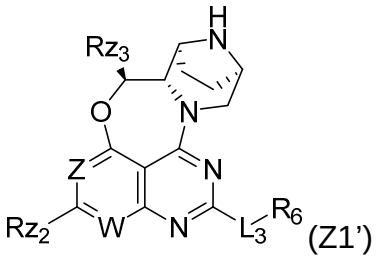
CLAIMS

1. A compound represented by Formula (Z1'), or a stereoisomer, a deuterated compound or a pharmaceutically acceptable salt thereof,



(Z1')

wherein

W is N or CRz1, where Rz1 is hydrogen, halogen, C1-C6 alkyl or C1-C6 alkoxy;

Z is N or CRz11, where Rz11 is hydrogen, halogen, C1-C6 alkyl or C1-C6 alkoxy;

Rz2 is substituted or unsubstituted phenyl, naphthyl, quinoline, isoquinoline, benzo[b]thiophene, benzo[d]thiazole, indole, indazole or pyridine, where the substitution means that 1, 2, 3, 4 or 5 hydrogen atoms on phenyl, naphthyl, quinoline, isoquinoline, benzo[b]thiophene, benzo[d]thiazole, indole, indazole or pyridine are each independently replaced by R^1;

Rz3 is hydrogen, deuterium, methyl, deuterated methyl or halomethyl or $-CD_2F$ or $-CDF_2$;

R^1 is selected from the group consisting of: C1-C6 alkyl, halogen, hydroxyl, cyano, C1-C6 alkoxy, C1-C6 haloalkyl, C1-C6 haloalkoxy, cyano, $NR^{21}R^{22}$, $C(O)NR^{23}R^{24}$, CH_2R^{25}, $N=S(O)(C1\text{-}C6\ alkyl)_2$, S(O)C1-C6 alkyl, $S(O)_2R^{26}$, -S-C1-C6 alkyl, C2-C6 alkenyl, C2-C6 alkynyl, C2-C6hydroxyalkynyl, C1-C6 cyanoalkyl, triazolyl, -S-C1-C6 haloalkyl, C1-C6 hydroxylalkyl, $-CH_2C(O)NR^{27}R^{28}$, -C2-C6 alkynyl-$NR^{29}R^{30}$, C2-C6 deuterated alkynyl, (C1-C6 alkoxy)C1-C6 haloalkyl- or cycloalkyl, where the cycloalkyl is optionally substituted with halo or C1-C6 alkyl, where

R^{21} is H, C1-C6 alkyl, C1-C6 haloalkyl, C(O)C1-C6 alkyl or C(O)OC1-C6 alkyl; R^{22} is H, C1-C6 alkyl or C1-C6 haloalkyl; or R^{21} and R^{22}, together with the nitrogen atom to which they are attached, form a 3- to 6-membered nitrogen-containing heterocyclic group, where the 3- to 6-membered nitrogen-containing heterocyclic group is optionally substituted with 1 or 2 groups selected from halogen, methyl, trifluoromethyl, methoxy and trifluoromethoxy;

R^{23} and R^{24} are each independently H, C1-C6 alkyl, or C1-C6 haloalkyl; or R^{23} and R^{24}, together with the nitrogen atom to which they are attached, form a 3- to 6-membered nitrogen-containing heterocyclic group, where the 3- to 6-membered

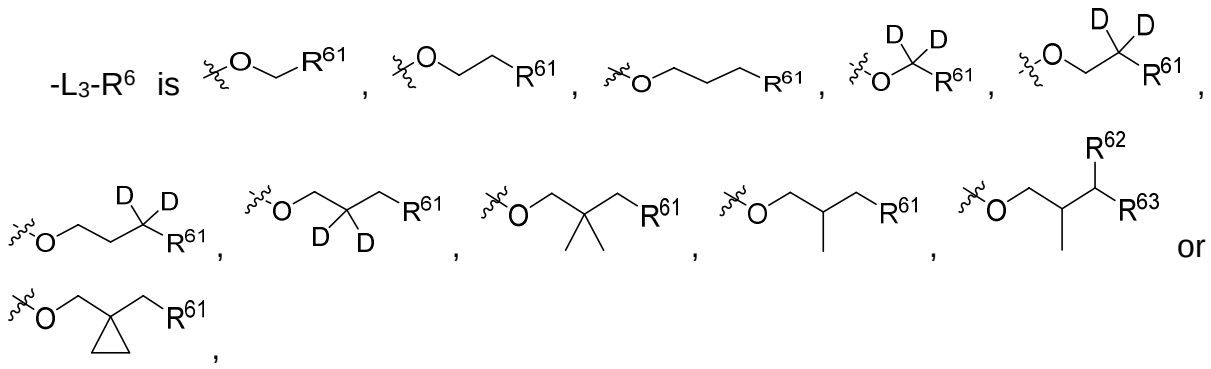
nitrogen-containing heterocyclic group is optionally substituted with 1 or 2 groups selected from halogen, methyl, trifluoromethyl, methoxy, and trifluoromethoxy; and

R^{25} is hydroxy, cyano, heterocyclyl, $NR^{251}R^{252}$, $C(O)NR^{253}R^{254}$ or SO_2C1-C6 alkyl, where R^{251}, R^{252}, R^{253} and R^{254} are each independently H or C1-C6 alkyl; or R^{251} and R^{252}, together with the nitrogen atom to which they are attached, form a 3- to 6-membered nitrogen-containing heterocyclic group, where the 3- to 6-membered nitrogen-containing heterocyclic group is optionally substituted with 1 or 2 groups selected from halogen, methyl, trifluoromethyl, methoxy and trifluoromethoxy; or R^{253} and R^{254}, together with the nitrogen atom to which they are attached, form a 3- to 6-membered nitrogen-containing heterocyclic group, where the 3- to 6-membered nitrogen-containing heterocyclic group is optionally substituted with 1 or 2 groups selected from halogen, methyl, trifluoromethyl, methoxy and trifluoromethoxy;

R^{26} is C1-C6 alkyl, C1-C6 haloalkyl, or $NR^{261}R^{262}$, where R^{261} and R^{262} are each independently H or C1-C6 alkyl, or R^{261} and R^{262}, together with the nitrogen atom to which they are attached, form a 3- to 6-membered nitrogen-containing heterocyclic group, where the 3- to 6-membered nitrogen-containing heterocyclic group is optionally substituted with 1 or 2 groups selected from halogen, methyl, trifluoromethyl, methoxy, and trifluoromethoxy;

R^{27} and R^{28} are each independently H, C1-C6 alkyl, or C1-C6 haloalkyl; or R^{27} and R^{28}, together with the nitrogen atom to which they are attached, form a 3- to 6-membered nitrogen-containing heterocyclic group, where the 3- to 6-membered nitrogen-containing heterocyclic group is optionally substituted with 1 or 2 groups selected from halogen, methyl, trifluoromethyl, methoxy, and trifluoromethoxy; and

R^{29} and R^{30} are each independently H, C1-C6 alkyl, or C1-C6 haloalkyl; or R^{29} and R^{30}, together with the nitrogen atom to which they are attached, form a 3- to 6-membered nitrogen-containing heterocyclic group, where the 3- to 6-membered nitrogen-containing heterocyclic group is optionally substituted with 1 or 2 groups selected from halogen, methyl, trifluoromethyl, methoxy, and trifluoromethoxy; and

-L_3-R^6 is 

in which R^{61} is a 3- to 6-membered heterocyclyl or a 6- to 10-membered fused heterocyclyl, where

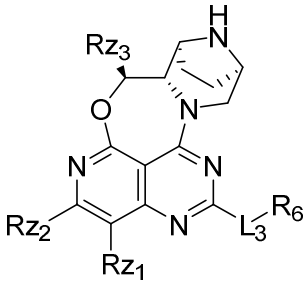
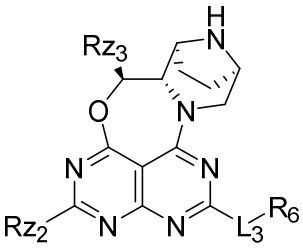
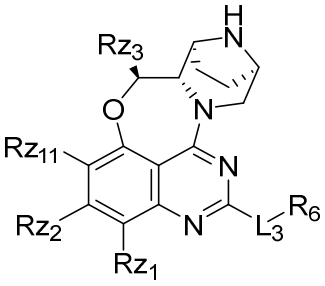
the 3- to 6-membered heterocyclyl is optionally substituted with 1 or 2 groups selected from deuterium, C1-C4 alkyl, C1-C4 haloalkyl, and halo; or 2 hydrogen atoms on the same carbon atom in any 1 or 2 carbon atoms in the 3- to 6-membered heterocyclyl are optionally both replaced by $=CR^{2a}R^{2b}$, where R^{2a} and R^{2b} are each independently hydrogen, halogen, C1-C4 alkyl or C1-C4 haloalkyl;

the 6- to 10-membered fused heterocyclyl is optionally substituted with 1 or 2 groups selected from deuterium, C1-C4 alkyl, C1-C4 haloalkyl, and halo; or 2 hydrogen atoms on the same carbon atom in any 1 or 2 carbon atoms in the 6- to 10-membered fused heterocyclyl are optionally both replaced by $=CR^{2a}R^{2b}$, where R^{2a} and R^{2b} are each independently hydrogen, halogen, C1-C4 alkyl or C1-C4 haloalkyl; or each pair of R^{2a} and R^{2b} independently form, together with the carbon atom to which they are attached, a C3-C6 monocyclic cycloalkyl or a 3- to 6-membered monocyclic heterocyclyl; and

the 3- to 6-membered heterocyclyl or the 6- to 10-membered fused heterocyclyl is further optionally substituted with 1 or 2 groups selected from C1-C4 alkyl, C1-C4 haloalkyl, and halo; and

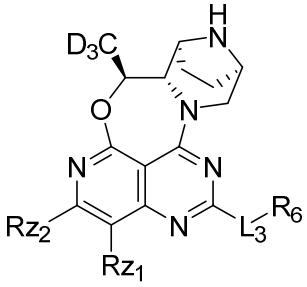
R^{62} is hydroxyl or halo; and R^{63} is C1-C4 alkyl, C1-C4 haloalkyl or halo.

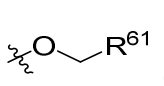
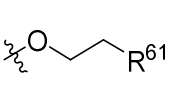
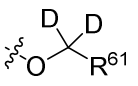
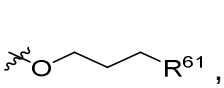
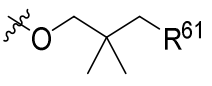
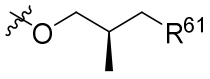
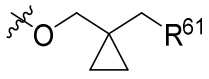
2. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 1, wherein the compound represented by Formula (Z1') is a compound represented by Formula (Z1), Formula (Z2), or Formula (Z3):


(Z1)

(Z2)

(Z3)

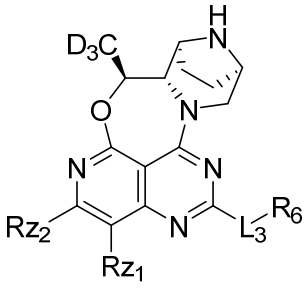
where in the formulas, Rz11, Rz1, Rz2, Rz3, L_3, and R_6 are each as defined in claim 1.

3. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 1, wherein the compound represented by Formula (Z1') is a compound represented by Formula (Z), where in the formula, Rz1 and Rz2 are each as defined in claim 1;

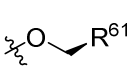
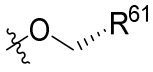
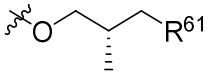
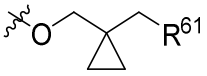

(Z);

$-L_3-R^6$ is  ,  ,  ,  ,  ,  or  ; R^{61} is a 3- to 6-membered heterocyclyl or a 6- to 10-membered fused heterocyclyl; the 3- to 6-membered heterocyclyl is optionally substituted with 1 or 2 groups selected from C1-C4 alkyl, C1-C4 haloalkyl, and halo; and 2 hydrogen atoms on the same carbon atom in any 1 or 2 carbon atoms in the 6- to 10-membered fused heterocyclyl are optionally both replaced by deuterium or $=CR^{2a}R^{2b}$, where R^{2a} and R^{2b} are each independently hydrogen, halogen, C1-C4 alkyl or C1-C4 haloalkyl.

4. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 1, wherein the compound represented by Formula (Z1') is a compound represented by Formula (Z):

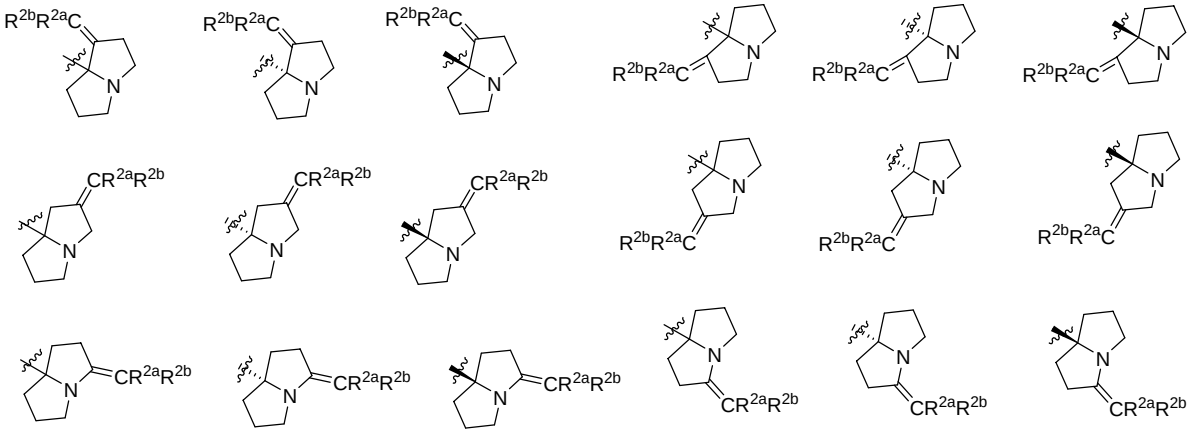


(Z);

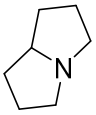
where in the formula, Rz1, Rz2, and R_6 are each as defined in claim 1; $-L_3-R^6$ is  ,  ,  or  ; and R^{61} is as defined in claim 1.

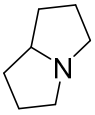
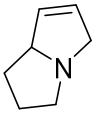
5. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 1, wherein Rz1 is fluoro or hydrogen.

6. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R^{61} is selected from the group consisting of:



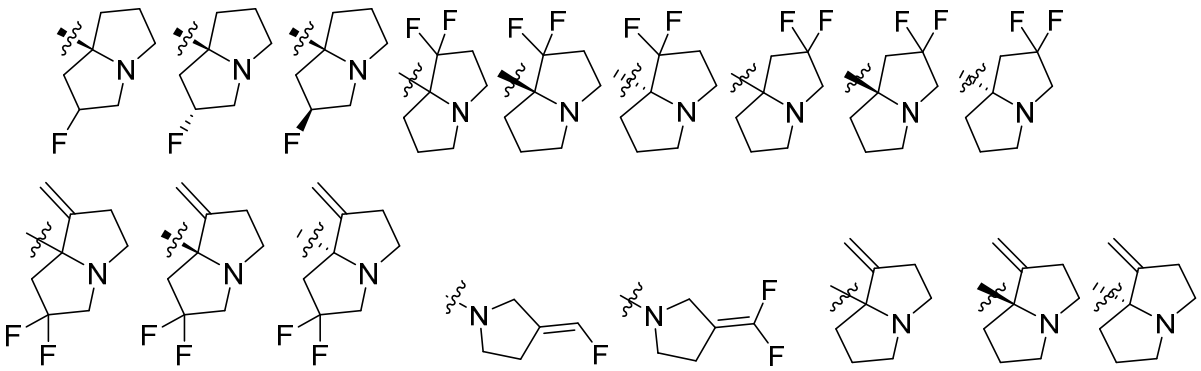
where in each formula, R^{2a} and R^{2b} are each independently hydrogen, halogen, C1-C4 alkyl or C1-C4 haloalkyl; or each pair of R^{2a}, R^{2b} independently form, together with the carbon atom to which they are attached, a C3-C6 monocyclic cycloalkyl or a 3- to 6-membered monocyclic heterocyclyl.

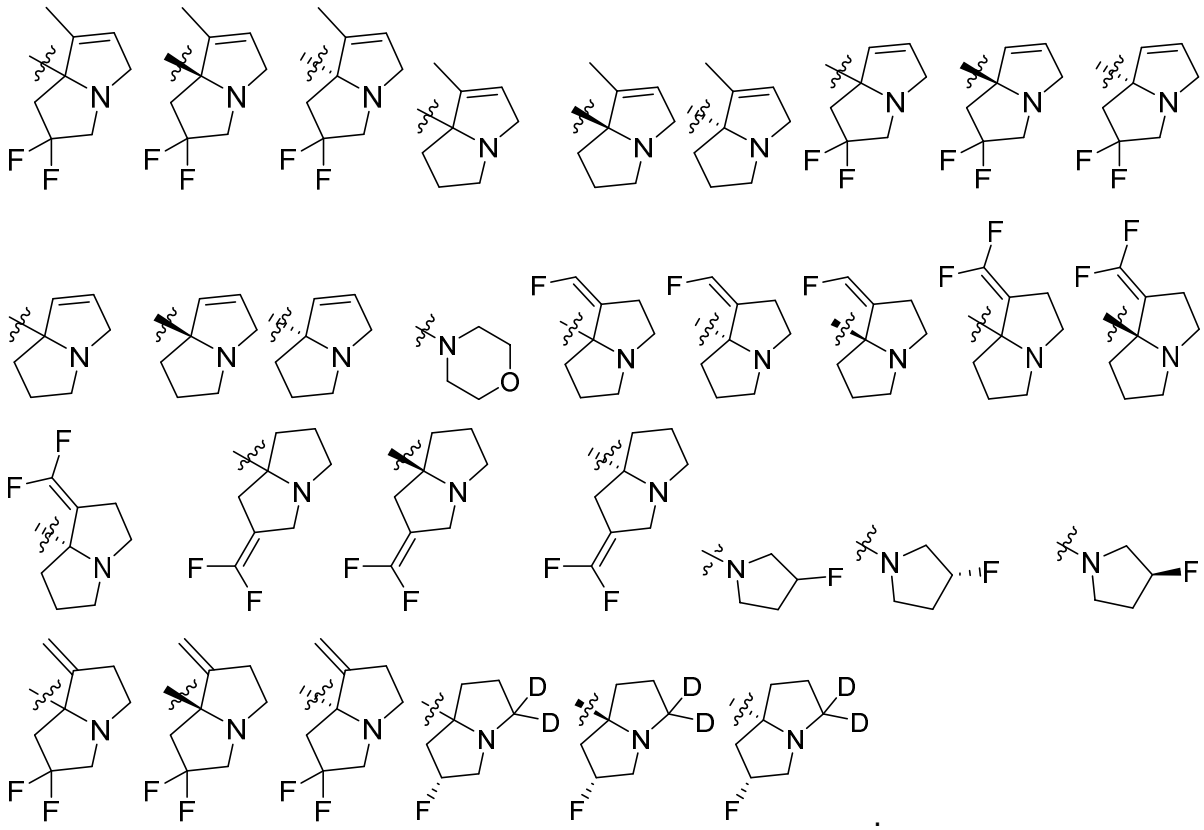
7. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 6, wherein in the substituents,  is optionally further substituted with 1 or 2 R^{6a}, in which R^{6a} is each independently hydrogen, deuterium or halo.

8. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R^{61} is a 6- to 10-membered fused heterocyclyl, in which the 6- to 10-membered fused heterocyclyl is  or  ; the 6- to 10-membered fused heterocyclyl is optionally substituted with 1 or 2 groups selected from deuterium, C1-C4 alkyl, C1-C4 haloalkyl, and halo; or 2 hydrogen atoms on the same carbon atom in any 1 or 2 carbon atoms in the 6- to 10-membered fused heterocyclyl are optionally both replaced by $=CR^{2a}R^{2b}$, where R^{2a} and R^{2b} are each independently hydrogen, halogen, C1-C4 alkyl or C1-C4 haloalkyl; and the 6- to 10-membered fused heterocyclyl is further optionally substituted with 1 or 2 groups selected from C1-C4 alkyl, C1-C4 haloalkyl, and halo.

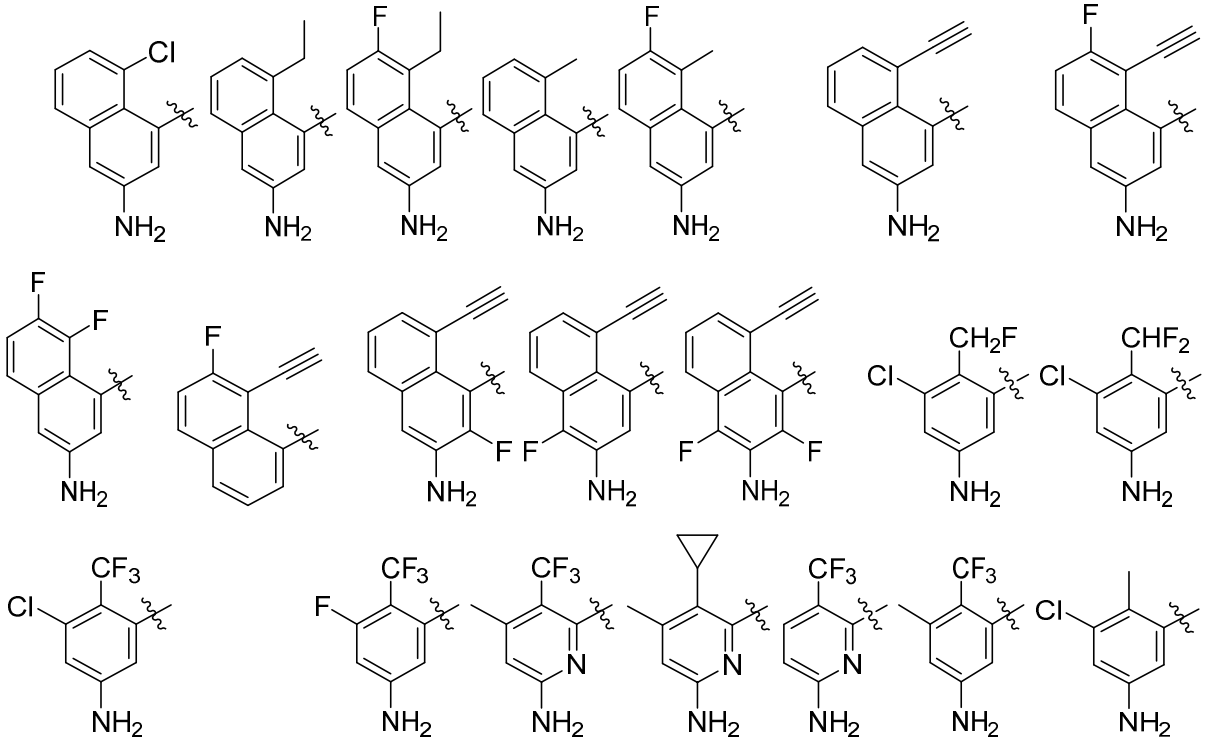
9. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R^{61} is a 3- to 6-membered heterocyclyl, in which the 3- to 6-membered heterocyclyl is tetrahydropyrrolyl, piperidinyl, piperazinyl or morpholinyl; the 3- to 6-membered heterocyclyl is optionally substituted with 1 or 2 groups selected from C1-C4 alkyl, C1-C4 haloalkyl, and halo; or 2 hydrogen atoms on the same carbon atom in any 1 or 2 carbon atoms in the 3- to 6-membered heterocyclyl are optionally both replaced by $=CR^{2a}R^{2b}$, where R^{2a} and R^{2b} are each independently hydrogen, halogen, C1-C4 alkyl or C1-C4 haloalkyl; and the 3- to 6-membered heterocyclyl is further optionally substituted with 1 or 2 groups selected from C1-C4 alkyl, C1-C4 haloalkyl, and halo.

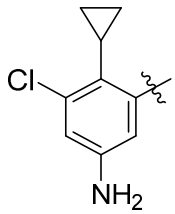
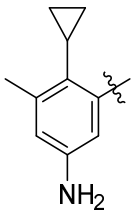
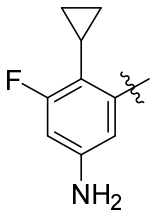
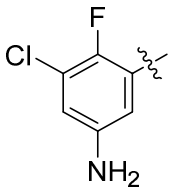
10. The compound according, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof to claim 1, wherein R^{61} is selected from the group consisting of:





11. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 1, wherein Rz2 is selected from the group consisting of:

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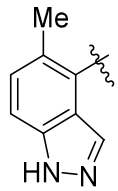
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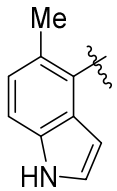
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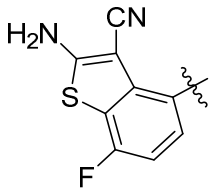
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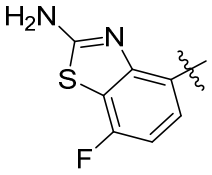
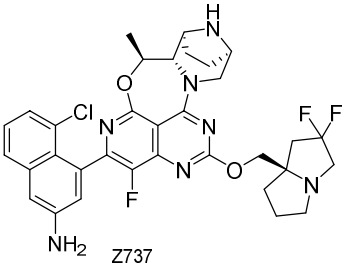
and  .

12. A compound, or a stereoisomer, a deuterated compound or a pharmaceutically acceptable salt thereof, wherein the compound is selected from Table A or from the group consisting of: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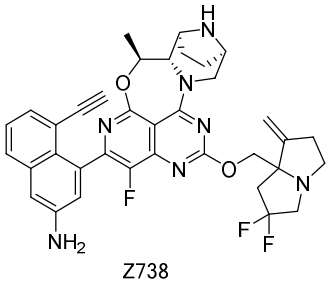
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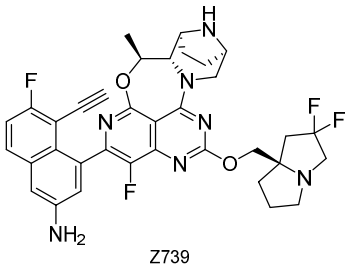
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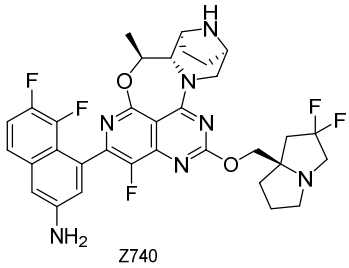
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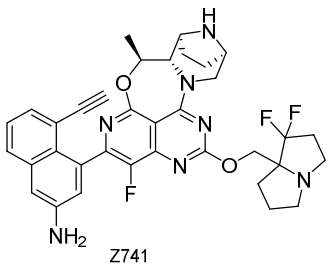
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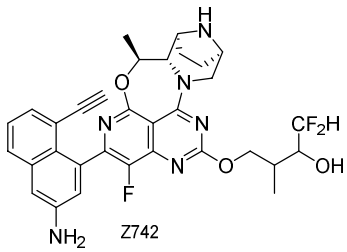
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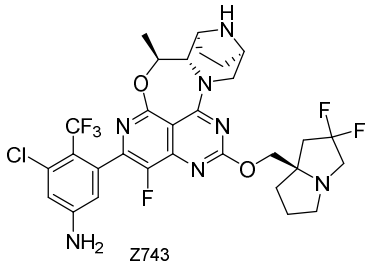
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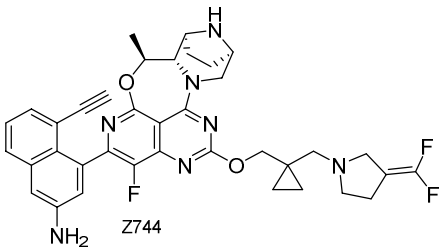
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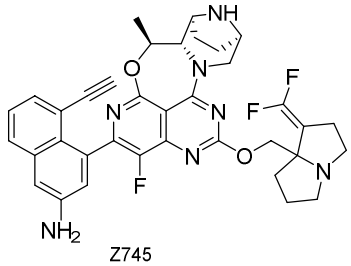
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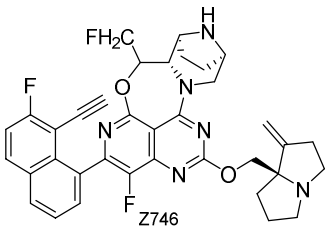
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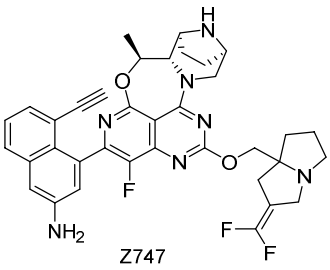
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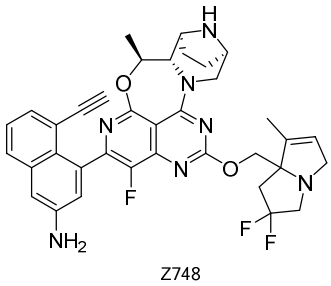
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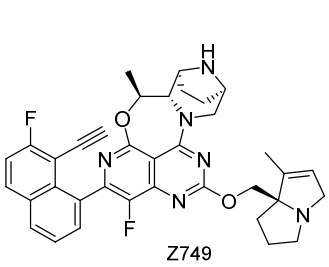
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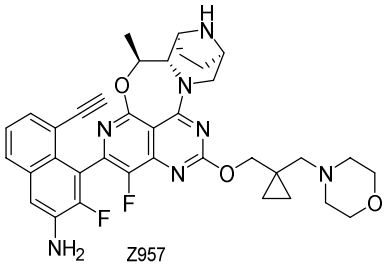
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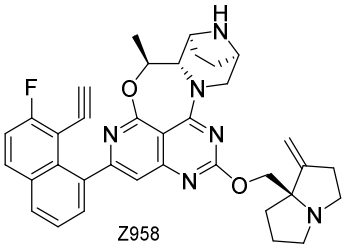
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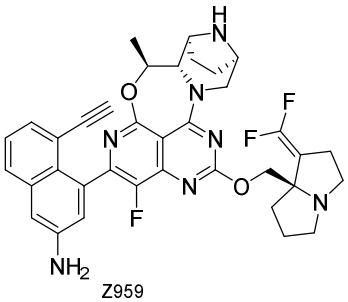
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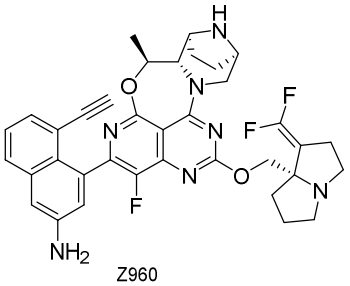
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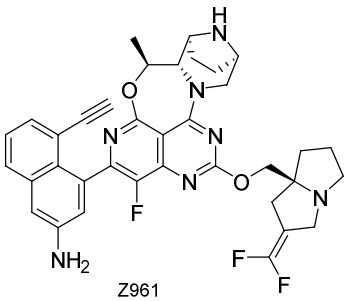
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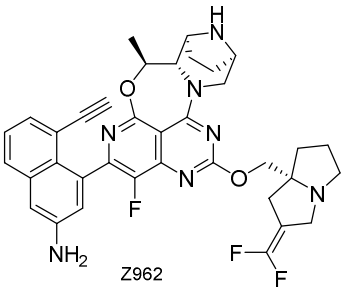
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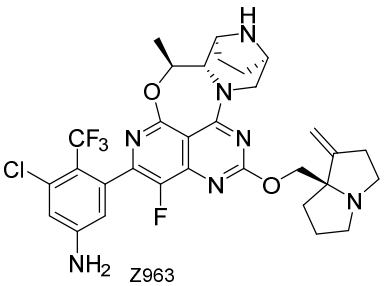
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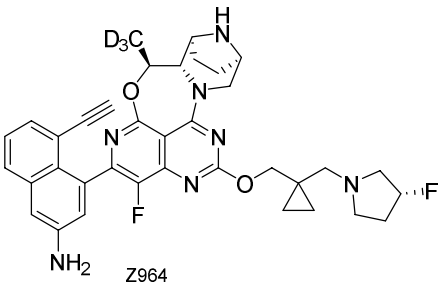
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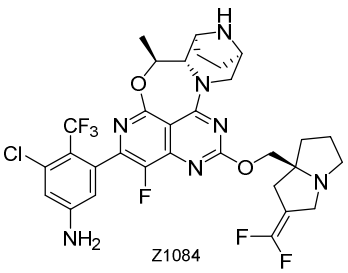
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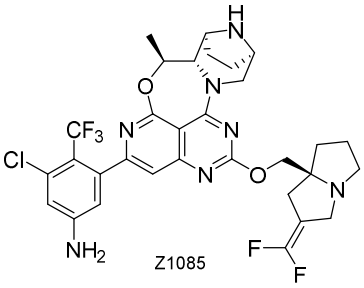
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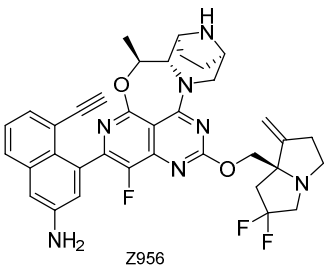
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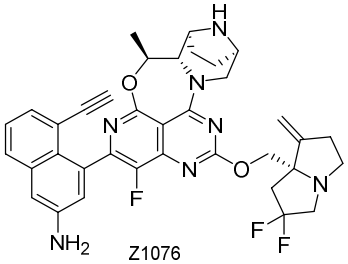
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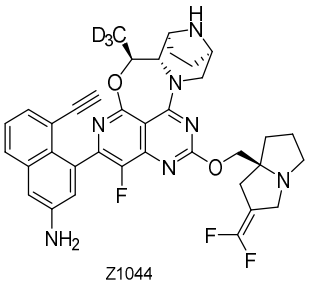
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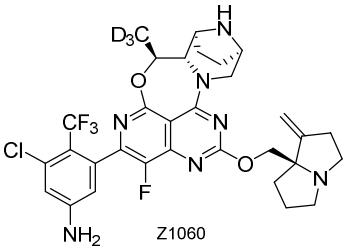
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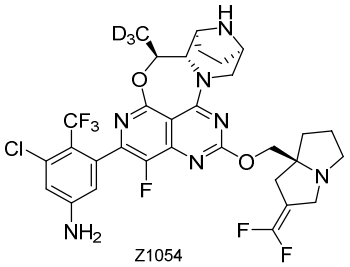
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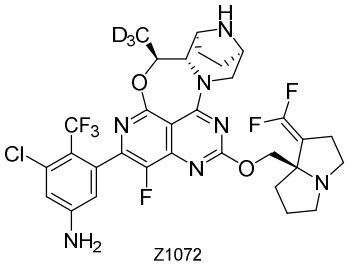
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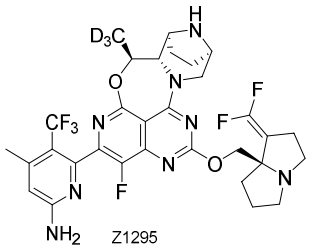
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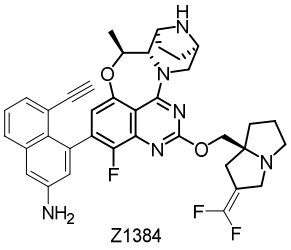
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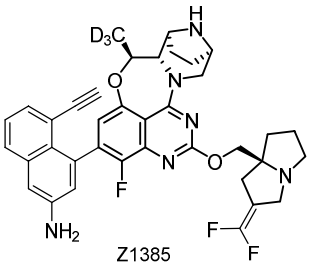
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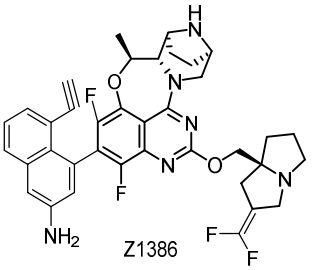
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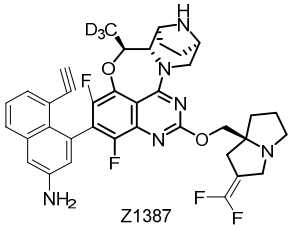
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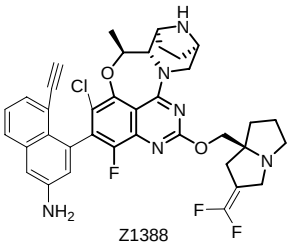
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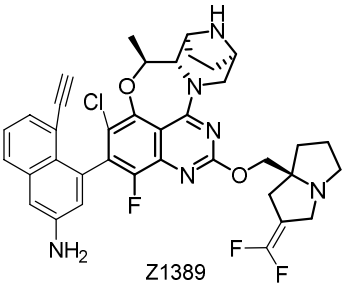
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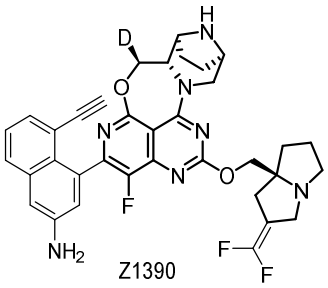
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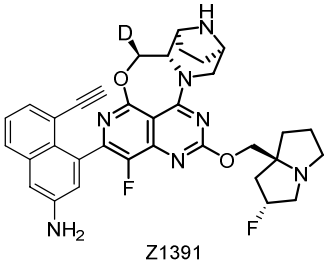
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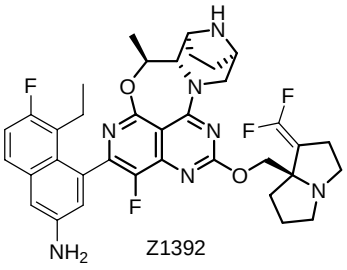
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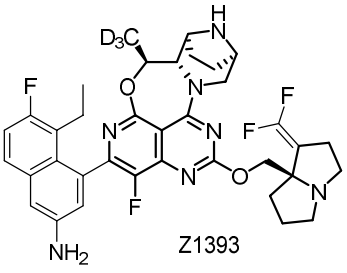
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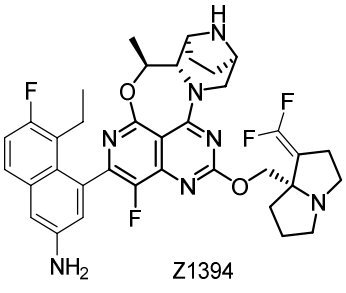
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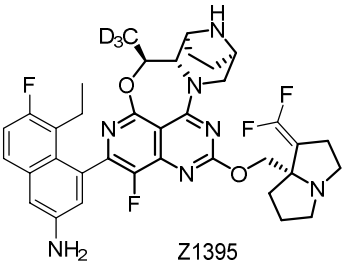
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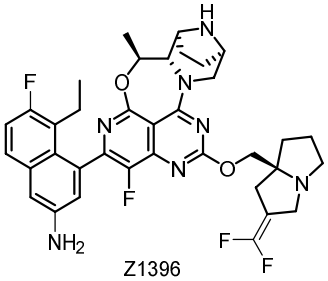
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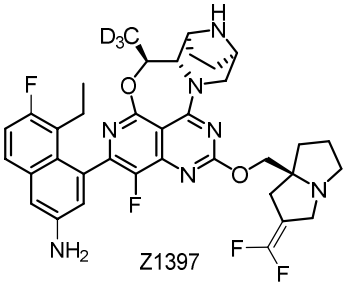
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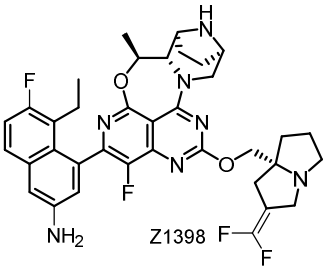
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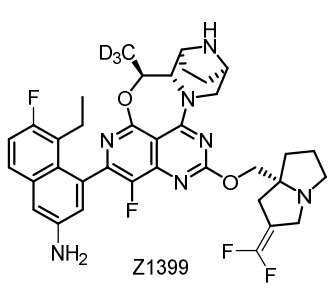
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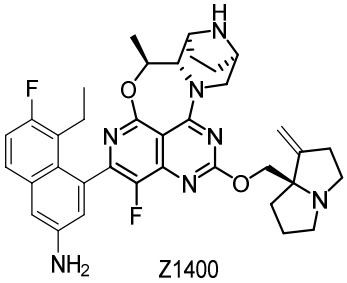
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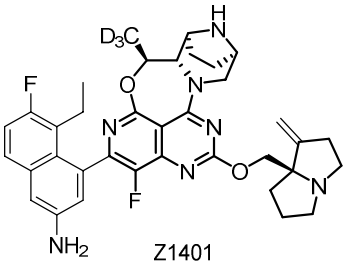
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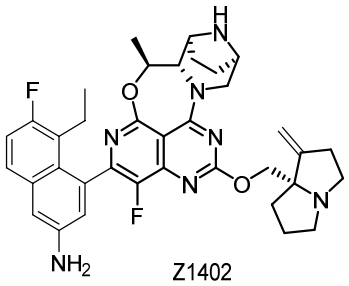
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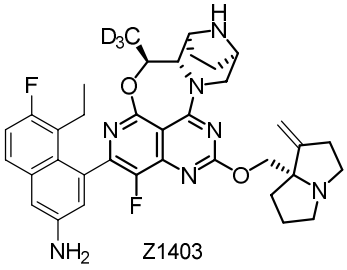
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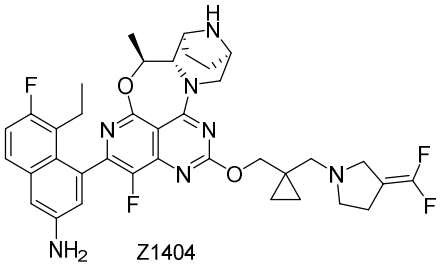
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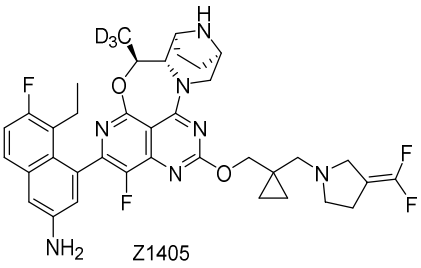
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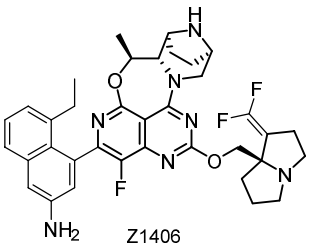
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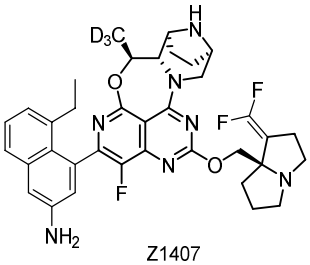
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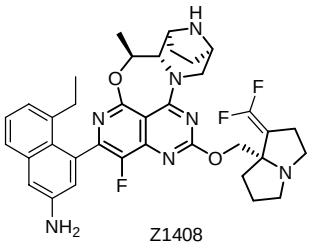
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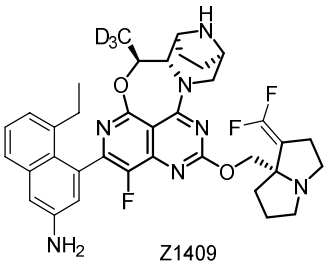
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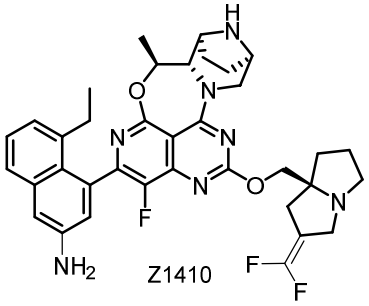
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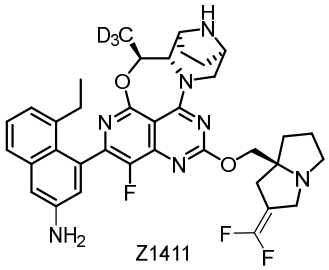
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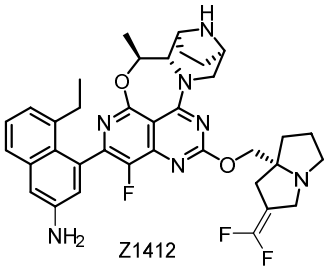
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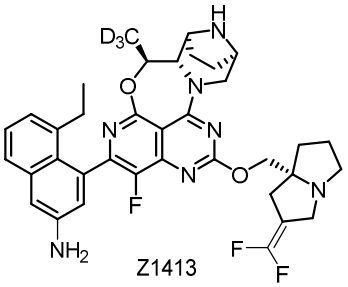
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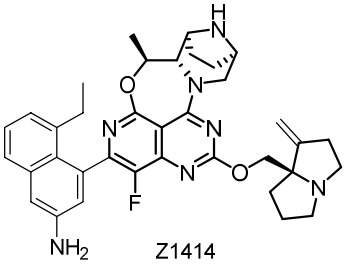
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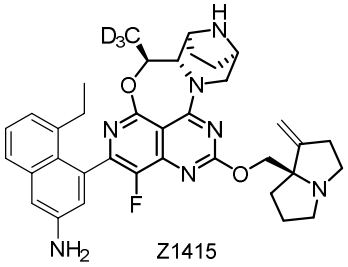
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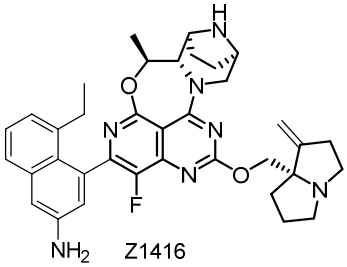
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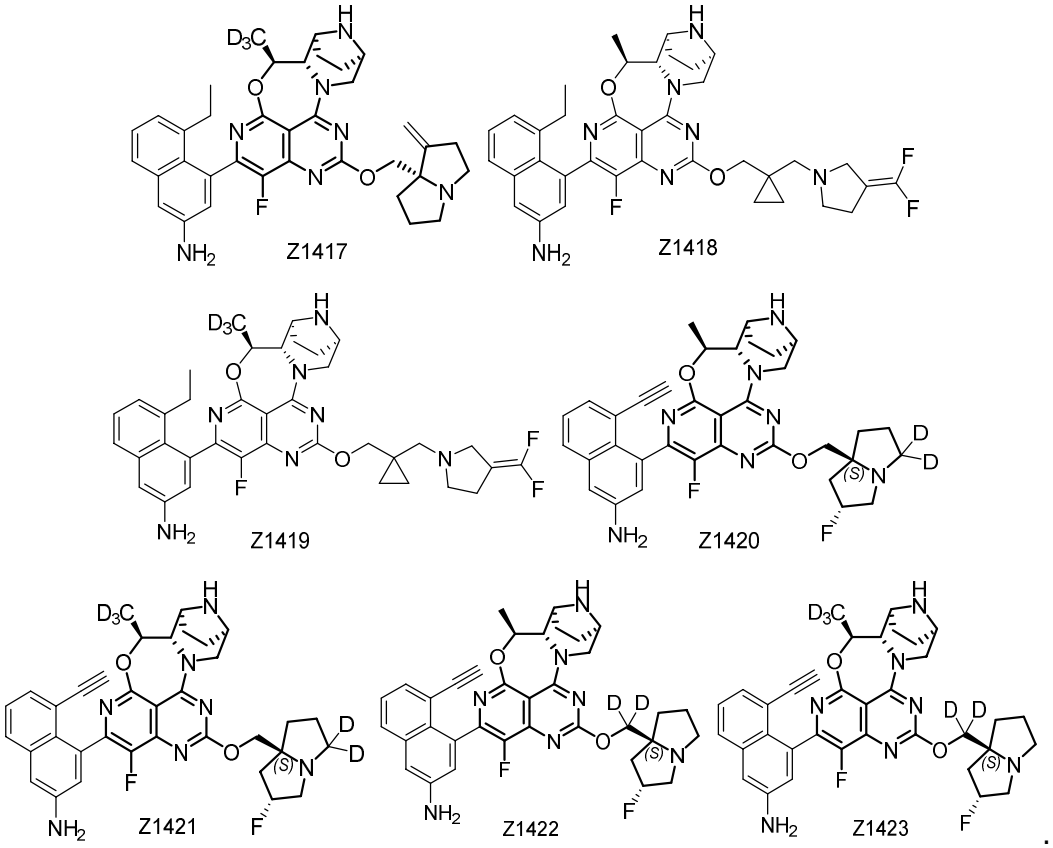

13. The compound, or stereoisomer, deuterated compound or pharmaceutically acceptable salt thereof according to claim 1 or 12, wherein the compound is in the form of a free base or a pharmaceutically acceptable salt.

14. A pharmaceutical composition, comprising a therapeutically effective amount of the compound or stereoisomer, deuterated compound, or pharmaceutically acceptable salt thereof according to any one of claims 1 to 12; and a pharmaceutically acceptable excipient.

15. Use of the compound or stereoisomer, deuterated compound, or pharmaceutically acceptable salt thereof according to any one of claims 1 to 12, or the pharmaceutical composition according to claim 13 in the manufacture of a medicament for preventing and/or treating diseases or disorders, wherein the diseases or disorders are KRAS G12D-related diseases or disorders.

16. The use according to claim 15, wherein the KRAS G12D-related diseases or disorders are cancers.