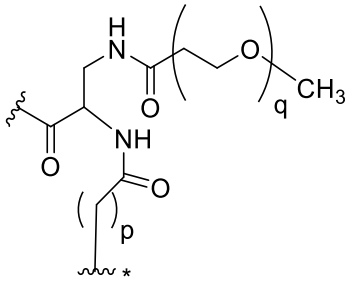
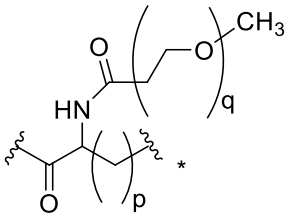
 is the point of attachment to the carbonyl group; and

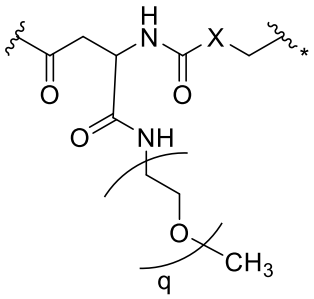
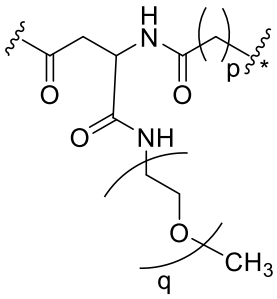
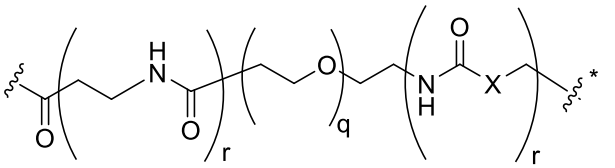
 is the point of attachment to Z;

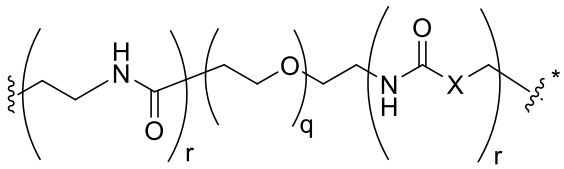
Z is absent or a peptide of 2 to 5 amino acids;

U and U’ are independently absent or selected from


,
,
,



, 
,


, 

,

and 
;

wherein:

~ is the point of attachment to Z;

* is the point of attachment to Q;

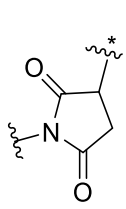
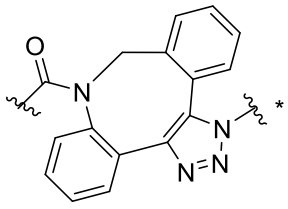
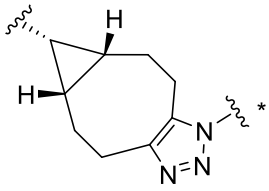
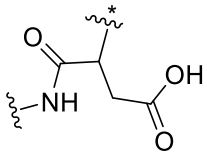
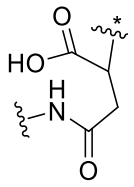
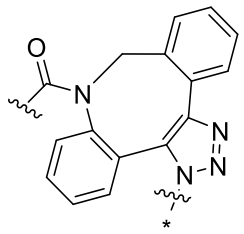
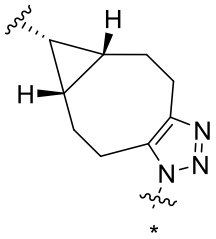
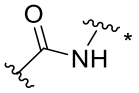
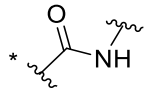
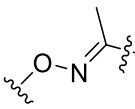
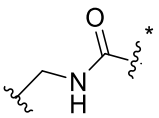
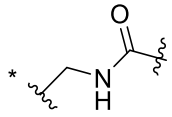
p is an integer from 1 to 6;

q is an integer from 1 to 20;

X is O or $–CH_2–$; and

each r is independently 0 or 1; and

Q is selected from

, , , , , , , , , , , and ;

wherein

 is the point of attachment to U or, when U is absent, the point of attachment to Z; and

 is the point of attachment to U', or, when U' is absent, the point of attachment to Ab;

provided that W and Z are not both absent; ~~a cleavable linker;~~ and

Ab is an antibody, antibody fragment or an antigen-binding fragment.

2. A compound of claim 1, or a pharmaceutically acceptable salt thereof, wherein:

a is an integer from 1 to 4;

b is an integer from 1 to 10; and

m is 0.

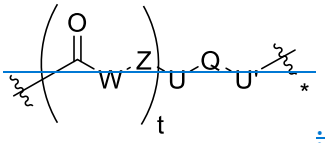
3. A compound of claim 1 or 2, or a pharmaceutically acceptable salt thereof, wherein:

m is 0;

n is 0; and

R^3 and $R^{3'}$ are each hydrogen.

~~4. A compound of any one of claims 1 to 3, or a pharmaceutically acceptable salt thereof, wherein L is~~



;

wherein:

is the point of attachment to the nitrogen atom;

is the point of attachment to Ab;

t is an integer from 1 and 10;

W is absent or a self-immolative group;

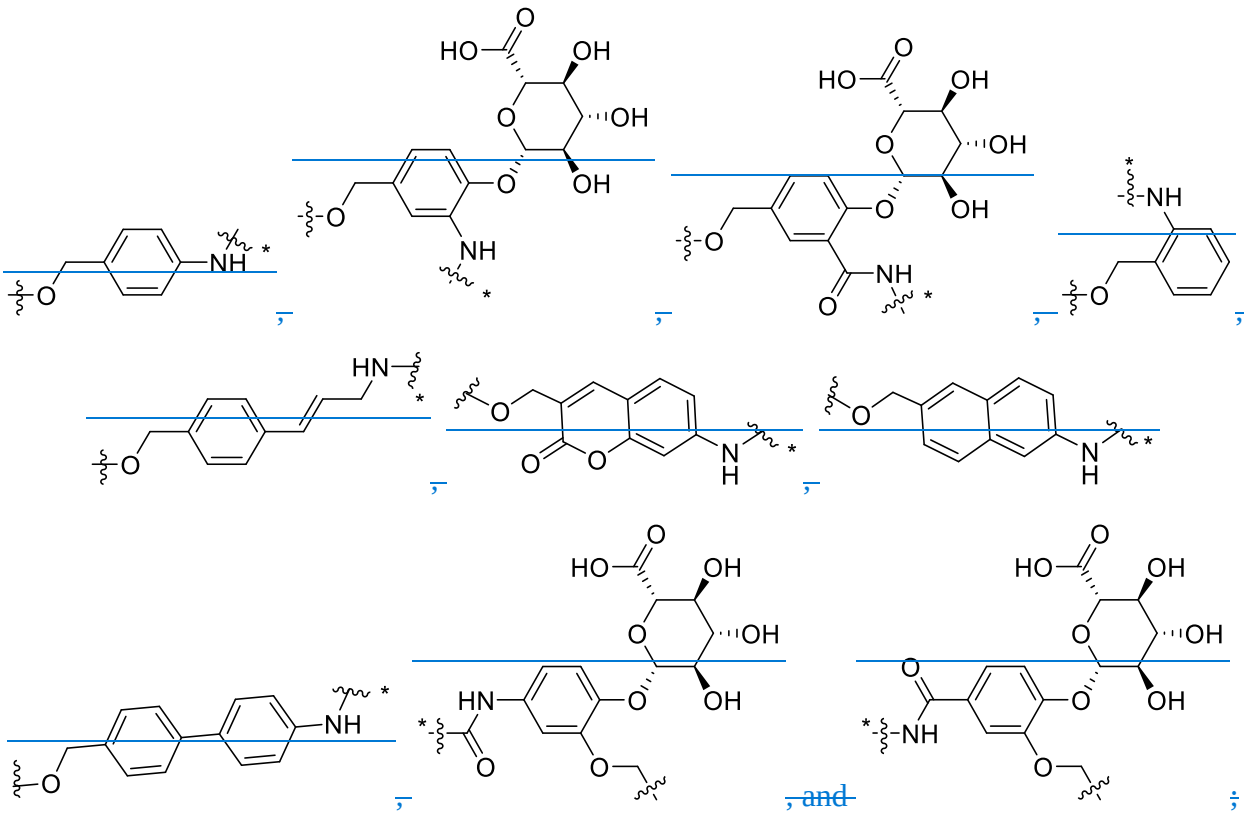
Z is absent or a peptide of 2 to 5 amino acids;

U and U' are independently absent or a spacer; and

Q is a heterobifunctional group;

provided that W and Z are not both absent.

5. A compound of claim 4, or a pharmaceutically acceptable salt thereof, wherein W is a self-immolative group selected from



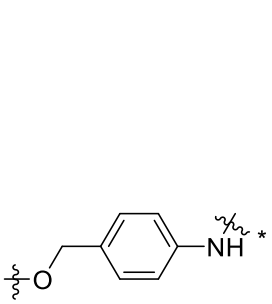
, and ;

wherein:

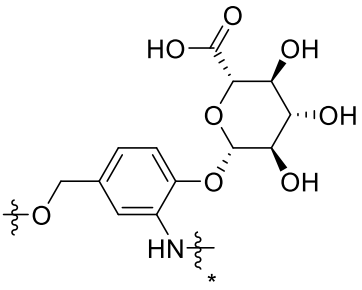
~~is the point of attachment to the carbonyl group; and~~

~~is the point of attachment to Z.~~

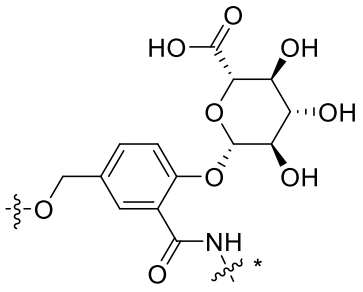
~~6.~~4. A compound of any one of claims 1 to ~~3~~5, or a pharmaceutically acceptable salt thereof, wherein W is selected from



,



, and



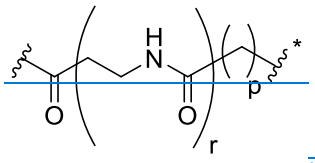
.

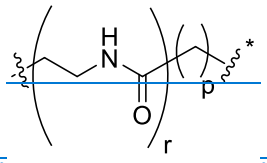
~~7. A compound of any one of claims 4 to 6, or a pharmaceutically acceptable salt thereof, wherein Z is a peptide capable of being enzymatically cleaved.~~

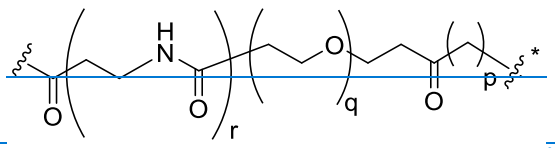
~~8. A compound of claim 7, or a pharmaceutically acceptable salt thereof, wherein Z is cathepsin cleavable.~~

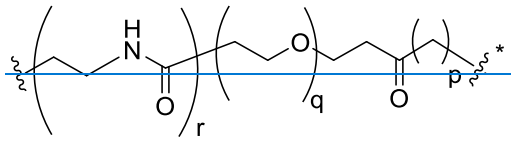
~~9.~~5. A compound of any one of claims 1~~4~~ to 4~~8~~, or a pharmaceutically acceptable salt thereof, wherein Z is a two-amino acid peptide selected from Val-Cit, Cit-Val, Val-Ala, Ala-Val, Phe-Lys, and Lys-Phe.

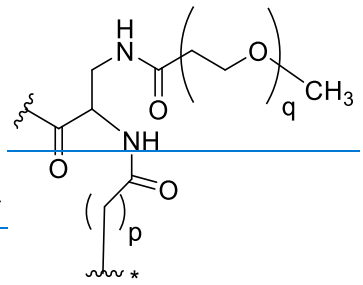
~~10. A compound of any one of claims 4 to 9, or a pharmaceutically acceptable salt thereof, wherein U and U' are independently selected from~~

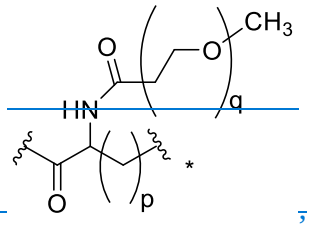

;

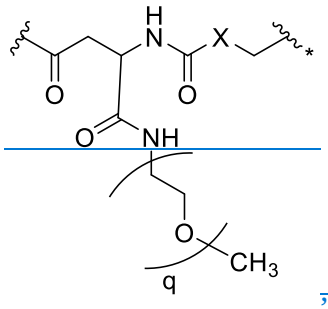

,

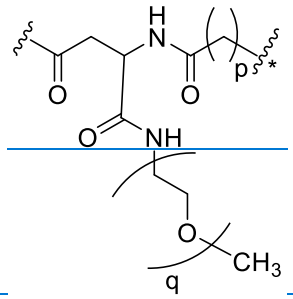

;

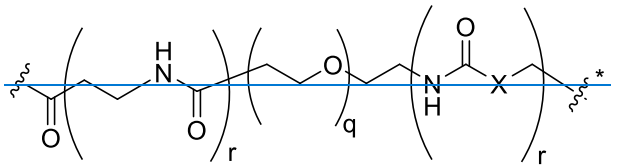


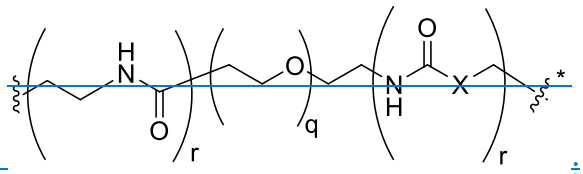



,


,




;


;

and

wherein:

~~~~ is the point of attachment to Z;

~~~~ * is the point of attachment to Q;

~~~~ p is an integer from 1 to 6;

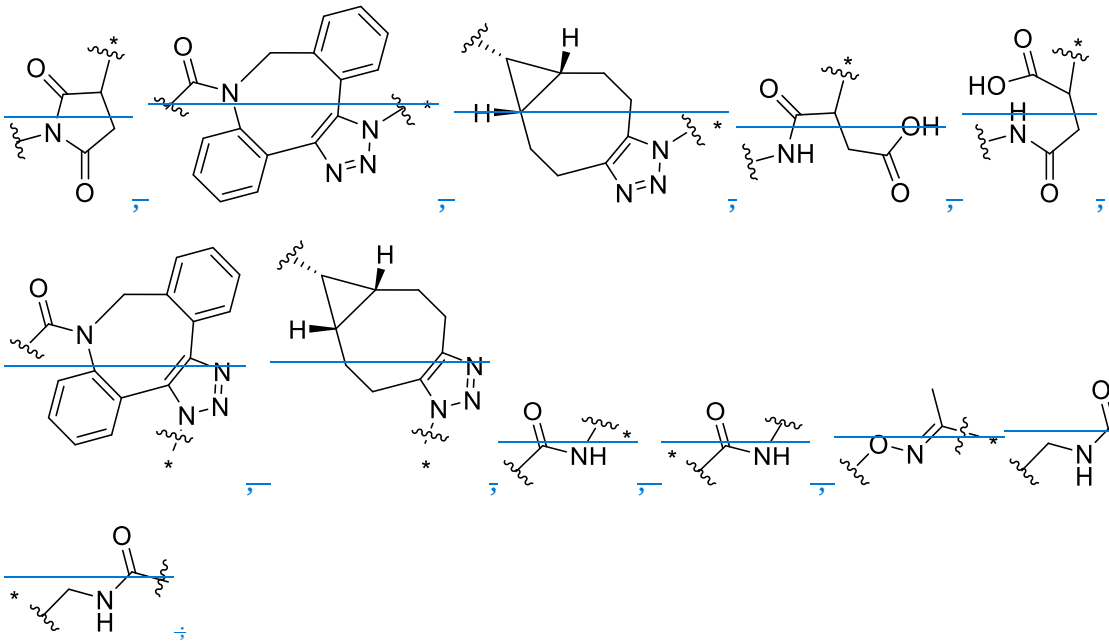
~~~~ q is an integer from 1 to 20;

~~~~ X is O or CH_2; and

~~~~ each r is independently 0 or 1.

11. A compound of any one of claims 4 to 10, or a pharmaceutically acceptable salt thereof, wherein Q is a heterobifunctional group which is attached to Ab through chemical or enzyme-mediated conjugation.

12. A compound of claim 11, or a pharmaceutically acceptable salt thereof, wherein Q is selected from



wherein

* is the point of attachment to U or, when U is absent, the point of attachment to Z; and

* is the point of attachment to U', or, when U' is absent, the point of attachment to Ab.

13.6. A compound of claim 14, wherein

t is 1;

W is absent or a self-immolative group; and

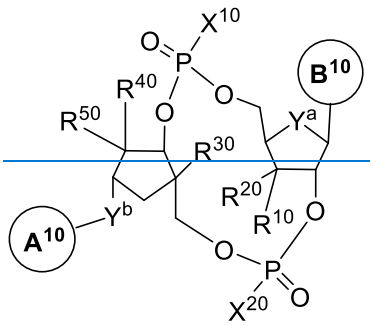
Z is absent or a peptide of 2 amino acids.

14.7. A compound of any one of claims 1 to 613, wherein R^2 is $–CH_3$, or $–(CH_2CH_2O)_s\text{-}CH_3$ and s is an integer from 1 to 10.

15. A compound of any one of claims 1 to 14, wherein D-NH_2 is an amino-substituted compound that modulates STING activity.

16. A compound of claim 15, wherein the amino-substituted compound that modulates STING activity comprises a guanine or an adenine derivative.

17. A compound of claim 15, wherein the amino-substituted compound that modulates STING activity is a compound of formula (II):



(II),

or a pharmaceutically acceptable salt thereof, wherein:

X^{10} is SH or OH;

X^{20} is SH or OH;

Y^a is O, S, or CH_2;

Y^b is O, S, NH, or NR^a, wherein R^a is C_1-C_4alkyl;

R^{10} is hydrogen, fluoro, OH, NH_2, OR^b, or NHR^b;

R^{20} is hydrogen or fluoro;

R^{30} is hydrogen; R^{40} is hydrogen, fluoro, OH, NH_2, OR^b, or NHR^b; or R^{30} and R^{40} are taken together to form CH_2O;

R^{50} is hydrogen or fluoro;

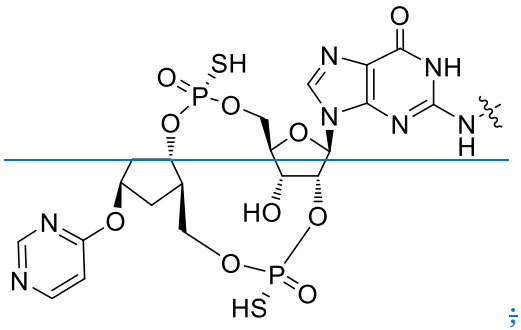
R^b is C_1-C_6alkyl, halo(C_1-C_6)alkyl, or C_3-C_6cycloalkyl;

Ring A^{10} is an optionally substituted 5- or 6-membered monocyclic heteroaryl ring containing 1-4 heteroatoms selected from N, O, or S, or an optionally substituted 9 or 10 membered bicyclic heteroaryl ring containing 1-5 heteroatoms selected from N, O, or S; wherein ring A^{10} comprises at least one N atom in the ring, and wherein Y^b is attached to a carbon atom of ring A^{10}; and

Ring B^{10} is an optionally substituted 9 or 10-membered bicyclic heteroaryl ring containing from 2 to 5 heteroatoms selected from N, O, or S; wherein ring B^{10} comprises at least two N atoms in the ring;

provided that either ring A^{10} or ring B^{10} is attached to the carbonyl group of formula (I) through an -NH- group.

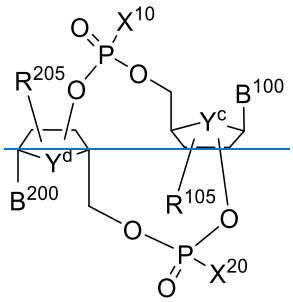
~~18. A compound of any one of claims 15 to 17, wherein the amino-substituted compound that modulates STING activity is~~



~~;~~

~~or a pharmaceutically acceptable salt thereof, wherein ~~ ~~ is the point of attachment to the carbonyl group of formula (I).~~

~~19. A compound of claim 15, wherein the amino-substituted compound that modulates STING activity is a compound of formula (III):~~



~~(III) ;~~

~~or a pharmaceutically acceptable salt thereof; wherein~~

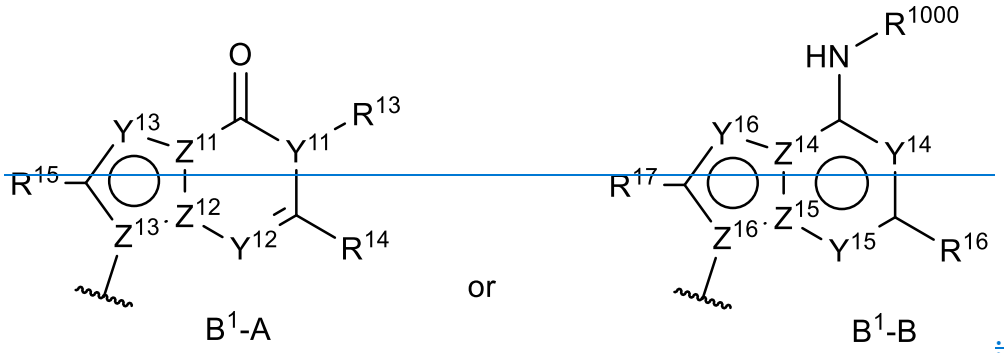
~~X^{10} is SH or OH;~~

~~X^{20} is SH or OH;~~

~~Y^c is O, S, or CH_2;~~

~~Y^d is O, S, or CH_2;~~

~~B^{100} is a group represented by formula (**B^1-A**) or formula (**B^1-B**):~~



;

~~R^{13}, R^{14}, R^{15}, R^{16} and R^{17} are each independently a hydrogen atom or a substituent;~~

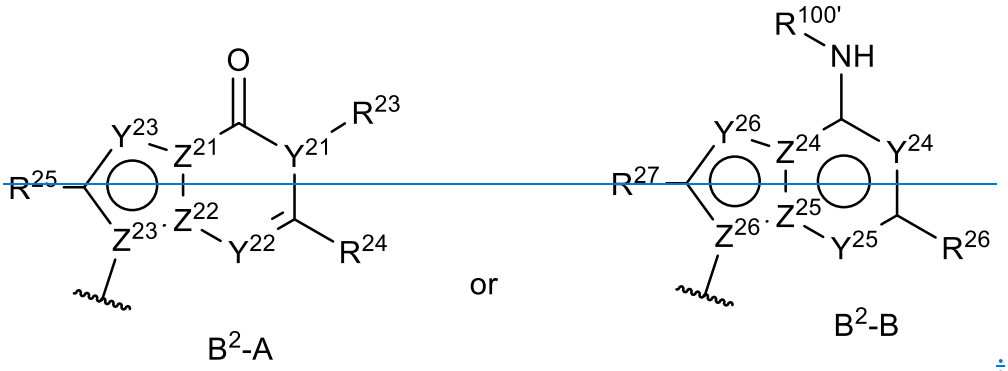
~~R^{1000} is hydrogen or a bond to the carbonyl group of formula (I);~~

~~Y^{11}, Y^{12}, Y^{13}, Y^{14}, Y^{15} and Y^{16} are each independently N or CR^{1a}, wherein R^{1a} is hydrogen or a substituent;~~

~~Z^{11}, Z^{12}, Z^{13}, Z^{14}, Z^{15} and Z^{16} are each independently N or C;~~

~~R^{105} is a hydrogen atom or a substituent;~~

~~B^{200} is a group represented by formula (**B^2-A**) or formula (**B^2-B**);~~



;

~~R^{23}, R^{24}, R^{25}, R^{26} and R^{27} are each independently a hydrogen atom or a substituent;~~

~~$R^{100'}$ is hydrogen or a bond to the carbonyl group of formula (I);~~

~~Y^{21}, Y^{22}, Y^{23}, Y^{24}, Y^{25} and Y^{26} are each independently N or CR^{2a}, wherein R^{2a} is hydrogen or a substituent;~~

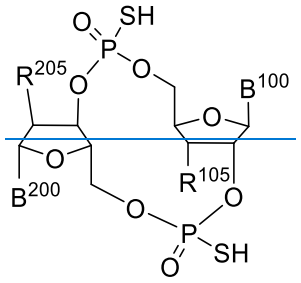
~~Z^{21}, Z^{22}, Z^{23}, Z^{24}, Z^{25} and Z^{26} are each independently N or C; and~~

~~R^{205} is a hydrogen atom or a substituent; wherein R^{105} and R^{205} are each independently attached to 2- or 3-position of the 5-membered ring they are attached to respectively;~~

~~provided that:~~

~~one of B^{100} or B^{200} is attached to the carbonyl group of formula (I) through an -NH- group.~~

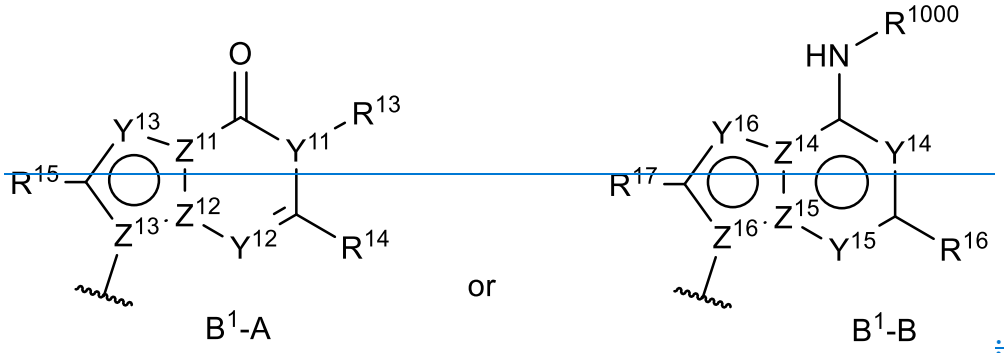
~~20. A compound of claim 19, or a pharmaceutically acceptable salt thereof, of formula (IIIa):~~



~~(IIIa) ;~~

~~or a pharmaceutically acceptable salt thereof; wherein~~

~~B^{100} is a group represented by formula (**B^1-A**) or formula (**B^1-B**):~~



~~;~~

~~R^{13}, R^{14}, R^{15}, R^{16} and R^{17} are each independently a hydrogen atom or a substituent;~~

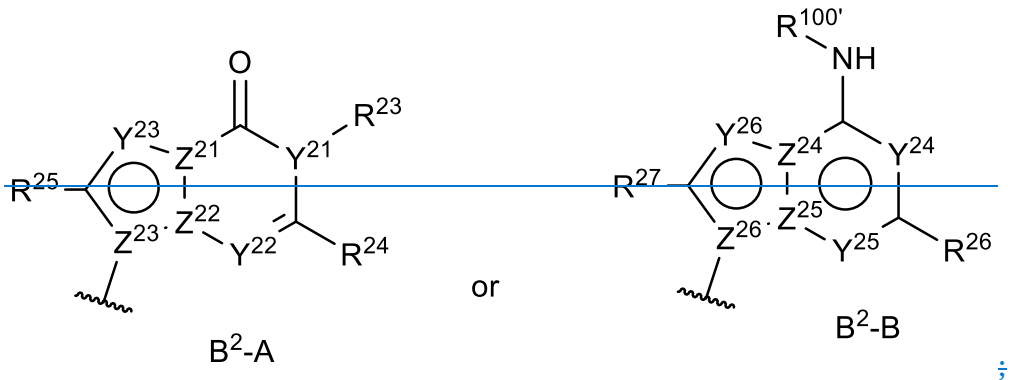
~~R^{1000} is hydrogen or a bond to the carbonyl group of formula (I);~~

~~Y^{11}, Y^{12}, Y^{13}, Y^{14}, Y^{15} and Y^{16} are each independently N or CR^{1a}, wherein R^{1a} is hydrogen or a substituent;~~

~~Z^{11}, Z^{12}, Z^{13}, Z^{14}, Z^{15} and Z^{16} are each independently N or C;~~

~~R^{105} is a hydrogen atom or a substituent;~~

~~B^{200} is a group represented by formula (**B^2-A**) or formula (**B^2-B**):~~



~~;~~

~~R^{23}, R^{24}, R^{25}, R^{26} and R^{27} are each independently a hydrogen atom or a substituent;~~

~~$R^{100'}$ is hydrogen or a bond to the carbonyl group of formula (I);~~

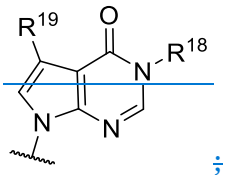
~~Y^{21}, Y^{22}, Y^{23}, Y^{24}, Y^{25} and Y^{26} are each independently N or CR^{2a}, wherein R^{2a} is hydrogen or a substituent;~~

~~Z^{21}, Z^{22}, Z^{23}, Z^{24}, Z^{25} and Z^{26} are each independently N or C; and~~

~~R^{205} is a hydrogen atom or a substituent; wherein R^{105} and R^{205} are each independently attached to 2- or 3-position of the 5-membered ring they are attached to respectively;~~

~~provided that:~~

~~one of B^{100} or B^{200} is:~~



~~;~~

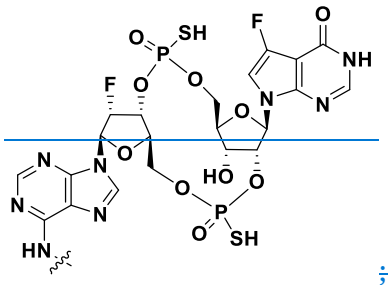
~~wherein:~~

~~R^{18} is hydrogen or C_{1-6} alkyl; and~~

~~R^{19} is a halogen atom;~~

~~and the other is attached to the carbonyl group of formula (I) through an –NH– group.~~

~~21. A compound of claim 19 or 20 wherein the amino-substituted compound that modulates STING activity is:~~



~~;~~

~~or a pharmaceutically acceptable salt thereof, wherein ~~ is the point of attachment to the carbonyl group of formula (I).~~

8~~22~~. A pharmaceutical composition comprising a compound of any one of claims 1 to 7~~21~~, or a pharmaceutically acceptable salt thereof, and one or more pharmaceutically acceptable carriers.

9~~23~~. A compound of any one of claims 1 to 7~~21~~ for use in the treatment of cancer in a subject in need thereof.

1024. A compound or composition of any one of claims 1 to 721 for use in stimulating an immune response in a subject in need thereof.