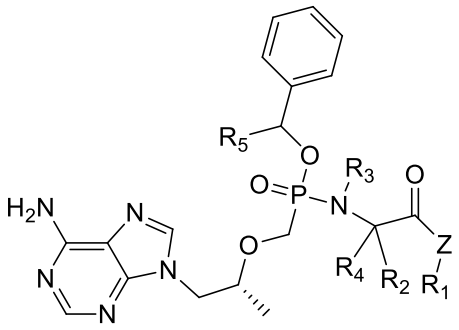
What is Claimed:

1. A tenofovir monobenzyl ester phosphamide compound of the general formula X, and the hydrate, solvate, pharmaceutically acceptable salt thereof or the resolved single isomer thereof,



X

wherein Z is selected from O, S, Se, NH- or CH_2-, and

R_1, R_2, R_3, R_4, and R_5 are each independently selected from H, substituted or unsubstituted C_1-C_{10} linear alkyl, C_3-C_{10} branched alkyl, C_3-C_{10} cycloalkyl, and C_6-C_{10} aryl or heteroaryl, wherein the substitution is one to three hetero atoms independently selected from O, S, N and Se, or a substituted or unsubstituted 3-8 membered ring formed by R_1 and R_2, R_1 and R_3, or R_2 and R_3 with the moiety they are attached to.

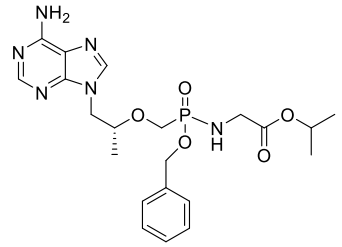
2. The tenofovir monobenzyl ester phosphamide compound according to claim 1, wherein, Z is selected from O or S, and

R_1, R_2, R_3, R_4 and R_5 are each independently selected from H, substituted or unsubstituted C_1-C_6 linear alkyl, C_3-C_6 branched alkyl, C_3-C_6 cycloalkyl, and C_6-C_{10} aryl or heteroaryl.

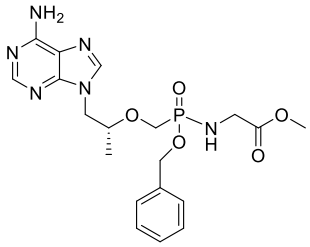
3. The tenofovir monobenzyl ester phosphamide compound according to claim 2, wherein, Z is selected from O, and

R_1, R_2, R_3, R_4 and R_5 are each independently selected from H, substituted or unsubstituted C_1-C_6 linear alkyl, C_3-C_6 branched alkyl, and C_6-C_{10} aryl.

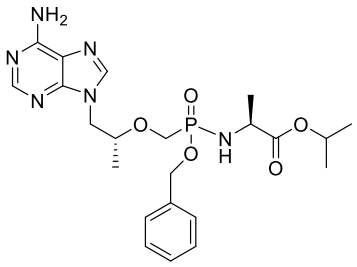
4. A compound selected from compounds 1, 2, 3, 4, 5, and 6



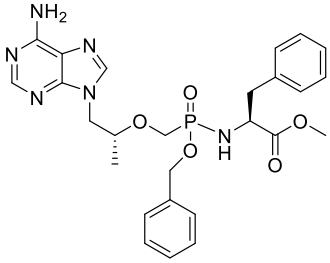
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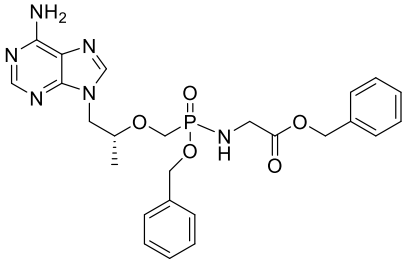
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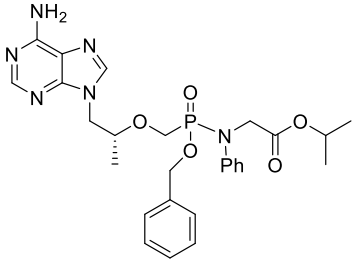
3



4



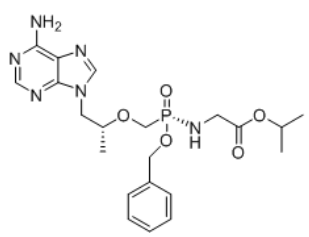
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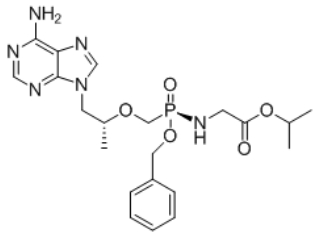
6

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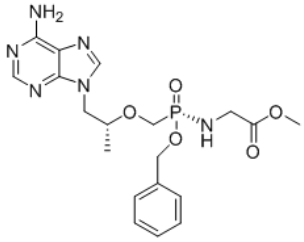
5. The tenofovir monobenzyl ester phosphamide compound according to claim 4, wherein the isomers of compounds 1, 2, 3, and 5 are 1a and 1b, 2a and 2b, 3a and 3b, and 5a and 5b, respectively, with the structures of:



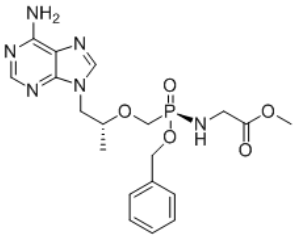
1a



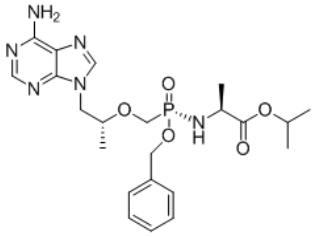
1b



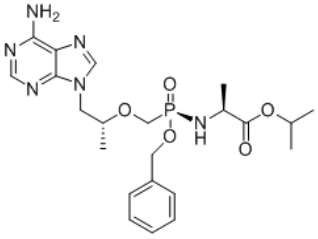
2a



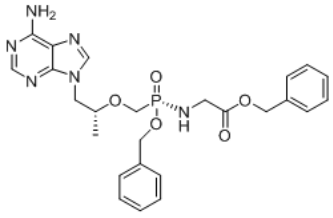
2b



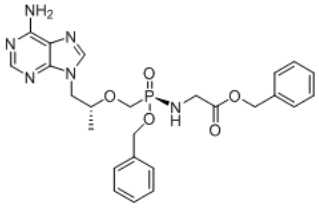
3a



3b



5a



5b

6. A preparation method of the tenofovir monobenzyl ester phosphamide compound according to claim 1, characterized in that the method includes the following steps:
A: Tenofovir is reacted with benzyl halide or benzyl alcohol in the presence of bases to produce the intermediate of the tenofovir monobenzyl ester; and
B: the intermediate of the tenofovir monobenzyl ester is reacted with compounds containing the terminal NH group to produce the tenofovir monobenzyl ester phosphamide compound.

7. The preparation method of the tenofovir monobenzyl ester phosphamide compound according to claim 6, wherein, Tenofovir of step A is reacted with benzyl bromide or benzyl alcohol, and the bases are inorganic or organic bases.

8. A pharmaceutical composition, characterized in that the pharmaceutical composition comprises the tenofovir monobenzyl ester phosphamide compound according to claim 1, or the hydrate thereof, or the solvate thereof, or the pharmaceutically acceptable salt thereof, or the resolved single isomer thereof; wherein the pharmaceutical composition also comprises a pharmaceutically acceptable carrier.

9. A preparation method of the tenofovir monobenzyl ester phosphamide compound according to claim 3, characterized in that the method includes the following steps:
A: Tenofovir is reacted with benzyl halide or benzyl alcohol in the presence of bases to produce the intermediate of the tenofovir monobenzyl ester; and
B: the intermediate of the tenofovir monobenzyl ester is reacted with compounds containing the terminal NH group to produce the tenofovir monobenzyl ester phosphamide compound.

10. A preparation method of the tenofovir monobenzyl ester phosphamide compound according to claim 4, characterized in that the method includes the following steps:
A: Tenofovir is reacted with benzyl halide or benzyl alcohol in the presence of bases to produce the intermediate of the tenofovir monobenzyl ester; and
B: the intermediate of the tenofovir monobenzyl ester is reacted with compounds containing the terminal NH group to produce the tenofovir monobenzyl ester phosphamide compound.

11. A preparation method of the tenofovir monobenzyl ester phosphamide compound according to claim 5, characterized in that the method includes the following steps:
A: Tenofovir is reacted with benzyl halide or benzyl alcohol in the presence of bases to produce the intermediate of the tenofovir monobenzyl ester; and
B: the intermediate of the tenofovir monobenzyl ester is reacted with compounds containing the terminal NH group to produce the tenofovir monobenzyl ester phosphamide compound.

12. The preparation method of the tenofovir monobenzyl ester phosphamide compound according to claim 10, wherein, Tenofovir of step A is reacted with benzyl bromide or benzyl alcohol, and the bases are inorganic or organic bases.

13. The preparation method of the tenofovir monobenzyl ester phosphamide compound according to claim 11, wherein, Tenofovir of step A is reacted with benzyl bromide or benzyl alcohol, and the bases are inorganic or organic bases.

14. A pharmaceutical composition, characterized in that the pharmaceutical composition comprises the tenofovir monobenzyl ester phosphamide compound according to claim 5, or the hydrate thereof, or the solvate thereof, or the pharmaceutically acceptable salt thereof, or the resolved single isomer thereof; wherein the pharmaceutical composition also comprises a pharmaceutically acceptable carrier.