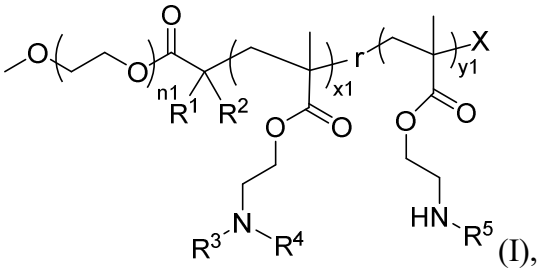
WHAT IS CLAIMED IS:

1. A pharmaceutical composition comprising:

(i) a block copolymer of Formula (I), or a pharmaceutically acceptable salt, solvate, or hydrate thereof:



(I),

wherein:

n_1 is an integer from 10-200;

x_1 is an integer from 20-300;

y_1 is an integer from 0-10;

X is a halogen, -OH, or -C(O)OH;

r denotes randomness in the order of x_1 and y_1 blocks in the block copolymer;

R^1 and R^2 are each independently hydrogen or optionally substituted C_1-C_6 alkyl;

R^3 and R^4 are each independently an optionally substituted C_1-C_6 alkyl, C_3-C_{10} cycloalkyl or aryl;

or R^3 and R^4 are taken together with the corresponding nitrogen to which they are attached form an optionally substituted 5 to 7-membered ring;

R^5 is hydrogen or -C(O)CH_3; and

(ii) a non-peptide STING agonist.

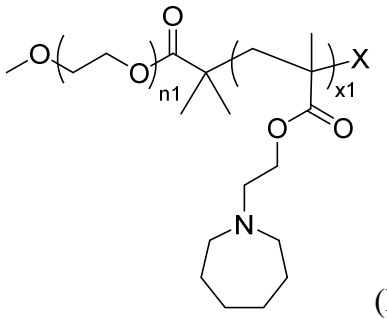
2. The pharmaceutical composition of claim 1, wherein R^1 and R^2 are each independently an optionally substituted C_1-C_6 alkyl.

3. The pharmaceutical composition of claim 1 or claim 2, wherein, wherein R^3 and R^4 are each independently an optionally substituted C_1-C_6 alkyl.

4. The pharmaceutical composition of claim 1 or claim 2, wherein R^3 and R^4 are taken together with the corresponding nitrogen to which they are attached form an optionally substituted 5 to 7-membered ring.

5. The pharmaceutical composition of any one of claims 1-4, wherein y_1 is 0.

6. The pharmaceutical composition of any one of claims 1-5, wherein the block copolymer of Formula (I) has the structure of Formula (Ia), or a pharmaceutically acceptable salt, solvate, or hydrate thereof:

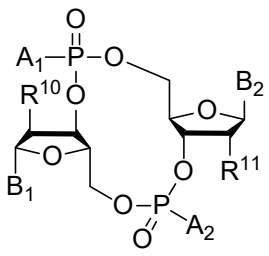


(Ia).

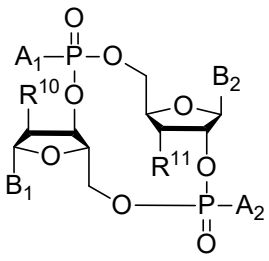
7. The pharmaceutical composition of any one of claims 1-6, wherein the non-peptide STING agonist is a cyclic dinucleotide.

8. The pharmaceutical composition of claim 7, wherein the cyclic dinucleotide is cGAMP.

9. The pharmaceutical composition of claim 7, wherein the cyclic dinucleotide is a compound having the structure of Formula (IIa) or Formula (IIb), or a pharmaceutically acceptable salt, solvate or hydrate thereof:



(IIa) or



(IIb),

wherein

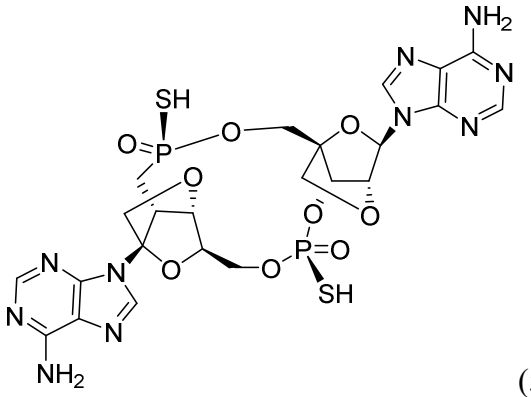
A^1 and A^2 are each independently OH or SH;

B^1 and B^2 are each independently guanine or adenine;

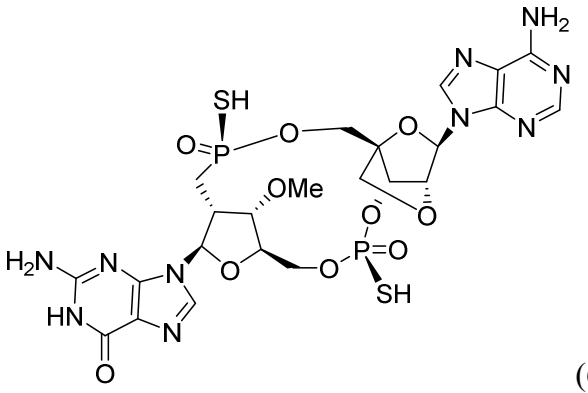
R^{10} is H, halogen, OH, OCH_3; and

R^{11} is halogen or OH.

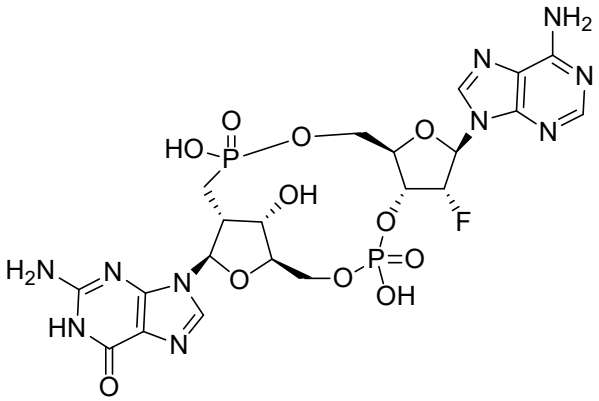
10. The pharmaceutical composition of claim 7, wherein the cyclic dinucleotide is a compound selected from:



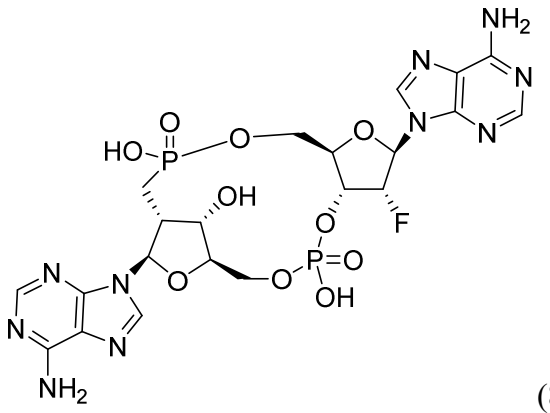
(5),



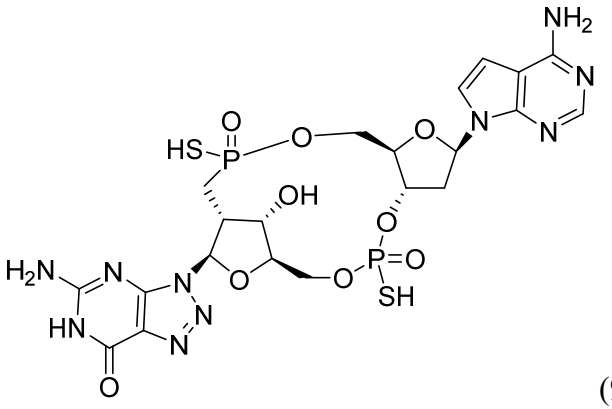
(6),



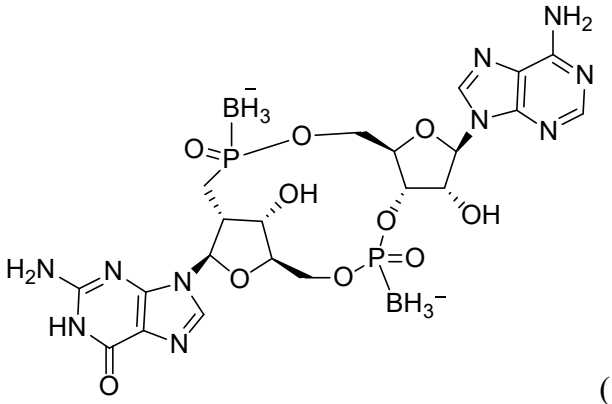
(7) ,



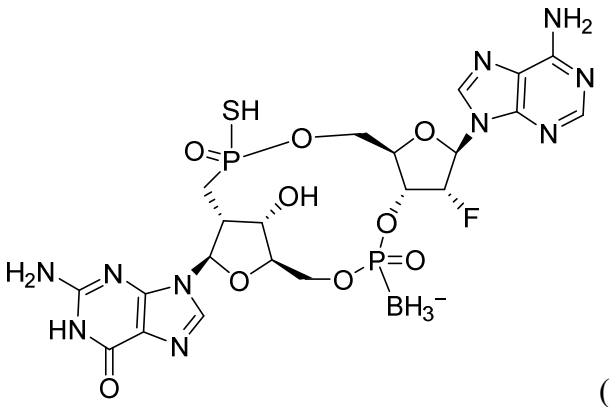
(8),



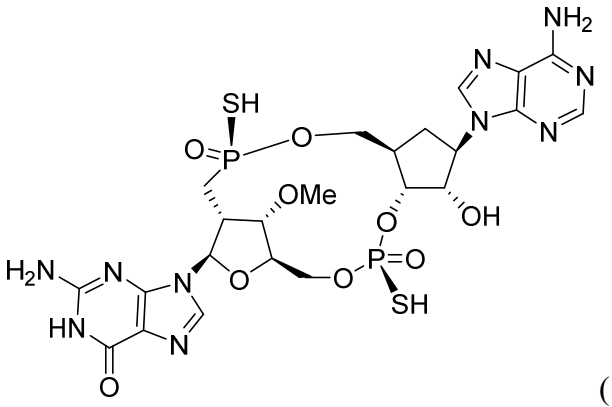
(9),



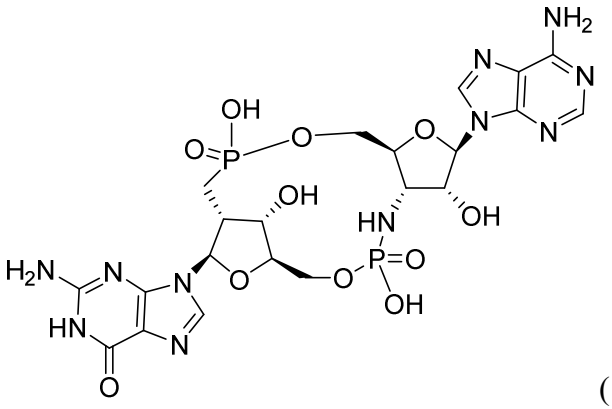
(10),



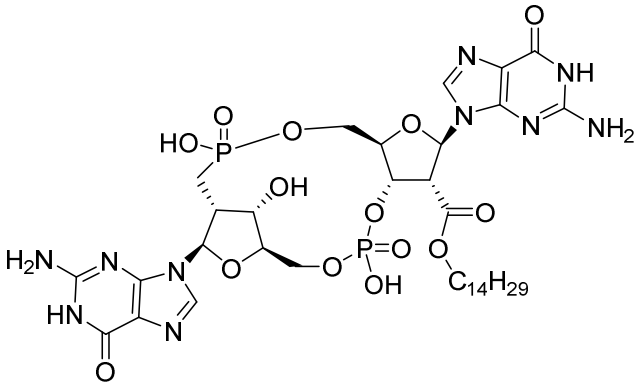
(11),



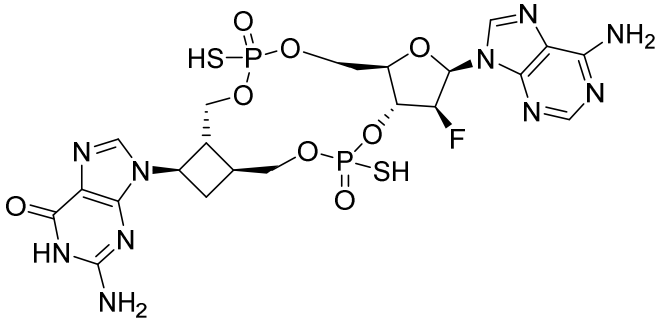
(12),



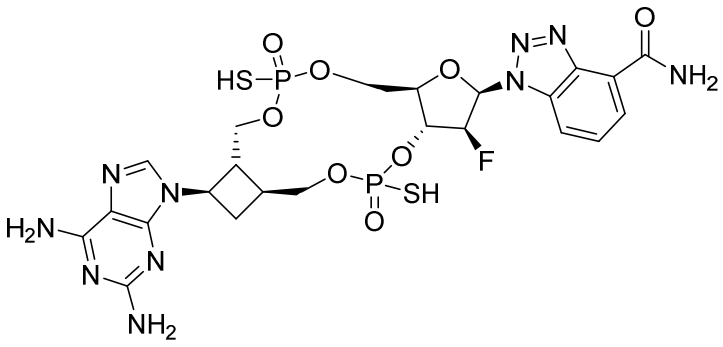
(13),



(14),

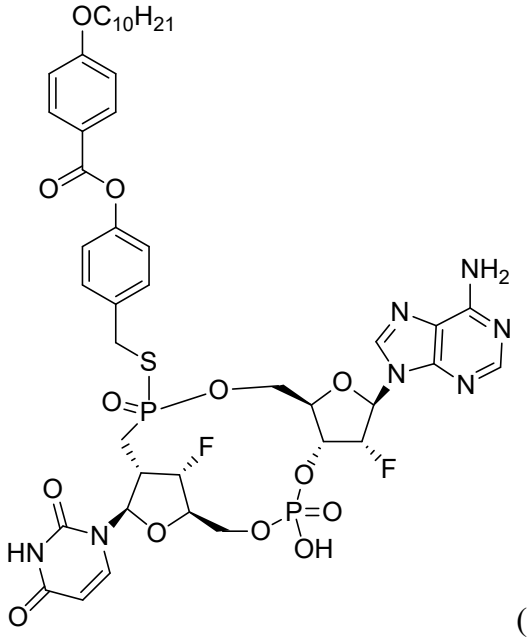


(15), and

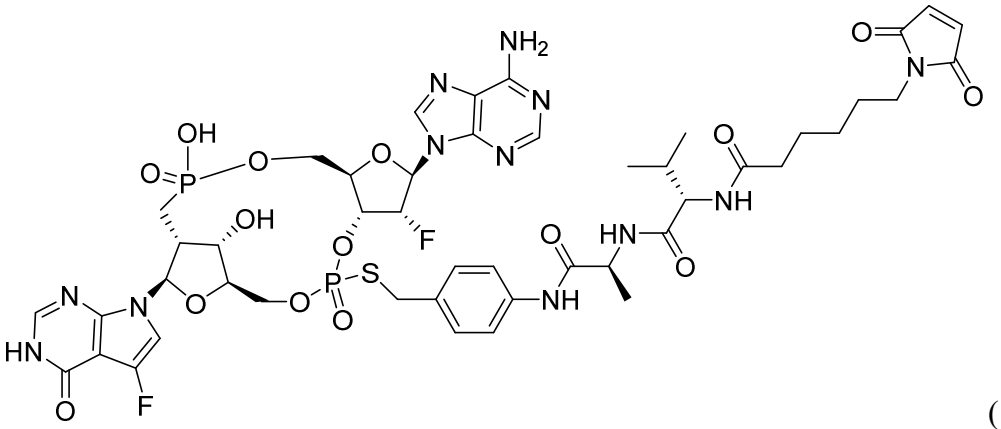


(16); or a pharmaceutically acceptable salt, solvate, or hydrate thereof.

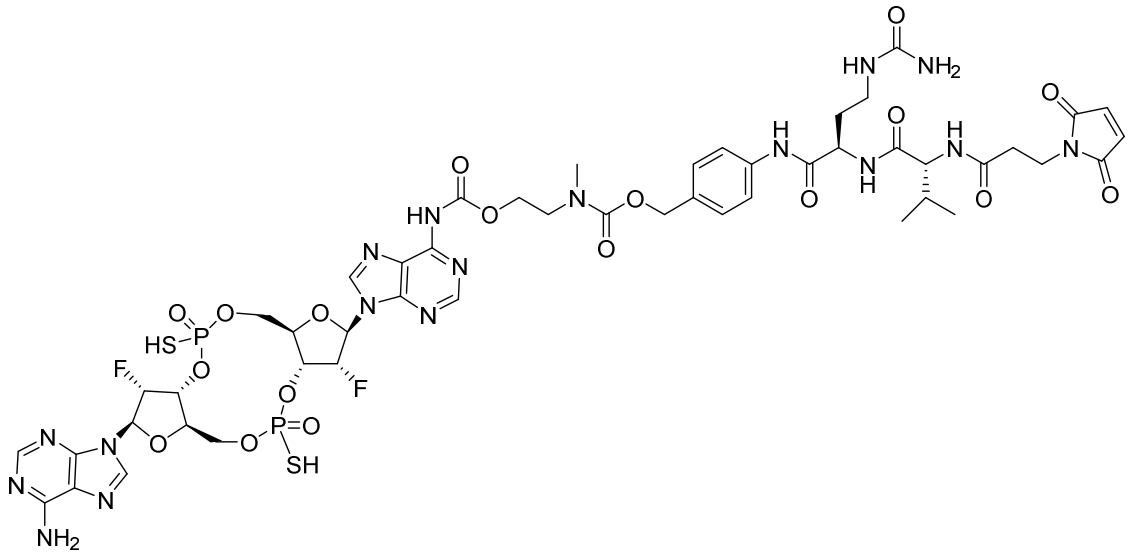
11. The pharmaceutical composition of claim 7, wherein the cyclic dinucleotide is selected from:



(17),

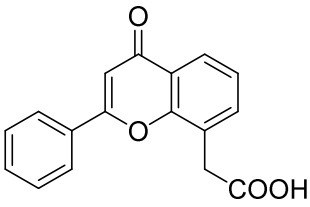
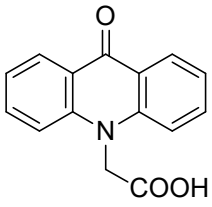
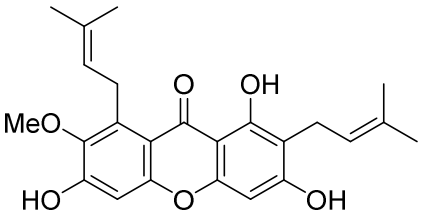
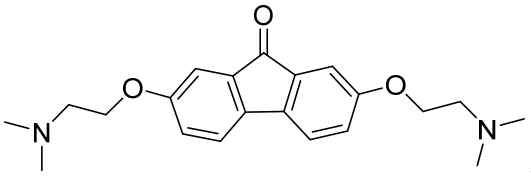
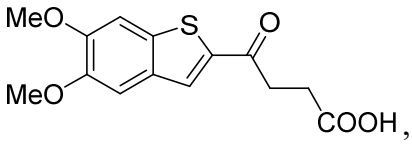
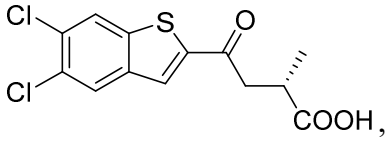
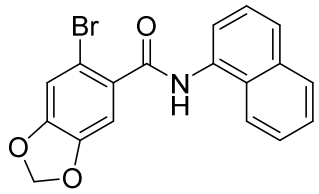
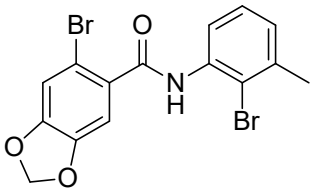
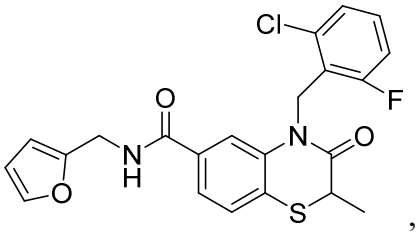
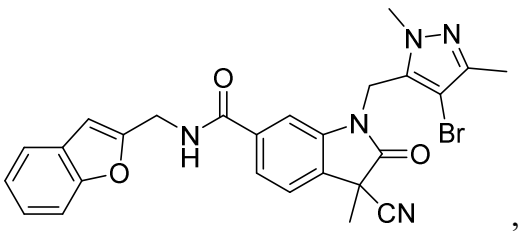
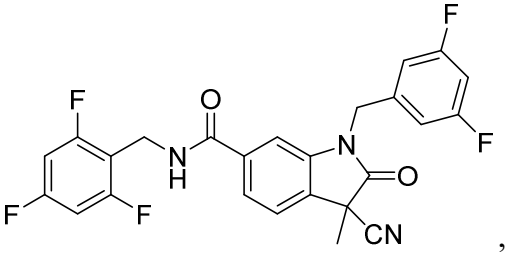
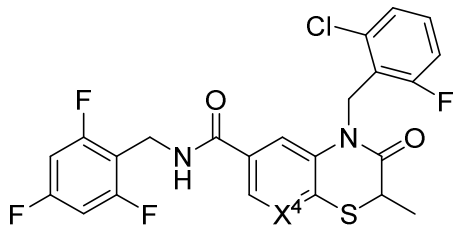
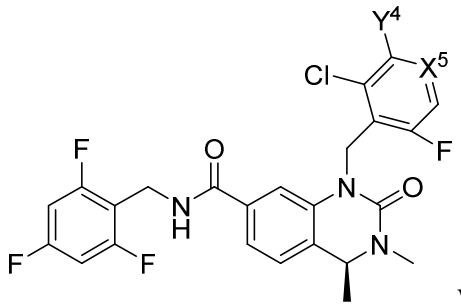


(18), or



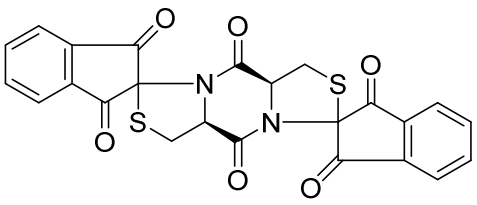
(19); or a pharmaceutically acceptable salt, solvate, or hydrate thereof.

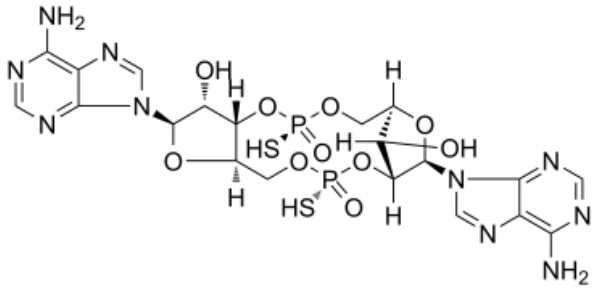
12. The pharmaceutical composition of any one of claims 1-6, wherein the non-peptide STING agonist is selected from:


(FAA),

(CMA),

(α-Mangostin),

,

,

,

,

,

,

,

,

wherein X^4 is CH or N; and

wherein X^5 is CH or N and Y^4 is NH_2 or CH_3;

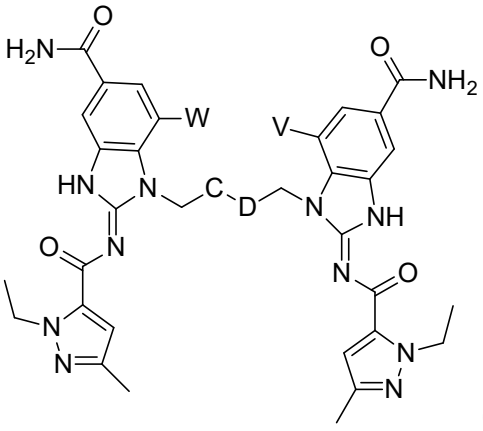
or a pharmaceutically acceptable salt, solvate, or hydrate thereof.

13. The pharmaceutical composition of any one of claims 1-6, wherein the non-peptide STING agonist is selected from:


and


.

14. The pharmaceutical composition of any one of claims 1-6, wherein the non-peptide STING agonist is a compound having the structure of Formula (IV), or a pharmaceutically acceptable salt, solvate, or hydrate thereof:


(IV),

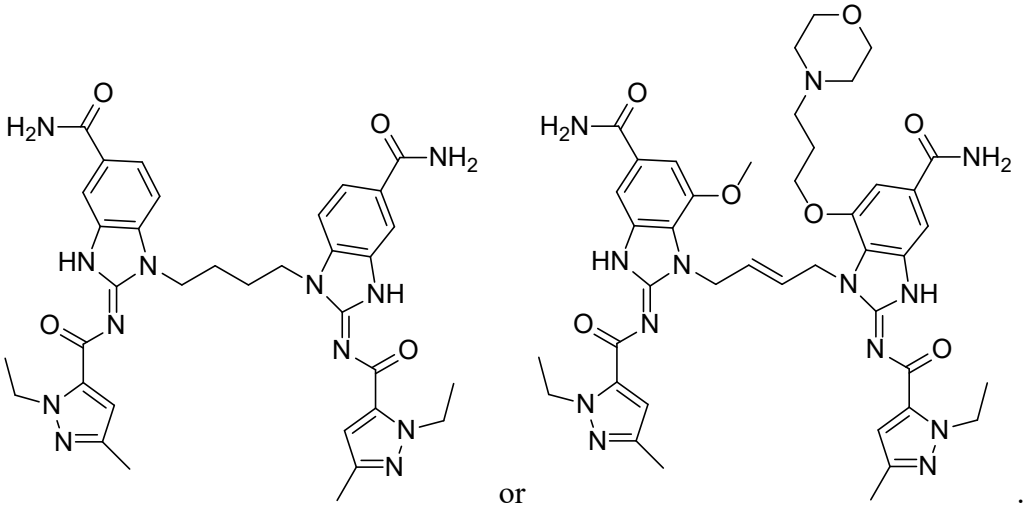
wherein:

C-D is an alkylene or alkenylene;

W is H or -OCH_3; and

V is H or -O-(C_1-C_3)alkyl-(C_3-C_6)heterocycle.

15. The pharmaceutical composition of any one of claims 1-6, wherein the non-peptide STING agonist is:



or .

16. The pharmaceutical composition of any one of claims 1-15, wherein one or more non-peptide STING agonists is encapsulated by the block copolymer within one or more micelles.

17. The pharmaceutical composition of any one of claims 1-15, wherein one or more non-peptide STING agonists is not encapsulated by the block copolymer within a micelle.

18. The pharmaceutical composition of claim 17, further comprising a saccharide solution.

19. Use of a therapeutically effective amount of a pharmaceutical composition of any one of claims 1-18 in the manufacture of a medicament for treating cancer in a subject in need thereof.

20. Use of a pharmaceutical composition of any one of claims 1-18 in the manufacture of a medicament for activating the STING pathway in a subject in need thereof.