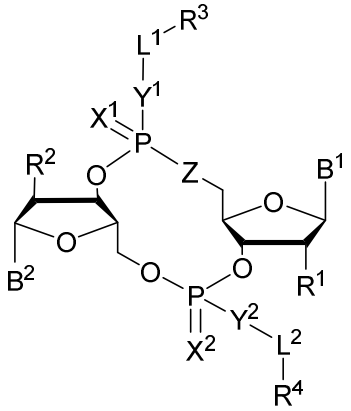
CLAIMS

1. A compound of Formula (I):



Formula (I)

or a pharmaceutically acceptable salt or stereoisomer thereof, wherein:

Z is either S or O;

B^1 is adeninyl;

B^2 is uracilyl;

each of X^1 and X^2 is independently O or S;

Y^1 is S or NR^5 and Y^2 is O, S, or NR^5; or Y^2 is S or NR^5 and Y^1 is O, S, or NR^5;

each of L^1 and L^2 is independently absent, C_1-C_6 alkyl or C_1-C_6 heteroalkyl, wherein each alkyl and heteroalkyl is optionally substituted with R^6;

each of R^1 and R^2 is independently hydrogen, halo, -CN, C_1-C_{20} alkyl, or OR^7;

each of R^3 and R^4 is independently hydrogen, C_1-C_{20} alkyl, C_1-C_{20}, $OC(O)OC_1$-C_{20} alkyl, cycloalkyl, heterocyclyl, aryl, or heteroaryl, wherein each alkyl, heteroalkyl, cycloalkyl, heterocyclyl, aryl, and heteroaryl is optionally substituted with one or more R^8;

R^5 is hydrogen or C_1-C_{20} alkyl;

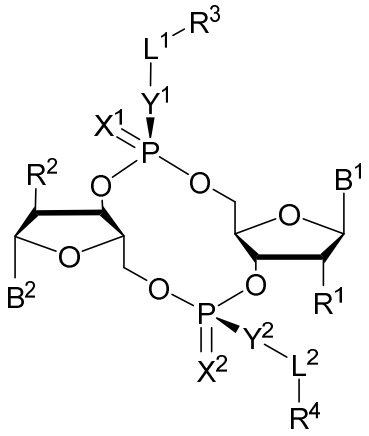
R^6 is halo, -CN, C_1-C_{20} alkyl, OR^7, oxo, cycloalkyl, heterocyclyl, aryl, or heteroaryl, wherein each alkyl, cycloalkyl, heterocyclyl, aryl, and heteroaryl is optionally substituted with one or more R^9;

R^7 is hydrogen, C_1-C_{20} alkyl, cycloalkyl, heterocyclyl, aryl, or heteroaryl, wherein each alkyl, cycloalkyl, heterocyclyl, aryl, and heteroaryl is optionally substituted with one or more R^9;

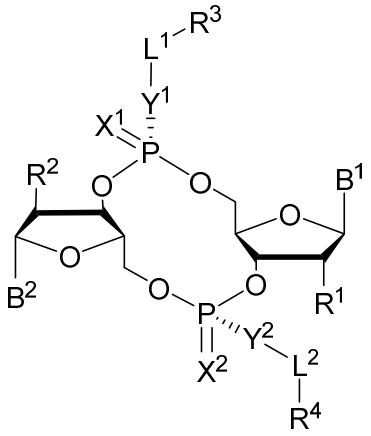
each R^8 is independently C_1-C_{20} alkyl, C_1-C_{20} heteroalkyl, C(O)-C_1-C_{20} alkyl, OC(O)-C_1-C_{20} alkyl, C(O)O-C_1-C_{20} alkyl, OC(O)O-C_1-C_{20} alkyl, C(O)N(R^5)-C_1-C_{20} alkyl, N(R^5)C(O)-C_1-C_{20} alkyl, OC(O)N(R^5)-C_1-C_{20} alkyl, O-aryl, O-heteroaryl, C(O)-aryl, C(O)-heteroaryl, OC(O)-aryl, C(O)O-aryl, OC(O)-heteroaryl, C(O)O-heteroaryl, C(O)O-aryl, C(O)O-heteroaryl, C(O)N(R^5)-aryl, C(O)N(R^5)-heteroaryl, N(R^5)C(O)-aryl, N(R^5)$_2$C(O)-aryl, or N(R^5)C(O)-heteroaryl, S(O)$_2$N(R^5)-aryl, wherein each alkyl, heteroalkyl, aryl, and heteroaryl is optionally substituted by one or more R^9;

and each R^9 is independently C_1-C_{20} alkyl, O-C_1-C_{20} alkyl, C_1-C_{20} heteroalkyl, halo, -CN, OH, oxo, aryl, heteroaryl, O-aryl, or O-heteroaryl.

2. The compound of claim 1, wherein the compound is a compound of Formulas (I-b), (I-c), (I-d), or (I-e):



Formula (I-b)



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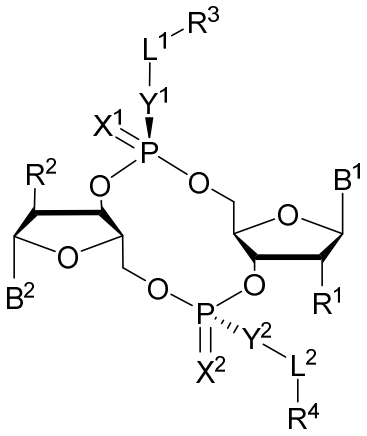
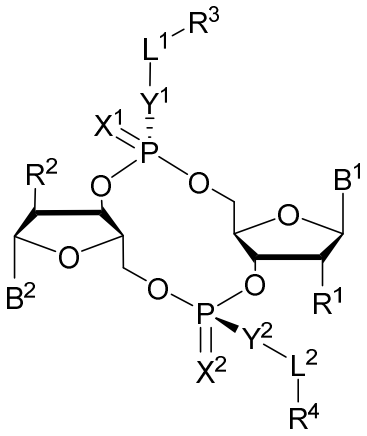


Formula (I-d)



Formula (I-e)

or a pharmaceutically acceptable salt thereof, wherein each of B^1, B^2, X^1, X^2, Y^1, Y^2, L^1, L^2, R^1, R^2, R^3, R^4, and subvariables thereof are defined as in claim 1.

3. The compound of claim 1 or claim 2, wherein each of R^1 and R^2 is independently hydrogen, halo, or OR^7.

4. The compound of any one of the preceding claims, wherein each of R^1 and R^2 is independently halo.

5. The compound of any one of the preceding claims, wherein each of R^1 and R^2 is not hydrogen or OR^7.

6. The compound of any one of the preceding claims, wherein each of X^1 and X^2 is independently O.

7. The compound of any one of the preceding claims, wherein each of Y^1 and Y^2 is independently O or S.

8. The compound of any one of the preceding claims, wherein one of Y^1 or Y^2 is O and the other of Y^1 or Y^2 is S.

9. The compound of any one of the preceding claims, wherein each of Y^1 or Y^2 is independently S.

10. The compound of any one of the preceding claims, wherein each of L^1 and L^2 is independently C_1-C_6 alkyl.

11. The compound of any one of the preceding claims, wherein each of R^3 and R^4 is independently hydrogen, aryl, or heteroaryl, wherein aryl and heteroaryl is optionally substituted with 1-5 R^8.

12. The compound of any one of the preceding claims, wherein R^3 is aryl or heteroaryl, each of which is optionally substituted with 1-5 R^8, and R^4 is hydrogen.

13. The compound of any one of the preceding claims, wherein R^3 is phenyl substituted with 1 R^8 and R^4 is hydrogen.

14. The compound of any one of the preceding claims, wherein each of R^3 and R^4 is independently phenyl substituted with 1 R^8.

15. The compound of any one of the preceding claims, wherein Y^2 is O and R^4 is hydrogen.

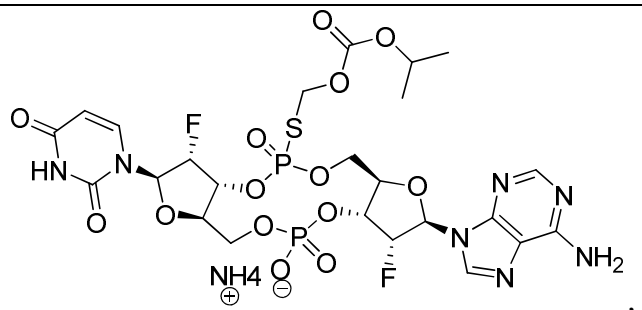
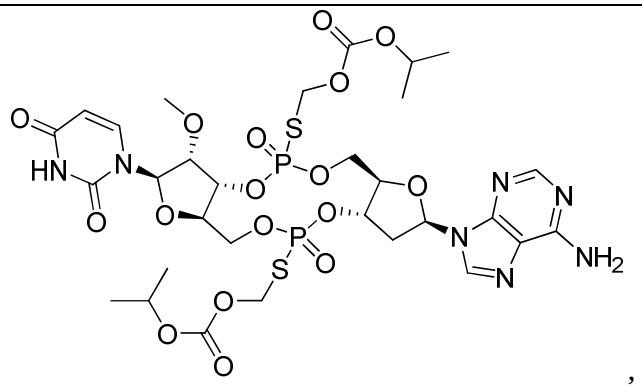
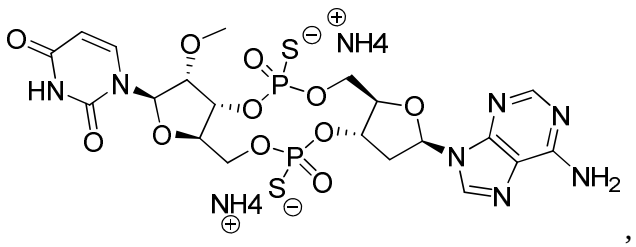
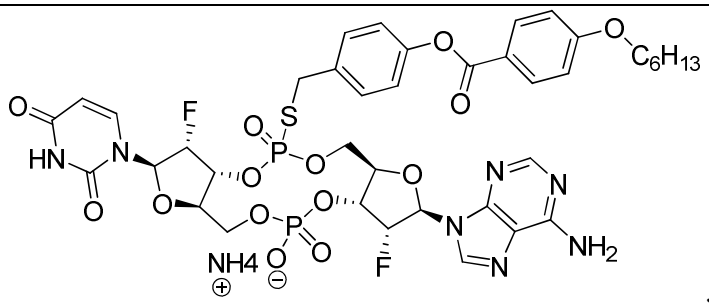
16. The compound of any one of the preceding claims, wherein each of Y^1 and Y^2 is independently S and each of R^3 and R^4 is independently substituted with 1 R^8.

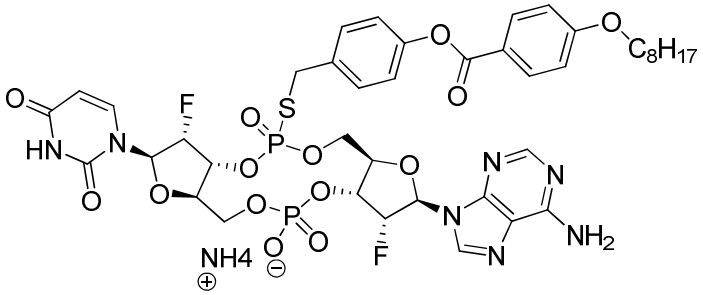
17. The compound of any one of the preceding claims, wherein Y^1 is S and R^3 is substituted with 1 R^8.

18. The compound of any one of the preceding claims, wherein R^8 is OC(O)-aryl optionally substituted by 1-5 R^9.

19. The compound of any one of the preceding claims, wherein R^9 is O-C_1-C_{12} alkyl.

20. The compound of any one of the preceding claims, wherein the compound is selected from:

Structure
 ,
 ,
 ,
 ,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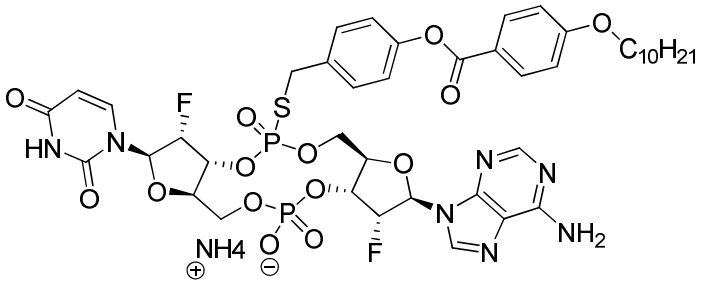
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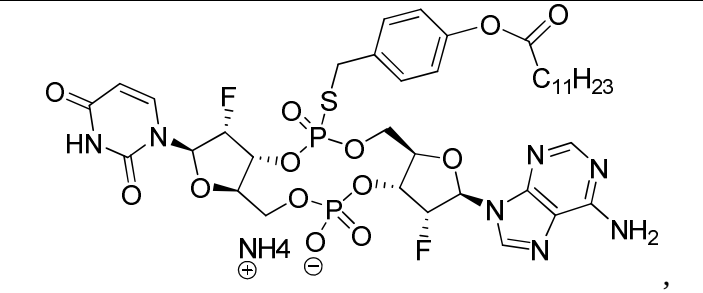
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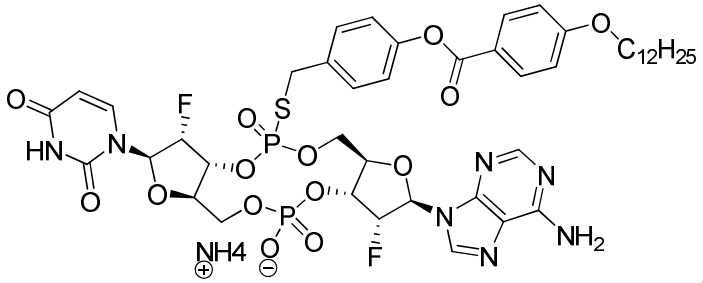
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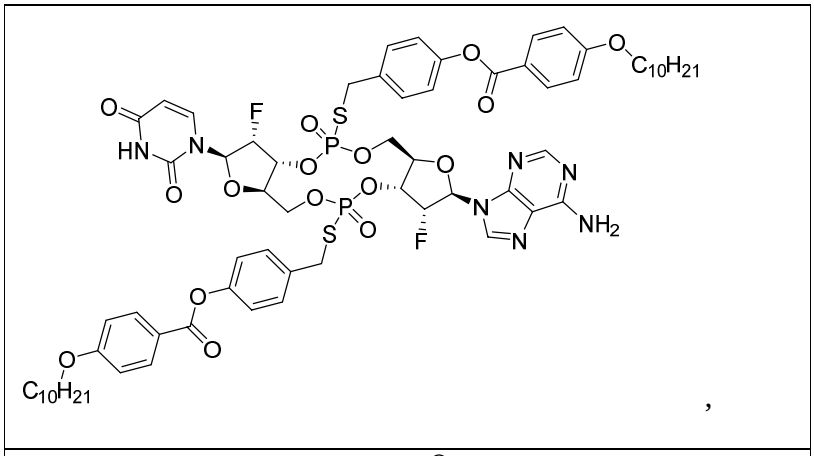

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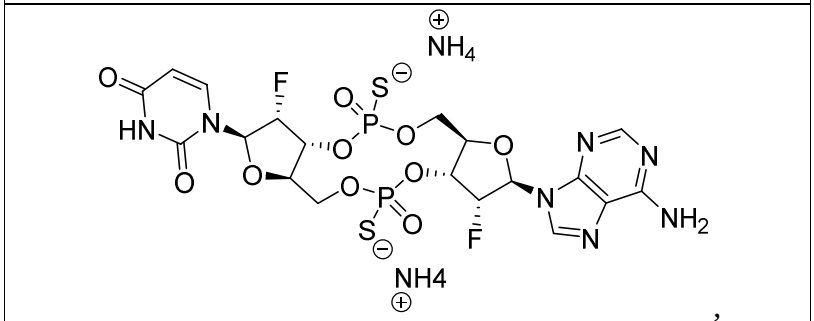

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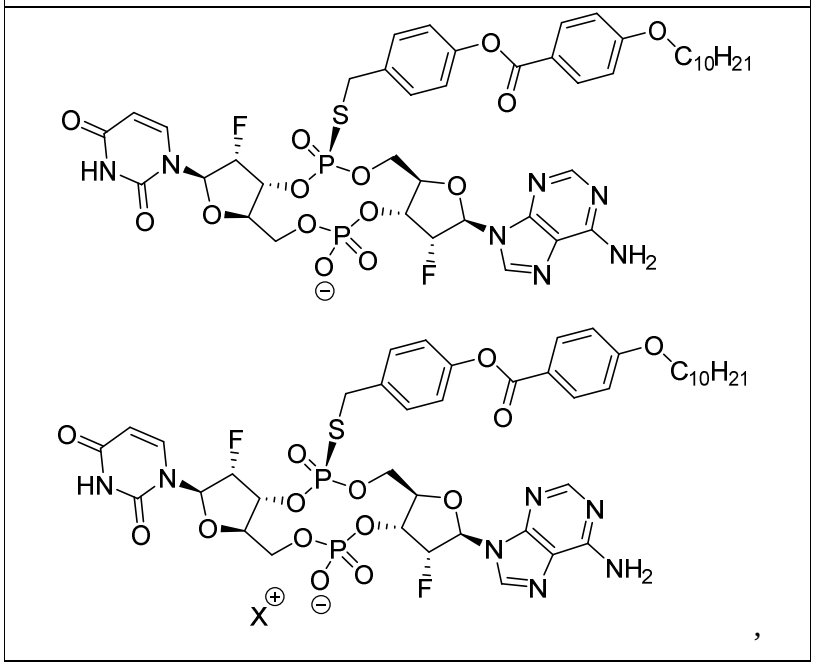

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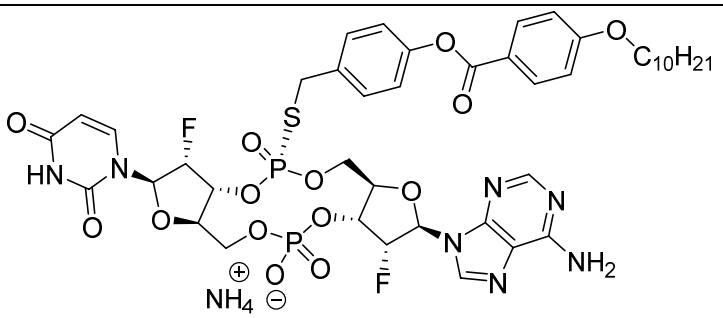
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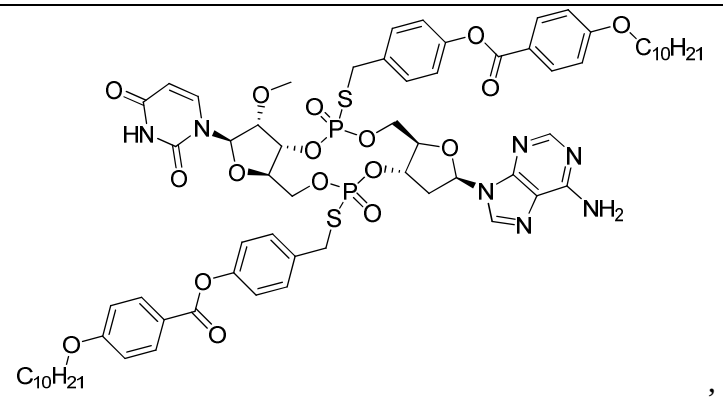
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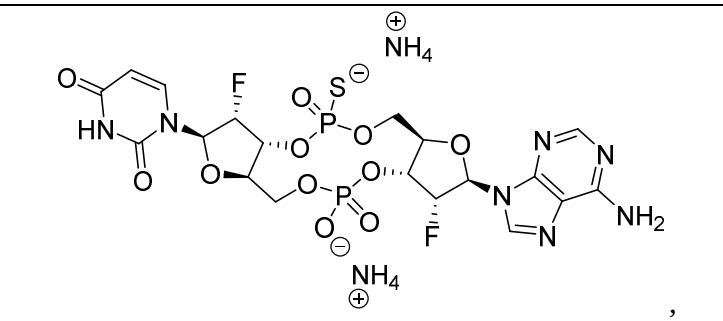
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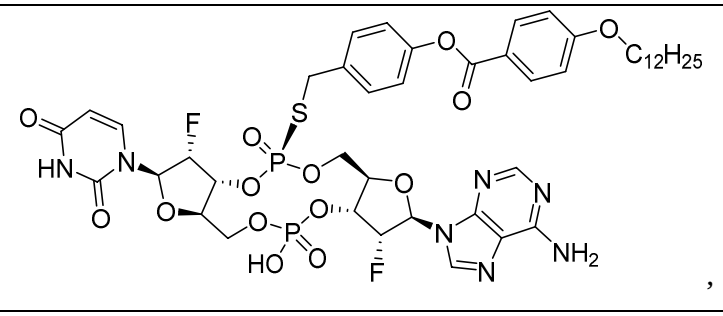
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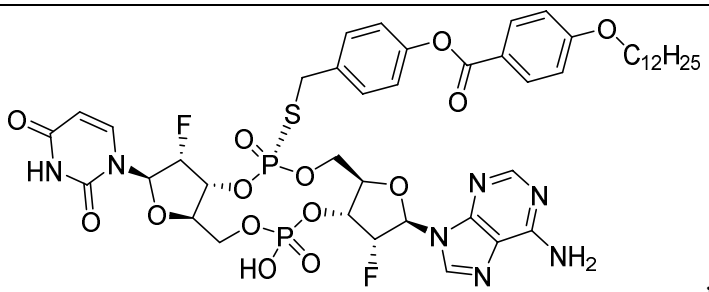
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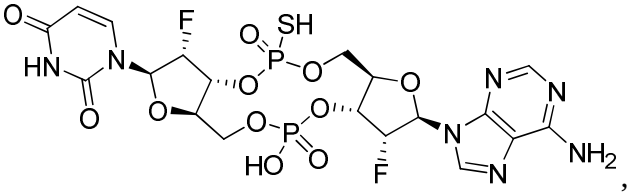
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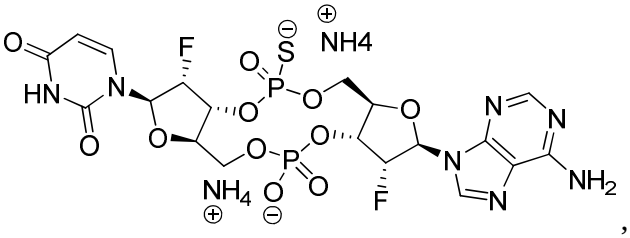
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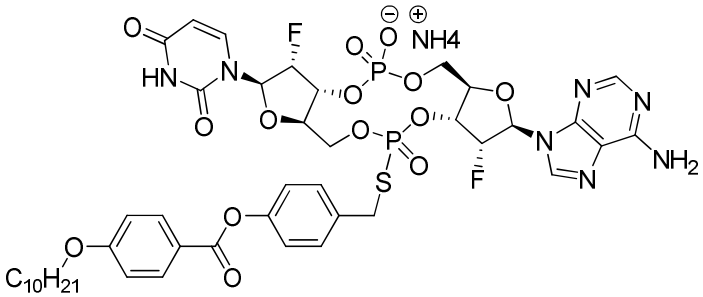
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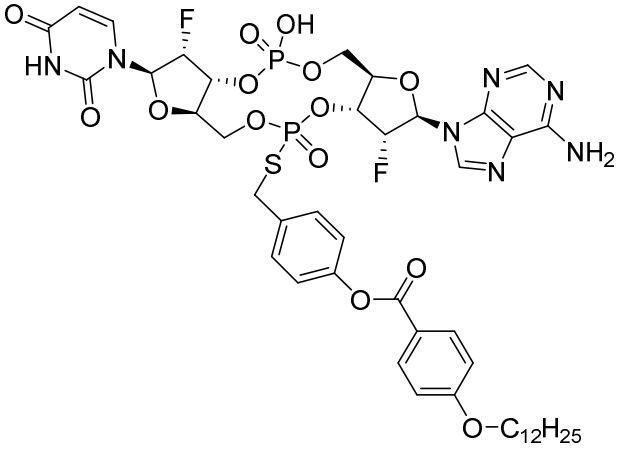
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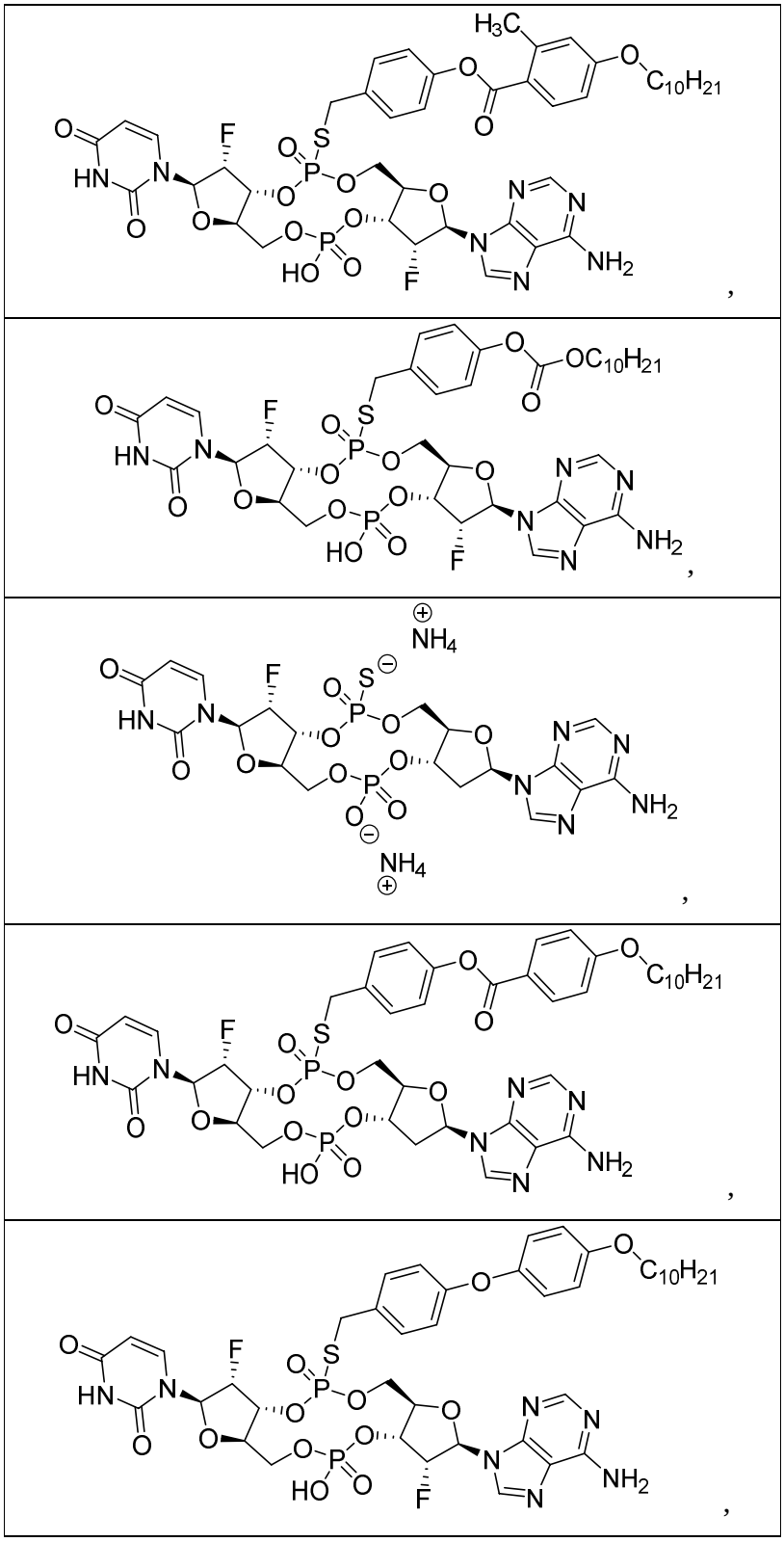

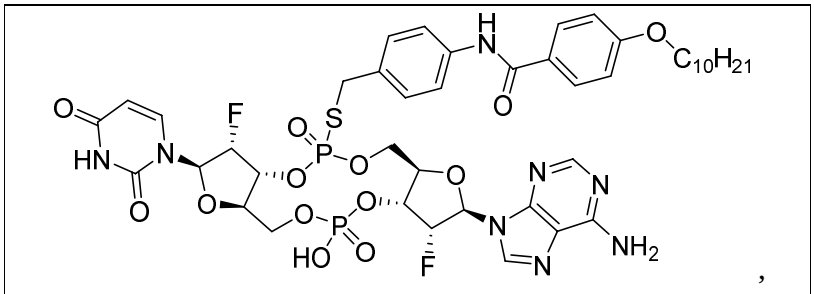
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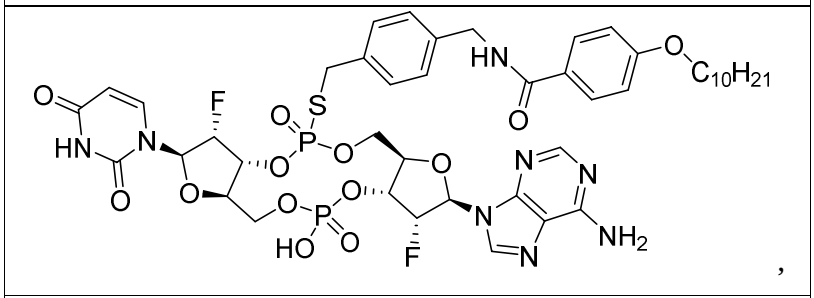
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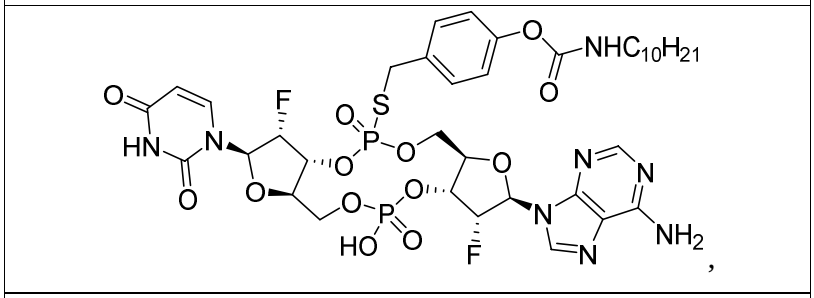
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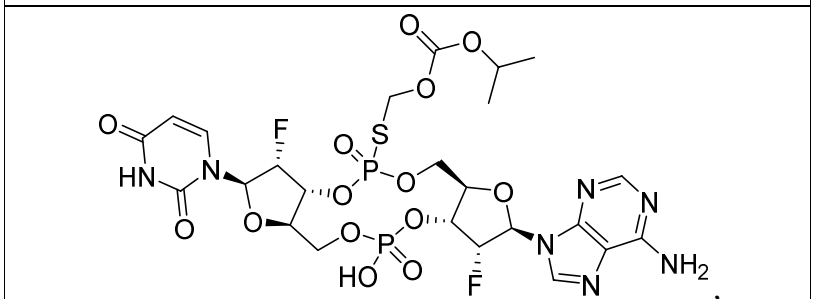
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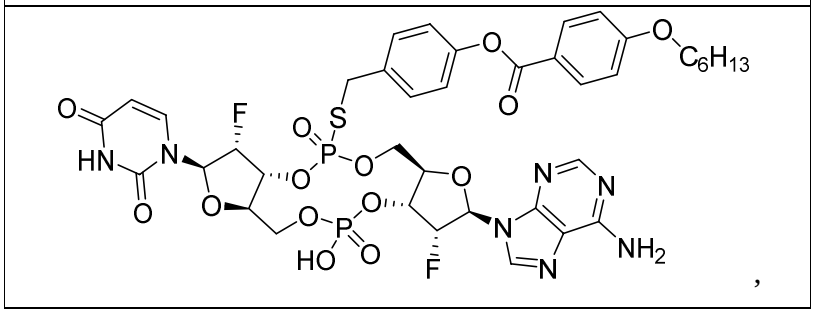
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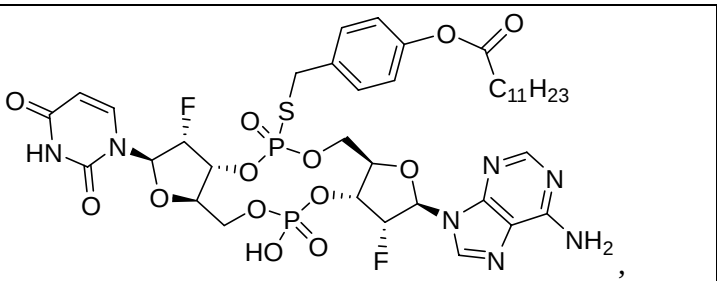
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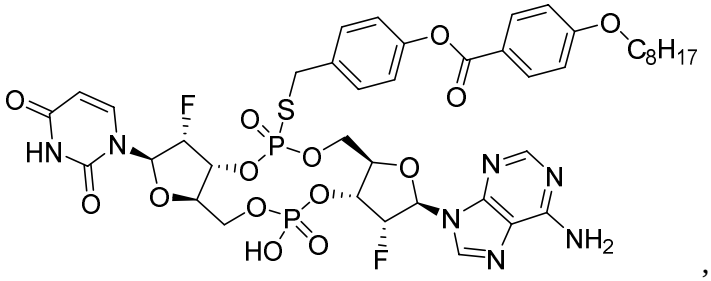
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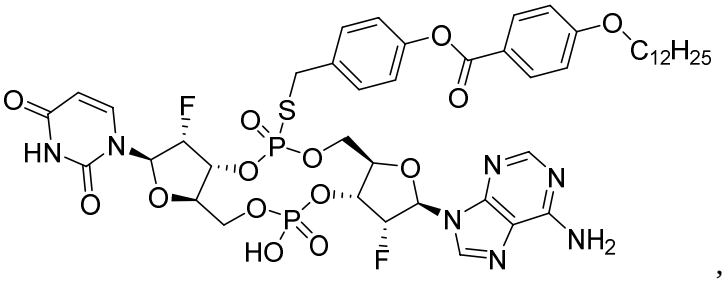
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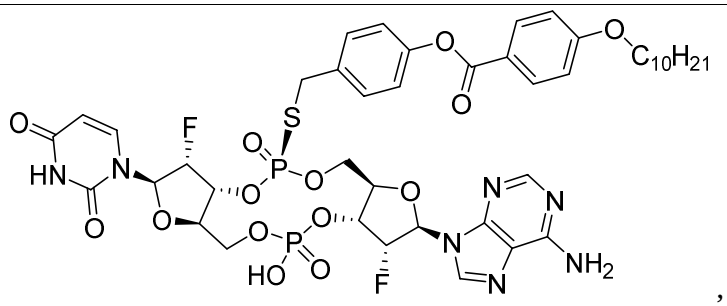
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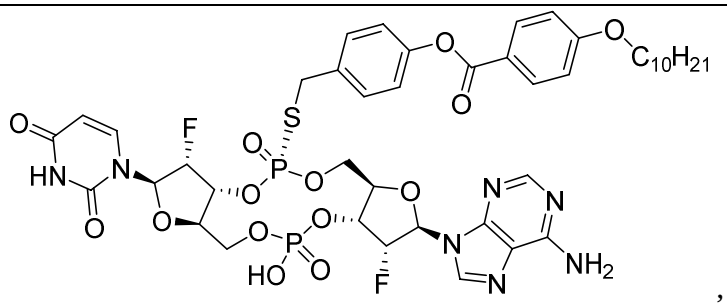
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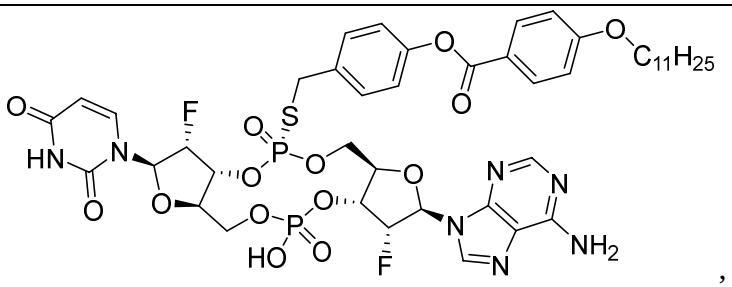
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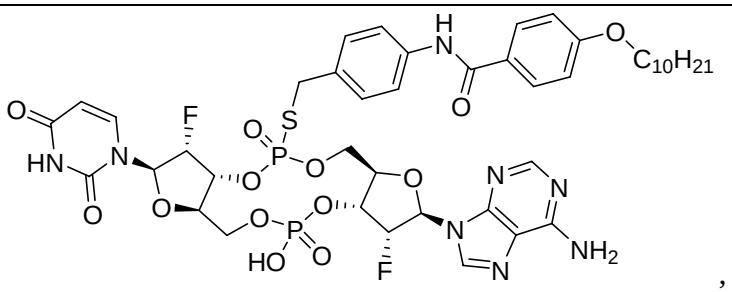
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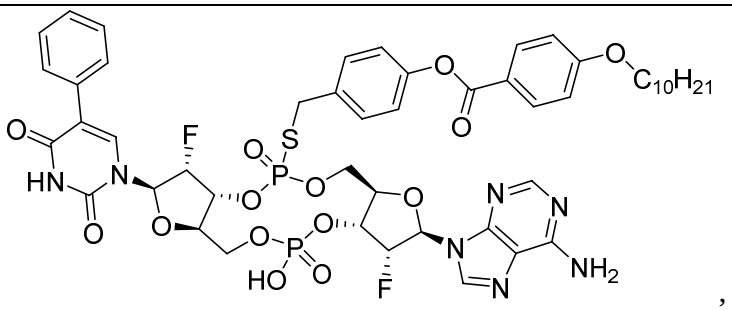
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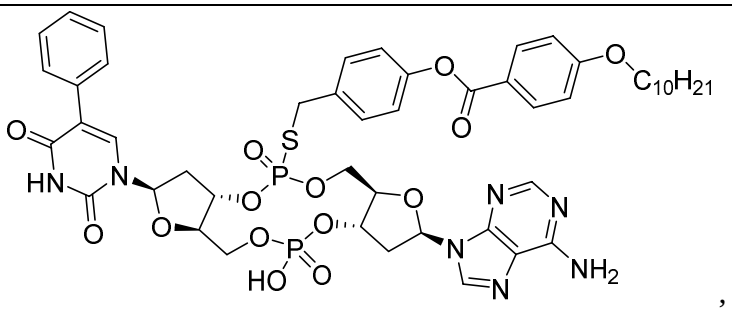
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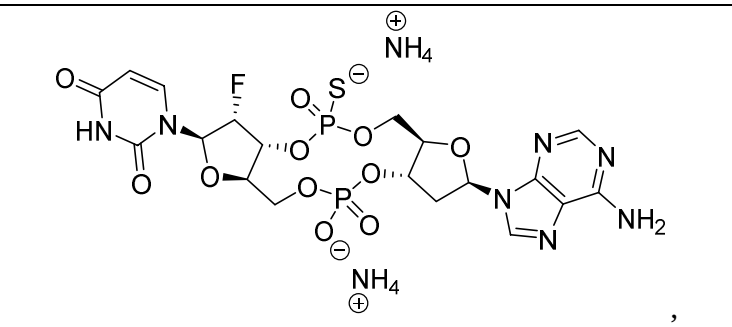
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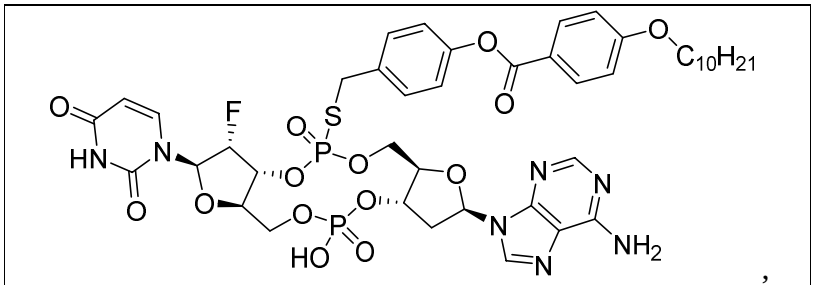
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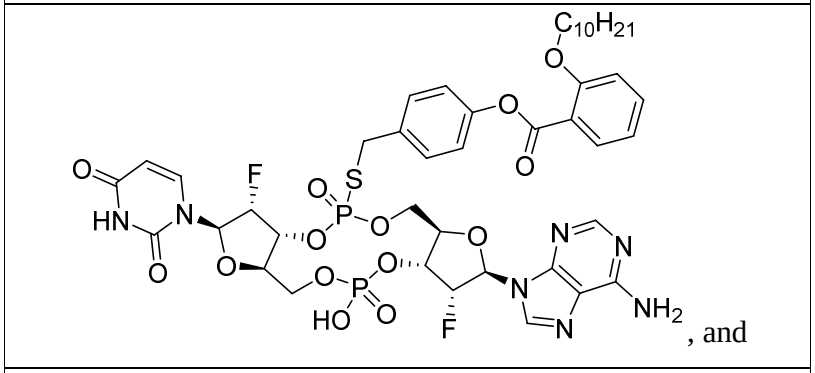
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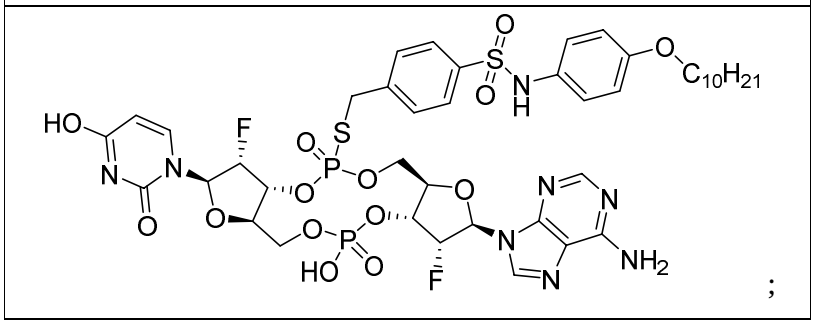
;

or a pharmaceutically acceptable salt thereof; wherein X is a pharmaceutically acceptable cation.

21. Use of the compound of any one of claims 1 to 20, in the manufacture of a medicament for treating acute monocytic leukemia, lymphoma, melanoma, colon cancer, or breast cancer.

22. The use of claim 21, wherein the compound, a pharmaceutically acceptable salt thereof, or a pharmaceutical composition thereof is to be intratumorally administered.

23. The use of claim 21, wherein the compound, a pharmaceutically acceptable salt thereof, or a pharmaceutical composition thereof is to be orally administered.

24. The use of claim 21, wherein the compound, a pharmaceutically acceptable salt thereof, or a pharmaceutical composition thereof is to be parenterally administered.

25. The use of claim 24, wherein the compound, a pharmaceutically acceptable salt thereof, or a pharmaceutical composition thereof is to be intraperitoneally administered.

26. The use of claim 21, wherein an additional agent is to be conjointly administered.

27. The use of claim 26, wherein the additional agent comprises methotrexate, 5-fluorouracil, doxorubicin, vincristine, bleomycin, vinblastine, dacarbazine, toposide, cisplatin, epirubicin, or sorafenib tosylate.

28. Use of the compound of any one of claims 1 to 20, in the manufacture of a medicament for inducing the expression of a pattern recognition receptors (PRRs) for immune-modulation in a subject.

29. Use of the compound of any one of claims 1 to 20, in the manufacture of a medicament for inducing the expression of a pattern recognition receptors for immunomodulation and inducing a therapeutic response in a subject having cancer.

30. Use of the compound of any one of claims 1 to 20, in the manufacture of a medicament for inducing an immune response in a subject.

31. The use of claim 30, wherein the immune response comprises antitumoral immunity.

32. The use of claim 30, wherein the immune response comprises induction of a PRR.

33. The compound of any one of claims 1 to 20, for use in therapy.