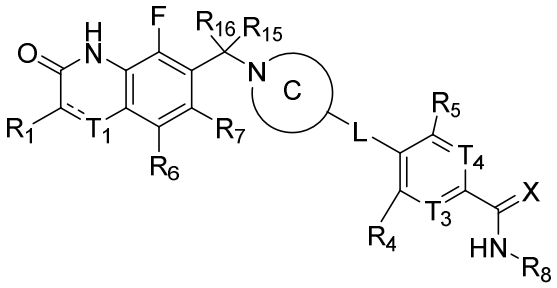
CLAIMS

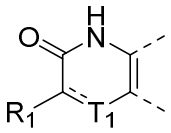
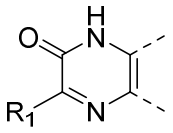
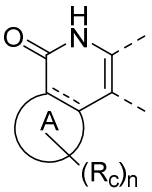
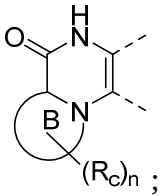
1. A compound of formula (XII) or a pharmaceutically acceptable salt thereof,



(XII),

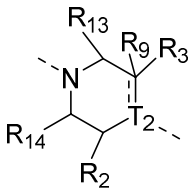
wherein

X is selected from O and S;

the structural moiety  is selected from  ,  , and  ;

ring A is selected from phenyl and 6-membered heteroaryl;

ring B is selected from 6-membered heteroaryl;

L is selected from a single bond, and ring C is selected from  ;

 is selected from a single bond or a double bond;

T_2 is selected from C, N, and CH;

T_3 and T_4 are each independently selected from N and CR_{10};

R_1 is selected from C_{1-3} alkyl and C_{3-5} cycloalkyl, and the C_{1-3} alkyl and C_{3-5} cycloalkyl are each independently and optionally substituted by 1, 2, or 3 halogens;

R_2 is selected from H and C_{1-3} alkyl, and the C_{1-3} alkyl is optionally substituted by 1, 2, or 3 halogens;

R_3 is selected from H and halogen;

R_9 is absent, or selected from H and halogen;

R_4 is selected from H, halogen, CN, C_{1-3} alkyl, and C_{1-3} alkoxy;

R_5 is selected from H, halogen, CN, C_{1-3} alkyl, and C_{1-3} alkoxy;

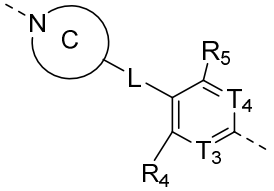
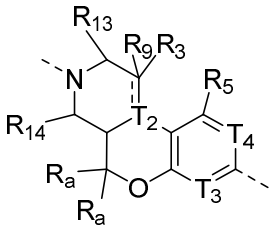
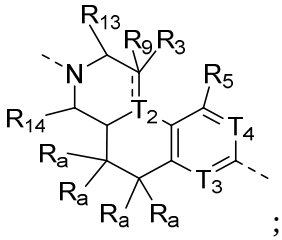
R_6 and R_7 are each independently selected from H, halogen, C_{1-3} alkyl, and C_{1-3} alkoxy, and the C_{1-3} alkyl and C_{1-3} alkoxy are each independently and optionally substituted by 1, 2, or 3 halogens;

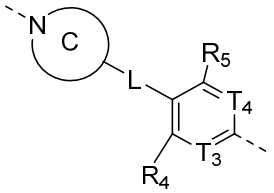
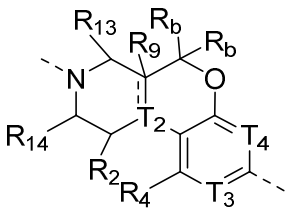
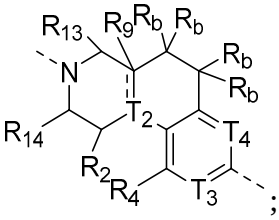
R_8 is selected from C_{1-3} alkyl and C_{3-5} cycloalkyl, and the C_{1-3} alkyl and C_{3-5} cycloalkyl are each independently and optionally substituted by 1, 2, or 3 R;

R_{10} is selected from H and halogen;

R_{13} and R_{14} are each independently selected from H, halogen, C_{1-3} alkyl, C_{1-3} alkoxy, and C_{3-5} cycloalkyl, and the C_{1-3} alkyl, C_{1-3} alkoxy, and C_{3-5} cycloalkyl are each independently and optionally substituted by 1, 2, or 3 halogens;

R_{15} and R_{16} are each independently selected from H, D, C_{1-3} alkyl, and C_{1-3} alkoxy, and the C_{1-3} alkyl and C_{1-3} alkoxy are each independently and optionally substituted by 1, 2, or 3 halogens;

or, R_2 and R_4 form a ring, so that the structural moiety  is selected from  and  ;

or, R_3 and R_5 form a ring, so that the structural moiety  is selected from  and  ;

each R_a is independently selected from H, halogen, C_{1-3} alkyl, C_{1-3} alkoxy, and C_{3-5}

cycloalkyl, and the C_{1-3} alkyl, C_{1-3} alkoxy, and C_{3-5} cycloalkyl are optionally substituted by 1, 2, or 3 halogens;

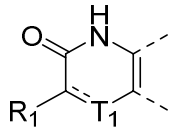
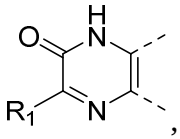
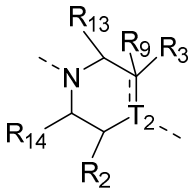
or, two R_a on adjacent atoms, together with the atom to which they are attached, form a double bond or a cyclopropyl group;

each R_b is independently selected from H, halogen, C_{1-3} alkyl, C_{1-3} alkoxy, and C_{3-5} cycloalkyl, and the C_{1-3} alkyl, C_{1-3} alkoxy, and C_{3-5} cycloalkyl are optionally substituted by 1, 2, or 3 halogens;

each R_c is independently selected from H, halogen, C_{1-3} alkyl, C_{1-3} alkoxy, and C_{3-5} cycloalkyl, and the C_{1-3} alkyl, C_{1-3} alkoxy, and C_{3-5} cycloalkyl are optionally substituted by 1, 2, or 3 halogens;

each R is independently selected from halogen and D;

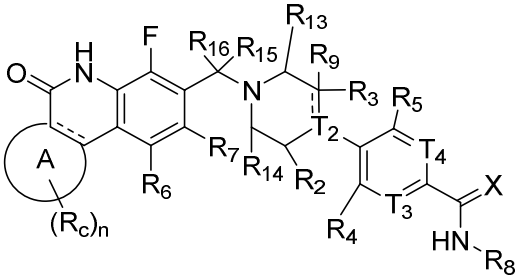
n is selected from 0, 1, 2, 3, and 4;

given that when the structural moiety  is selected from  , L is selected from a single bond, and ring C is selected from  , then R_2 and R_4 form a ring, or R_3 and R_5 form a ring;

the halogen represents F, Cl, Br, and I atoms;

"hetero" in the 5- to 6-membered heteroaryl represents 1, 2, 3, or 4 heteroatoms or heteroatom groups, each independently selected from -O-, -S-, and -N-.

2. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein the compound has a structure of formula (XII-1),



(XII-1)

,

wherein

ring A is selected from 6-membered heteroaryl;

R_2, R_3, R_4, R_5, R_6, R_7, R_8, R_9, R_{13}, R_{14}, R_{15}, R_{16}, R_c, X, T_2, T_3, T_4, n, and  are as defined in claim 1.

3. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein it satisfies one or more of the following conditions:

(1) X is selected from O;

(2) each R_a, each R_b, and each R_c are independently selected from H, F, and CH_3;

(3) T_3 is selected from N, CH, and CF; or T_3 is selected from N;

(4) T_4 is selected from N and CH;

(5) R_1 is selected from CH_3 and CH_2CH_3; or R_1 is selected from CH_3;

(6) R_2 is selected from H and CH_3;

(7) R_6 and R_7 are each independently selected from H, F, and CH_3;

(8) R_4 and R_5 are each independently selected from H, F, Cl, CN, and CH_3;

(9) R_8 is selected from CH_3, CH_2CH_3, CH_2CF_3, cyclopropyl, and CD_3;

(10) R_3 and R_9 are each independently selected from H and F;

(11) R_{10} is selected from H and F;

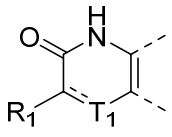
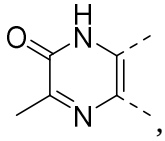
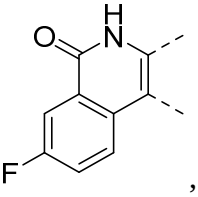
(12) R_{13} and R_{14} are each independently selected from H and CH_3;

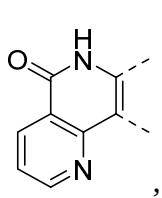
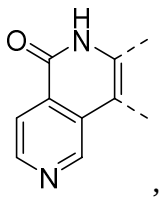
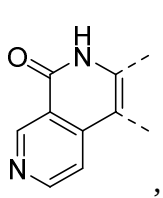
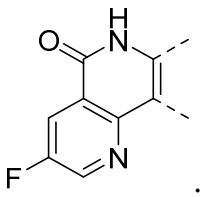
(13) R_{15} and R_{16} are each independently selected from H, D, and CH_3;

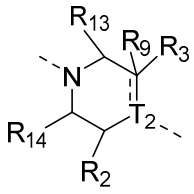
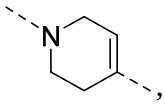
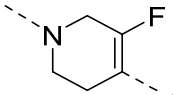
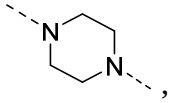
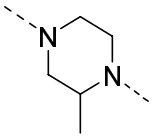
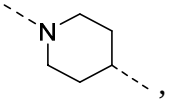
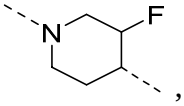
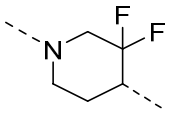
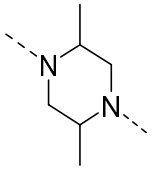
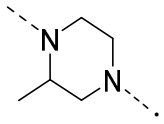
(14) ring A is selected from phenyl, pyridyl, pyrazinyl, and pyrimidinyl;

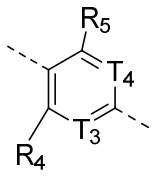
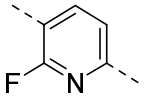
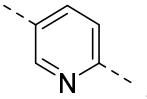
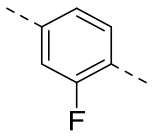
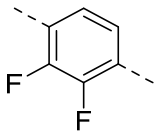
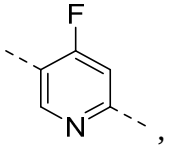
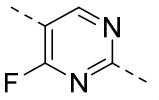
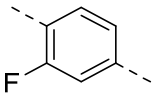
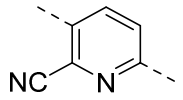
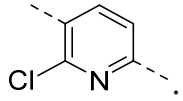
(15) ring B is selected from pyridyl, pyrazinyl, and pyrimidinyl.

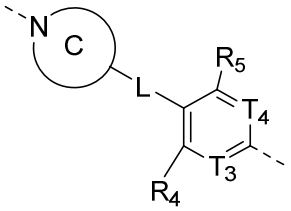
4. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_6 and R_7 are each independently selected from H and F.

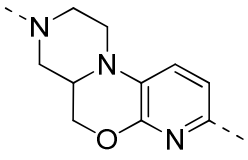
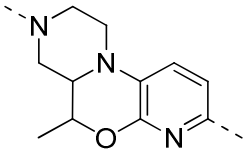
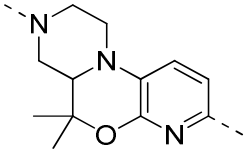
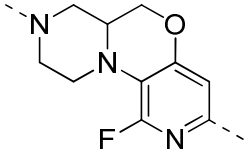
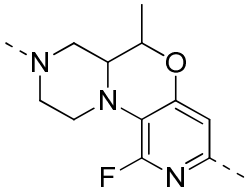
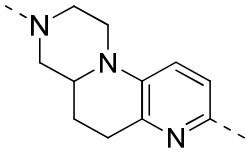
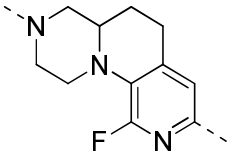
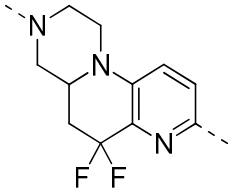
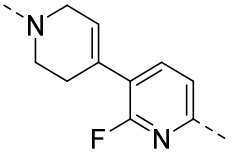
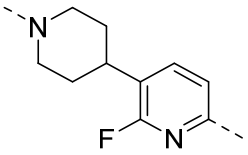
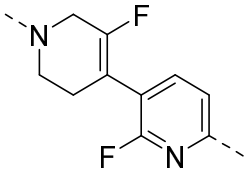
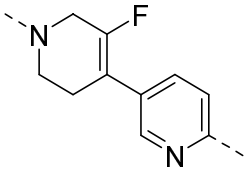
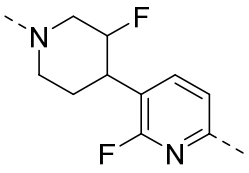
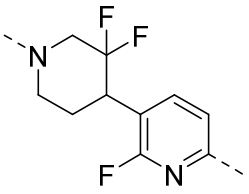
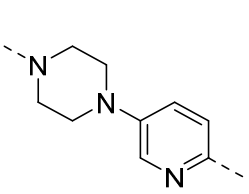
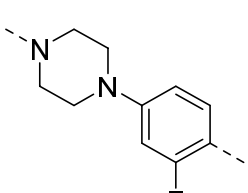
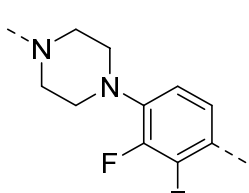
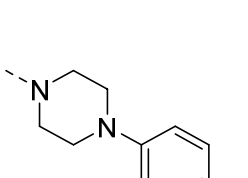
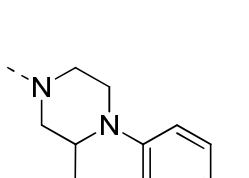
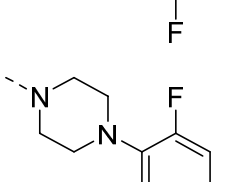
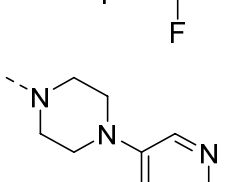
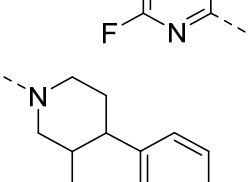
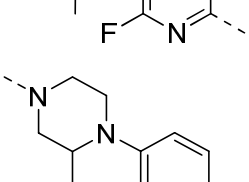
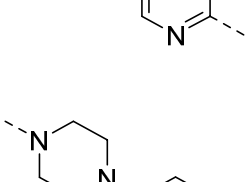
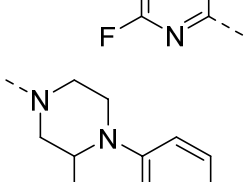
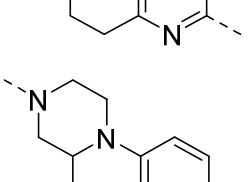
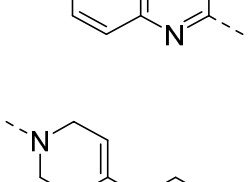
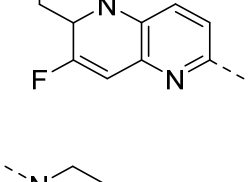
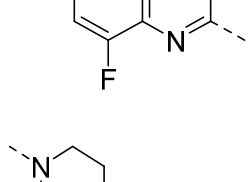
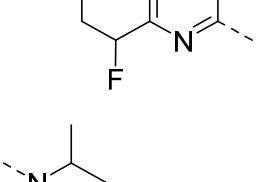
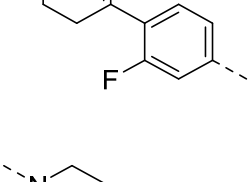
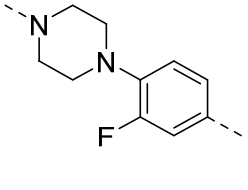
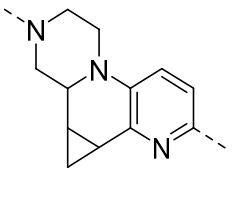
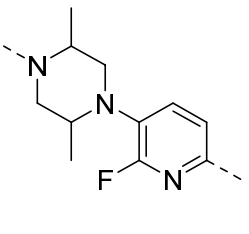
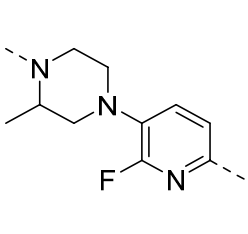
5. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein the structural moiety  is selected from  ,  ,

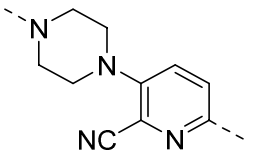
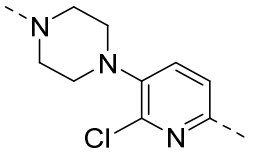
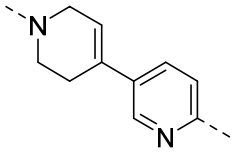
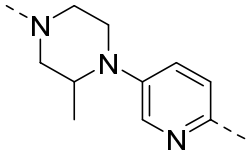
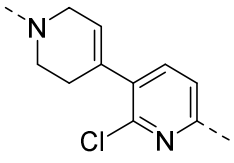
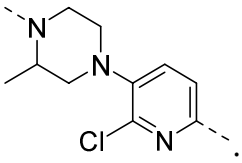



, and  .

6. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein the structural moiety  is selected from  ,  ,  ,  ,  ,  ,  ,  , and  .

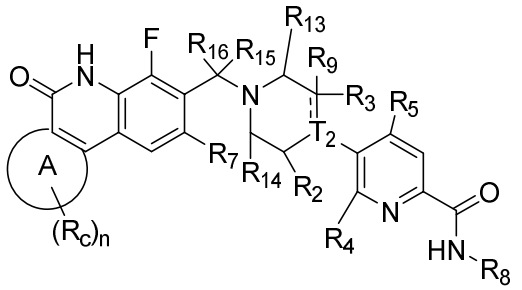
7. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein the structural moiety  is selected from  ,  ,  ,  ,  ,  ,  ,  , and  .

8. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein L is selected from a single bond, and the structural moiety  is

selected from  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  .


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, and

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9. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein the compound has a structure of formula (P-1),



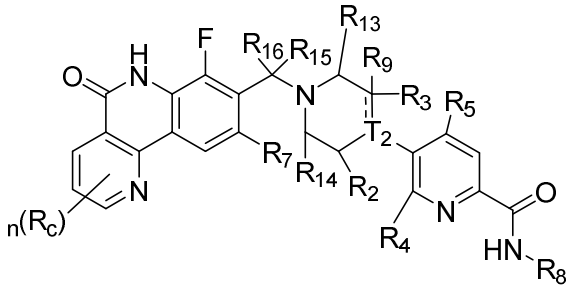
(P-1)

,

wherein ring A is selected from pyridyl;

R_2, R_3, R_4, R_5, R_7, R_8, R_9, R_{13}, R_{14}, R_{15}, R_{16}, R_c, T_2, n, and are as defined in claim 1.

10. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein the compound has a structure of formula (P-2),



(P-2)

,

wherein is selected from a single bond or a double bond;

T_2 is selected from C and N;

R_2 is selected from H and C_{1-3} alkyl, and the C_{1-3} alkyl is optionally substituted by 1, 2, or 3 halogens;

R_3 is selected from H and halogen;

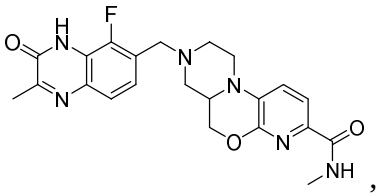
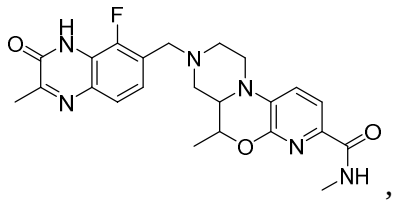
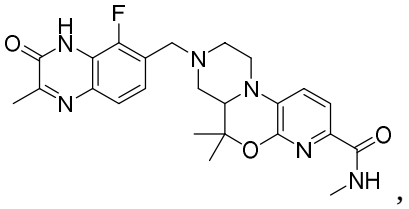
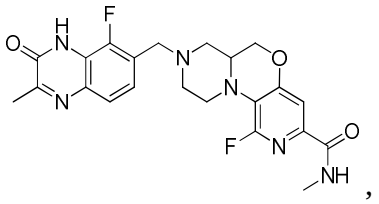
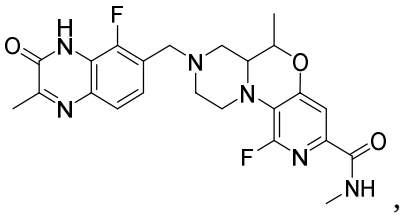
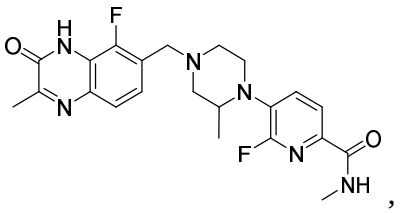
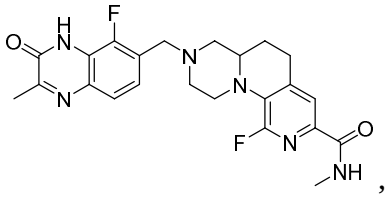
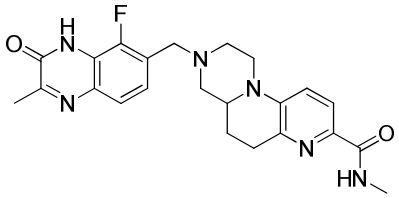
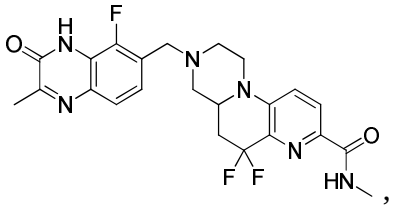
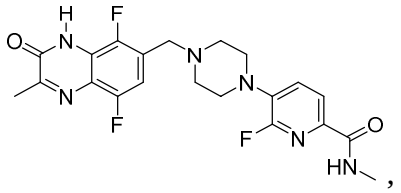
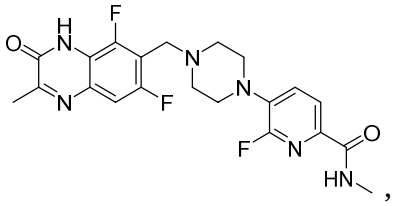
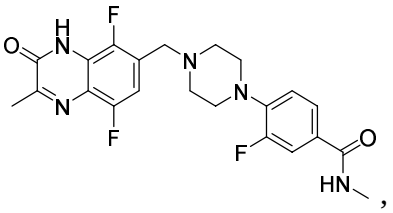
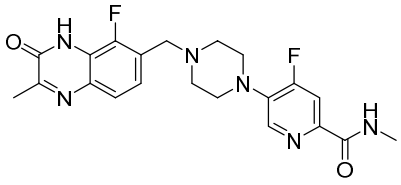
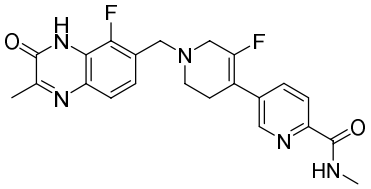
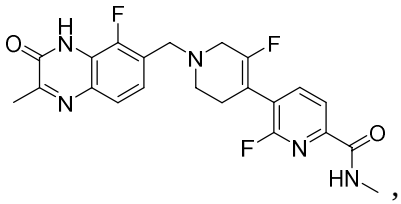
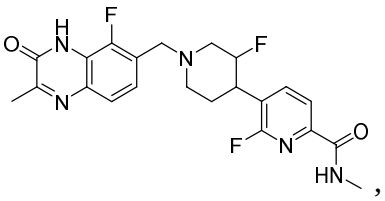
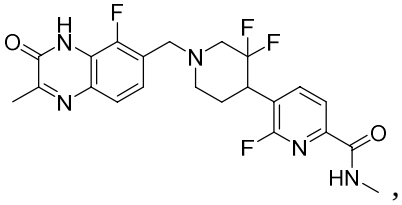
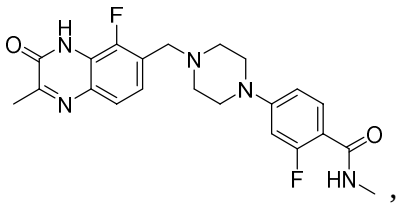
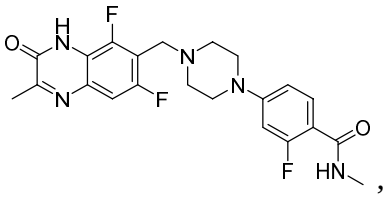
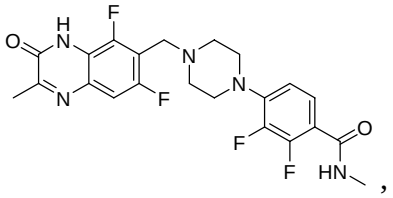
R_4 is selected from H, halogen, CN, C_{1-3} alkyl, and C_{1-3} alkoxy;

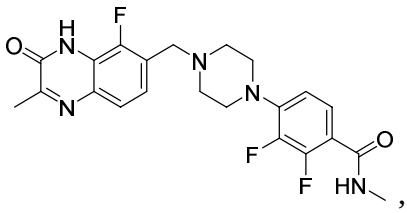
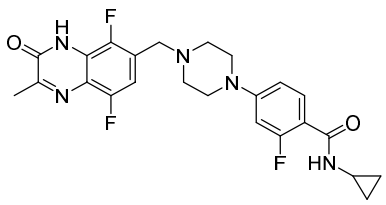
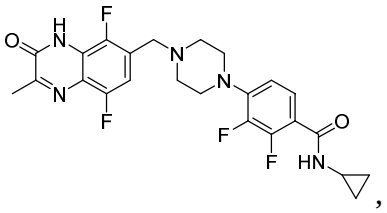
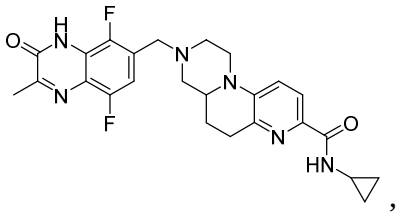
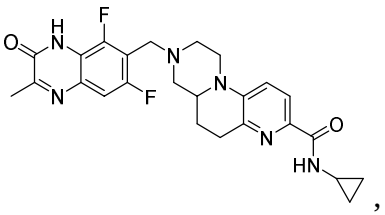
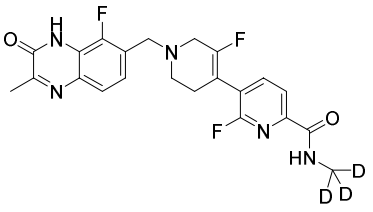
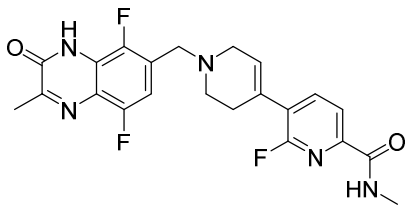
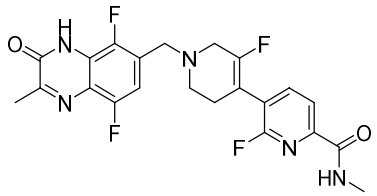
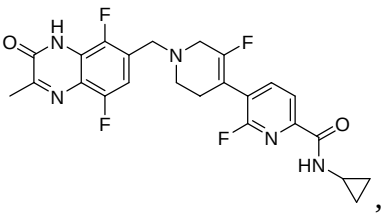
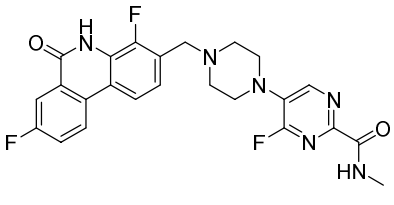
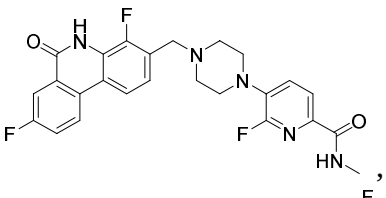
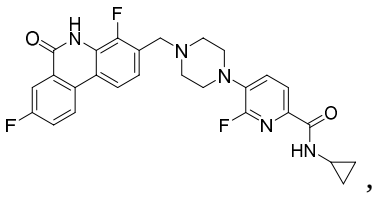
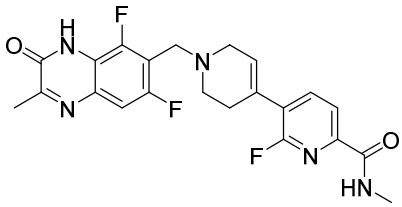
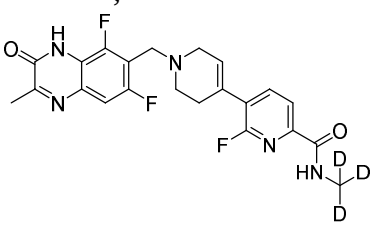
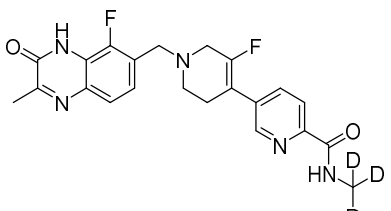
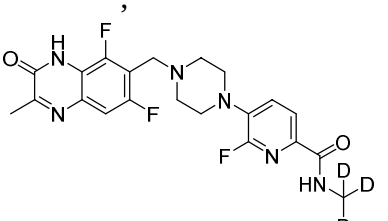
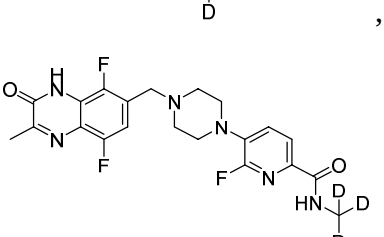
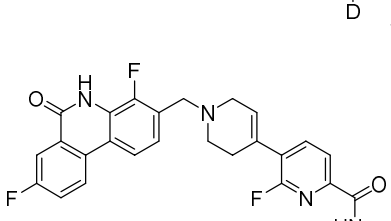
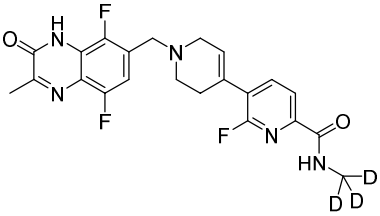
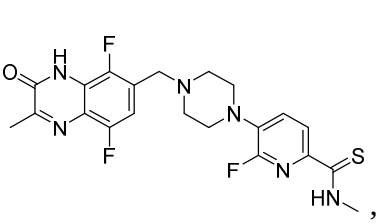
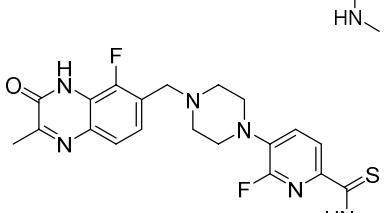
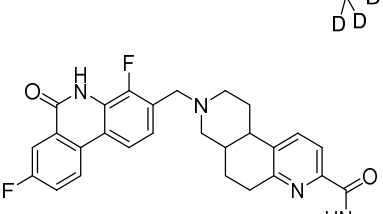
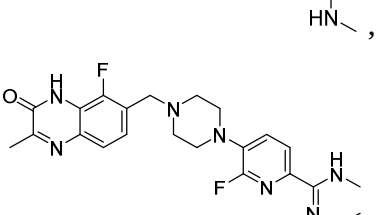
R_5 is selected from H, halogen, CN, C_{1-3} alkyl, and C_{1-3} alkoxy;

R_9 is absent, or selected from H and halogen;

R_7, R_8, R_{13}, R_{14}, R_{15}, R_{16}, R_c, and n are as defined in claim 1.

11. A compound as shown below or a pharmaceutically acceptable salt thereof,

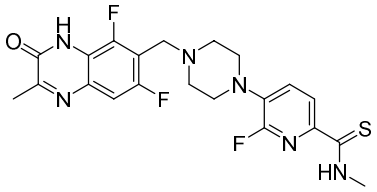
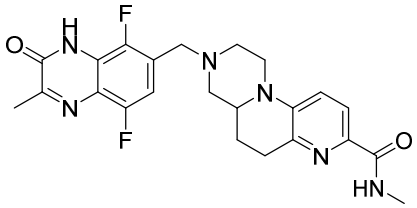
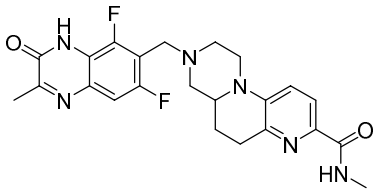
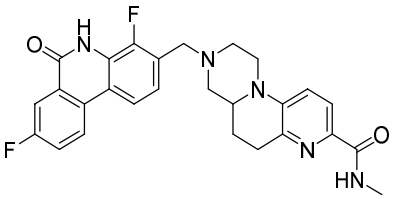
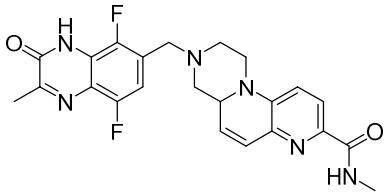
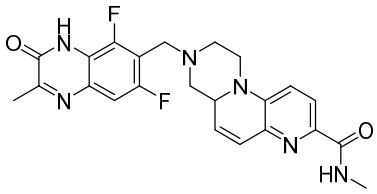
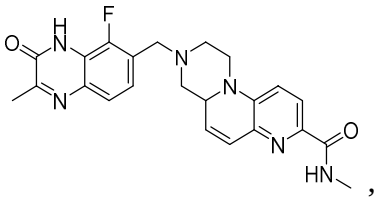
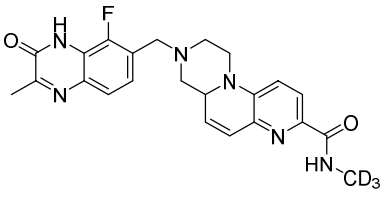
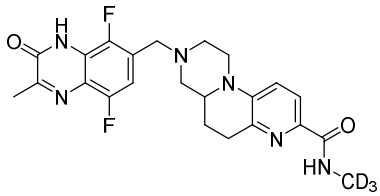
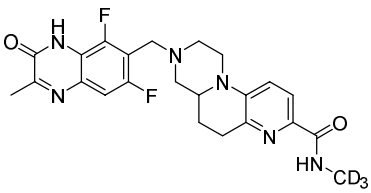
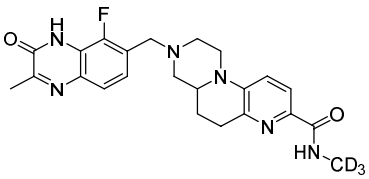
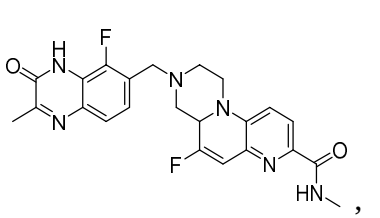
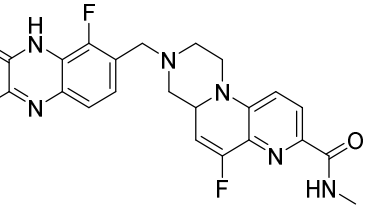
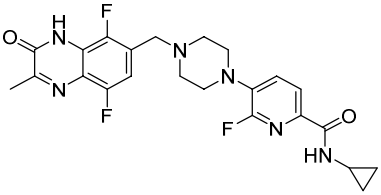

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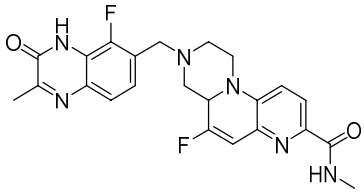
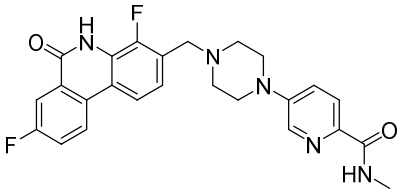
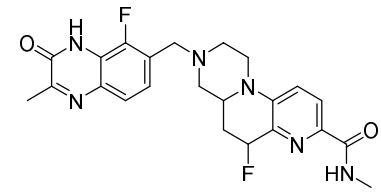
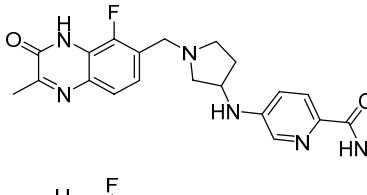
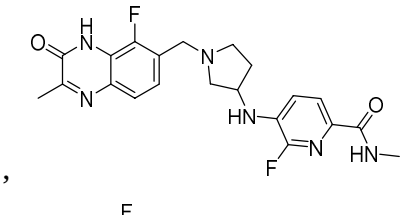
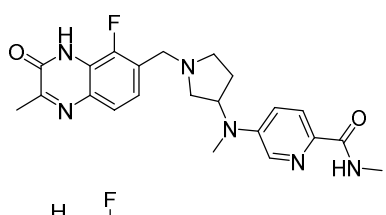
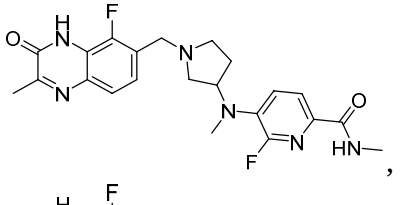
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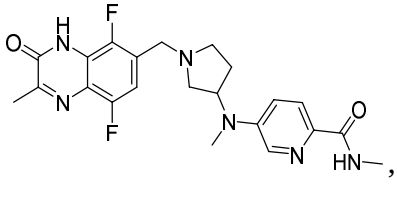
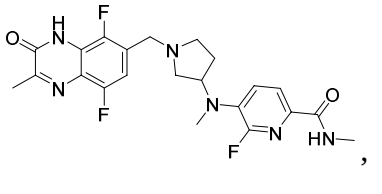
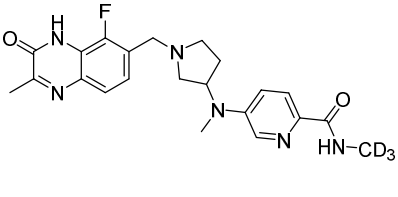

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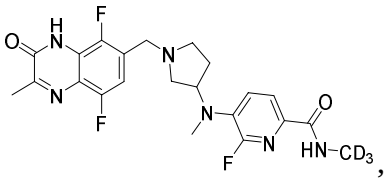
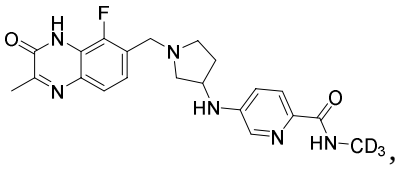
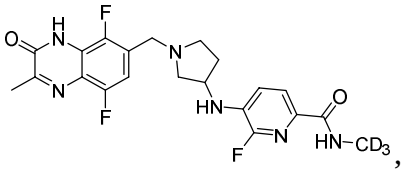
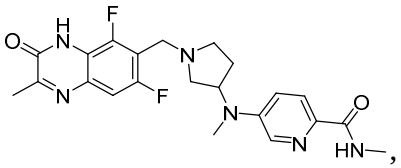
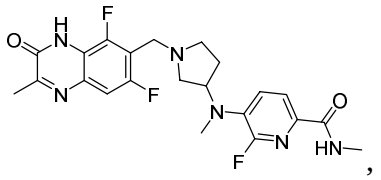
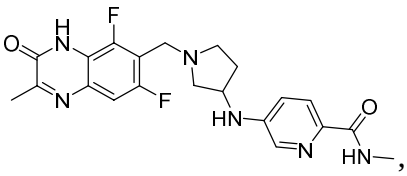
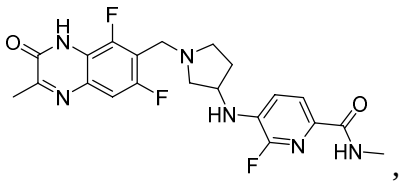
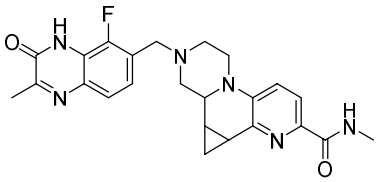
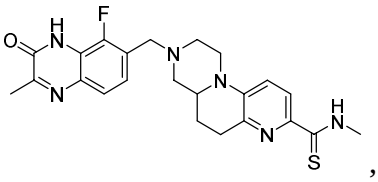
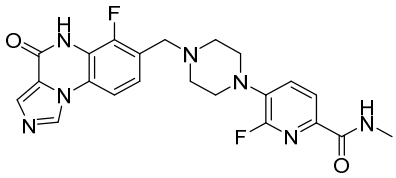
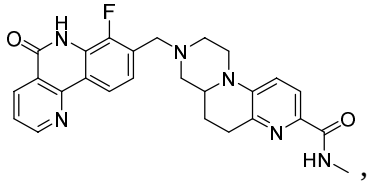
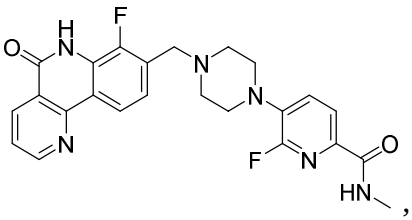
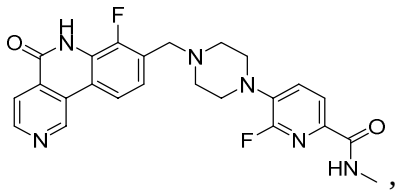
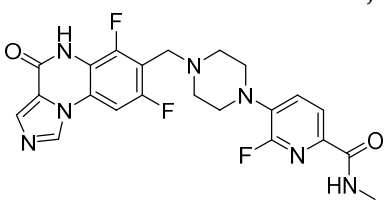
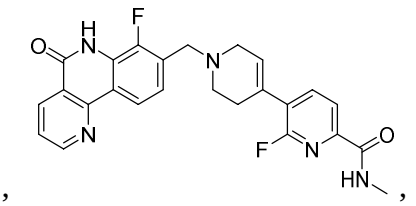
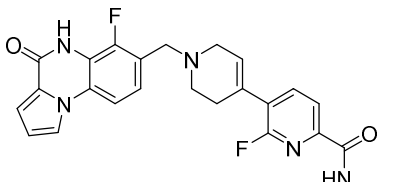
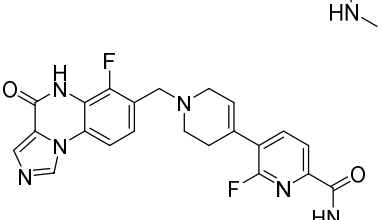
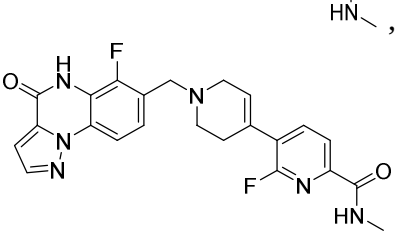
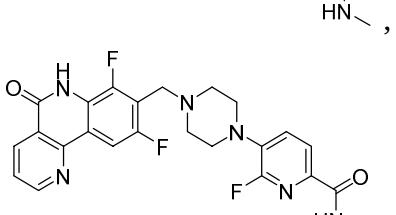
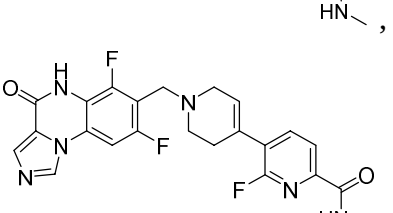
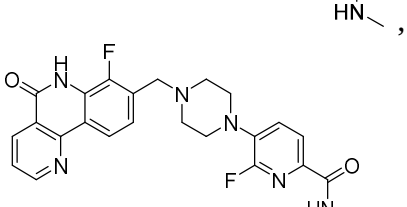
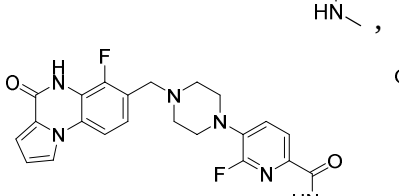
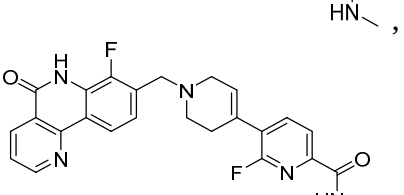
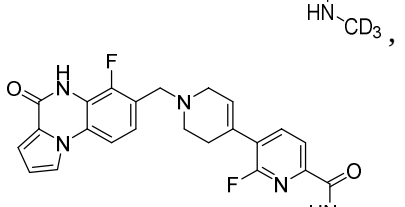
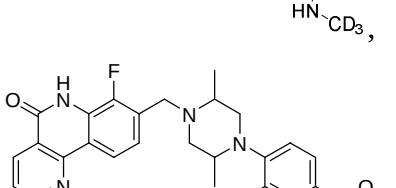
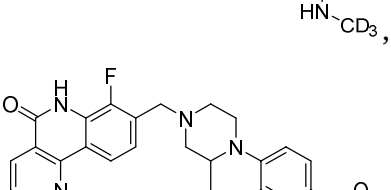
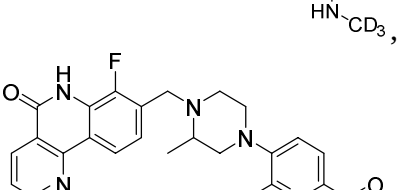
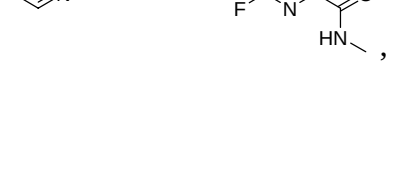
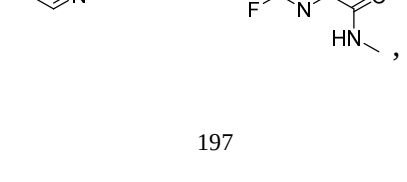
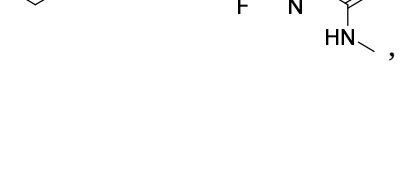
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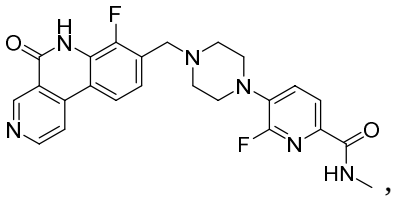
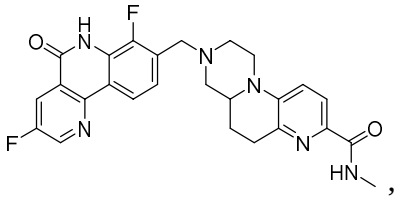
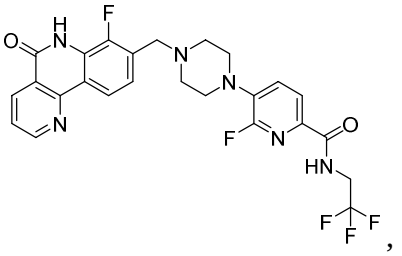
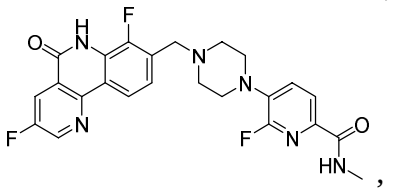
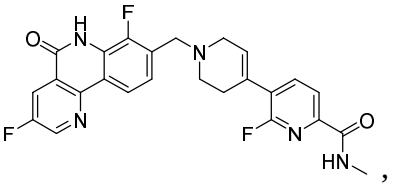
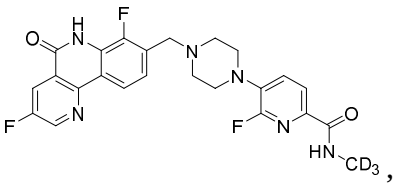
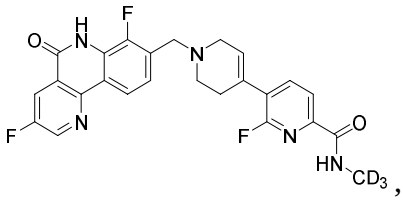
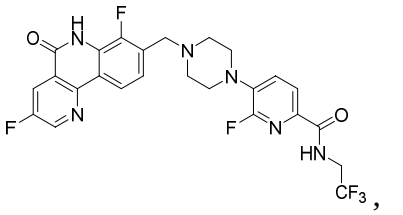
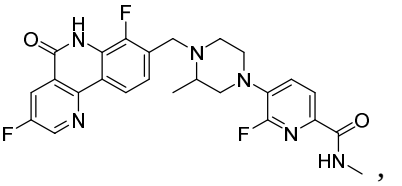
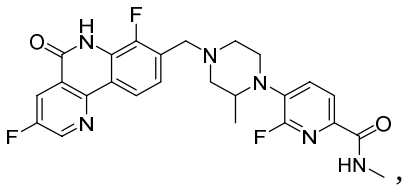
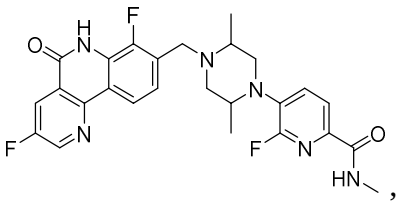
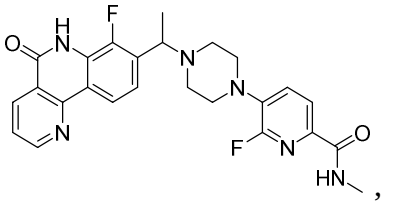
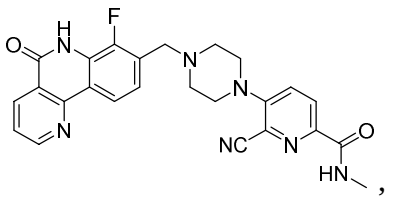
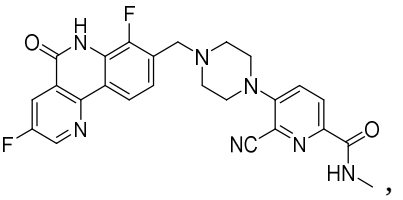
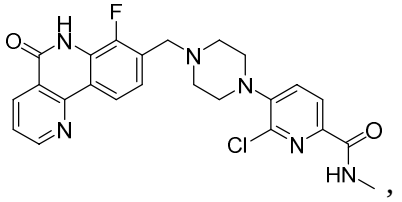
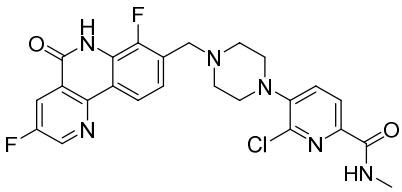
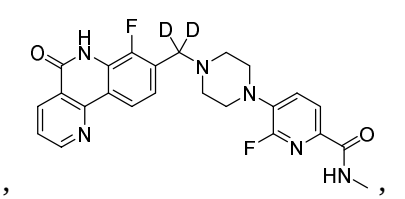
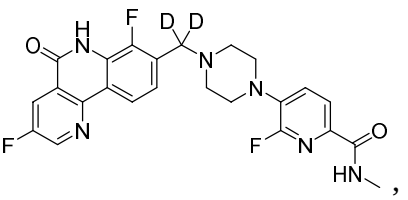
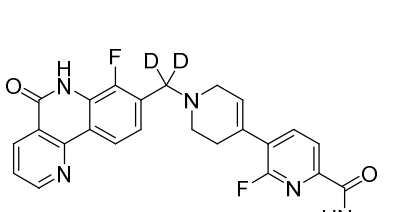
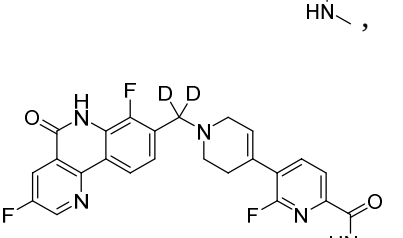
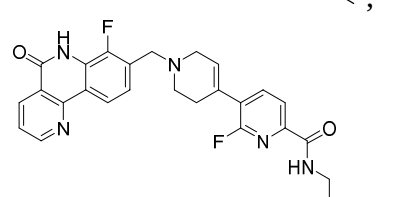
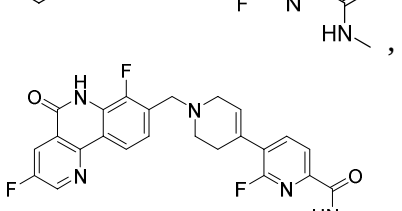
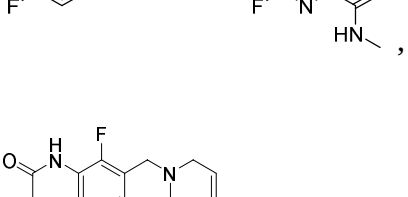
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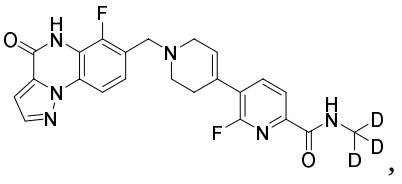
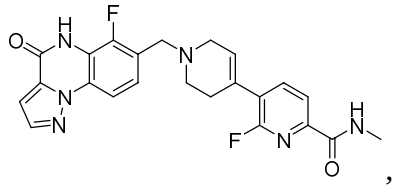
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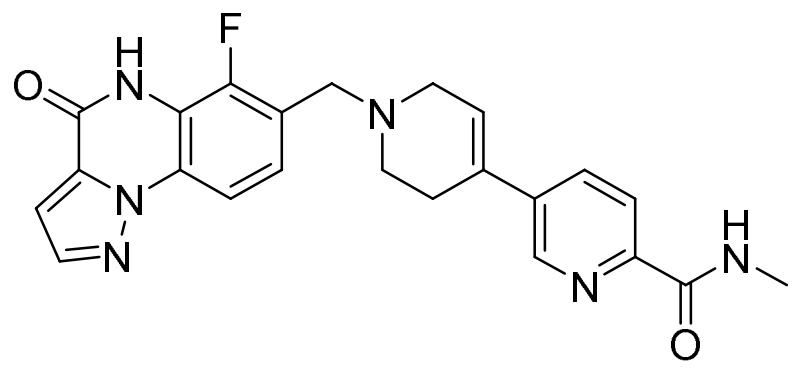
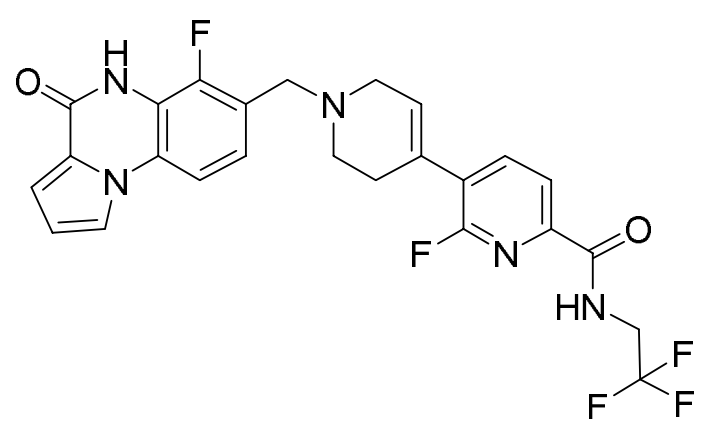
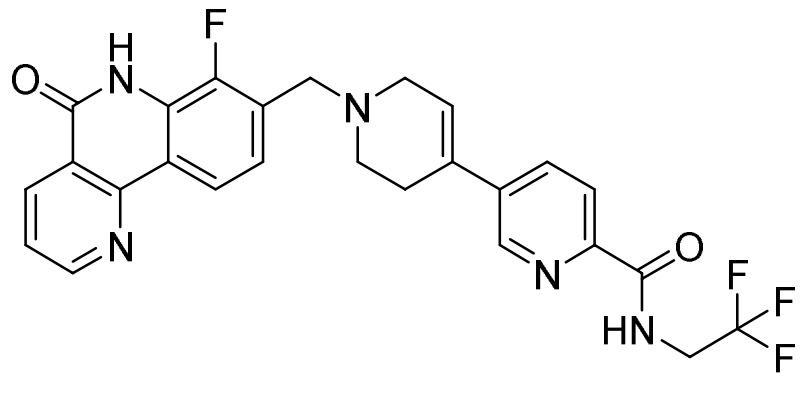
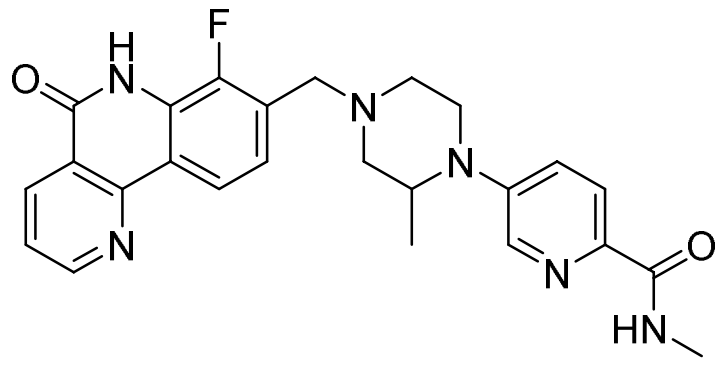
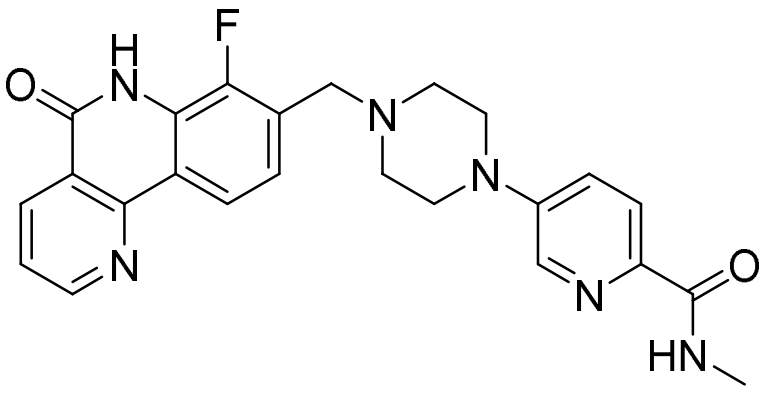
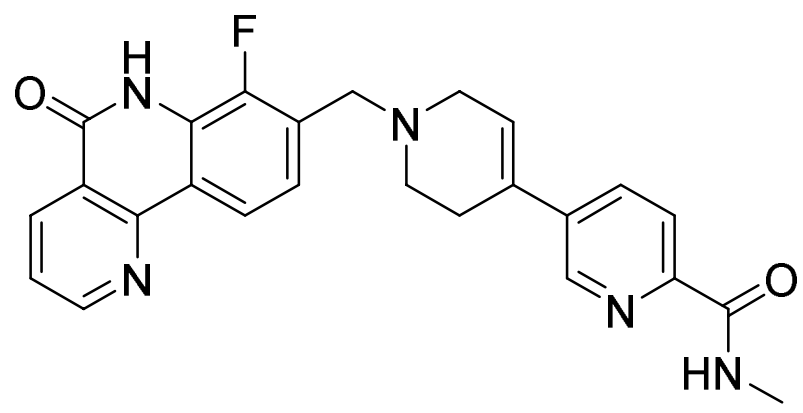
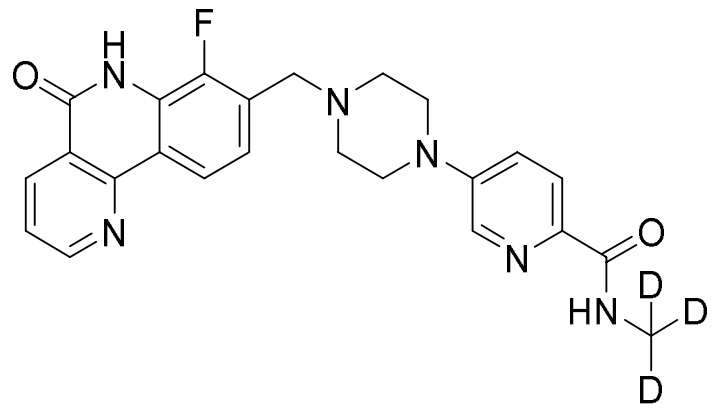
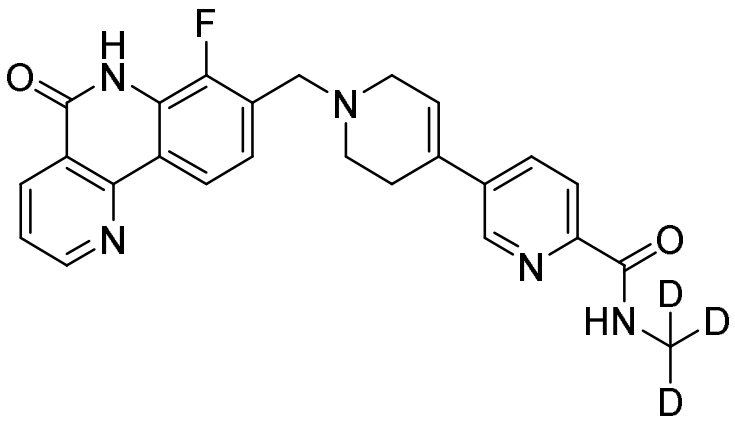
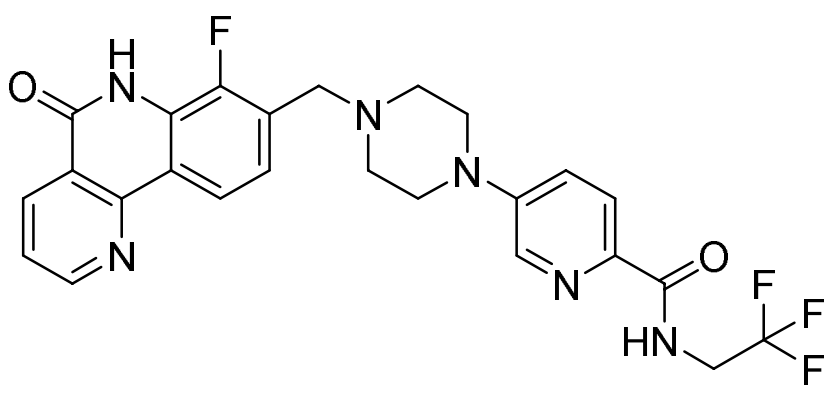
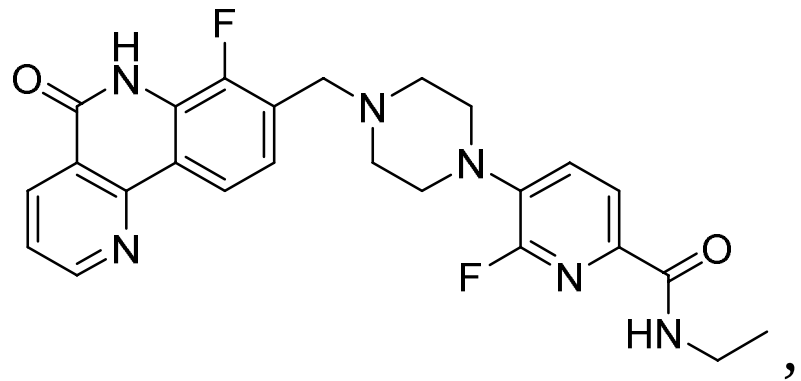
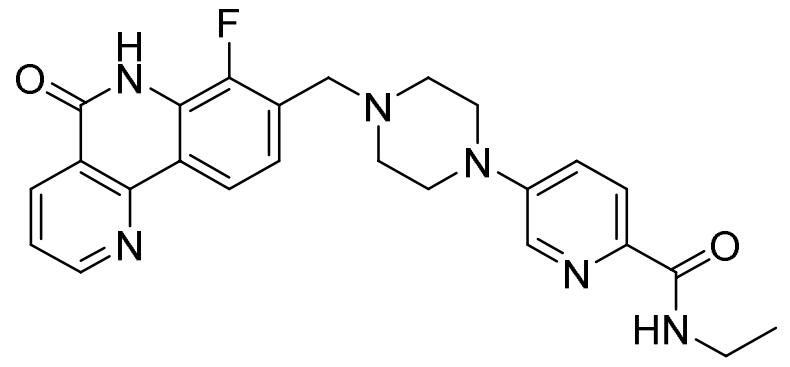
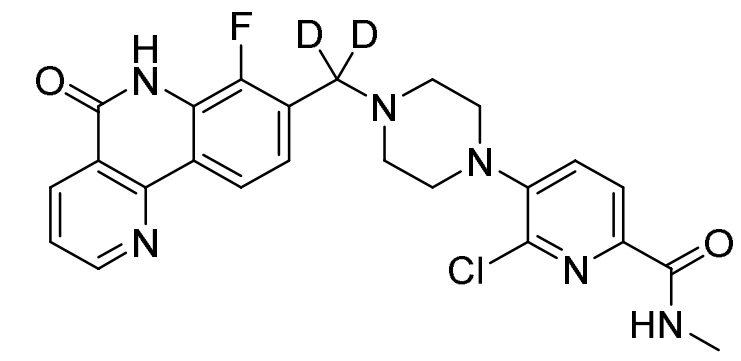
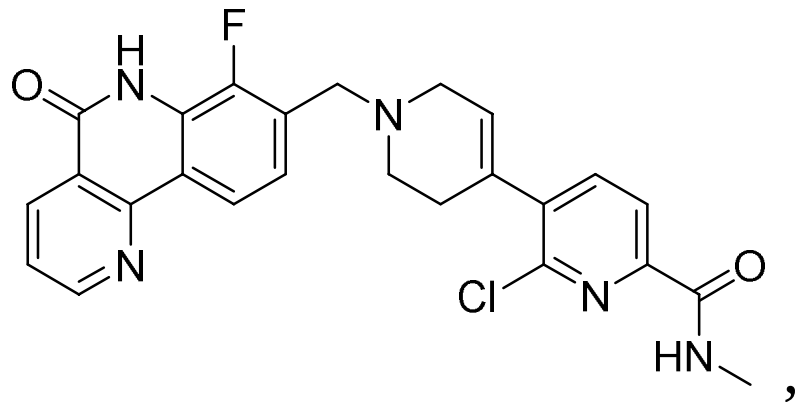
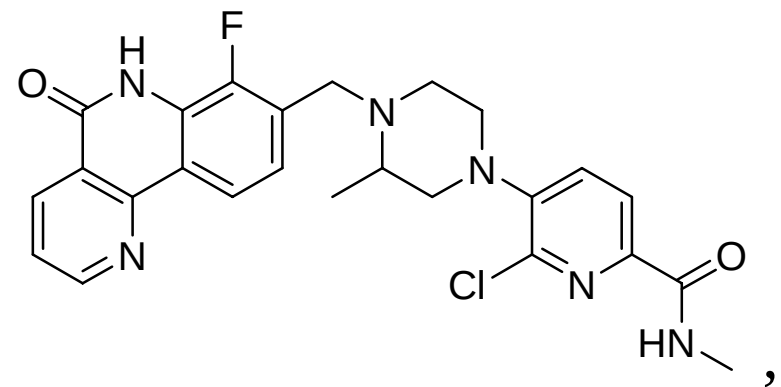
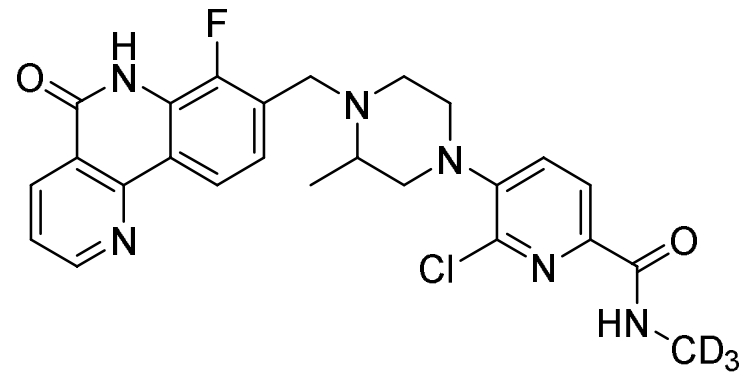
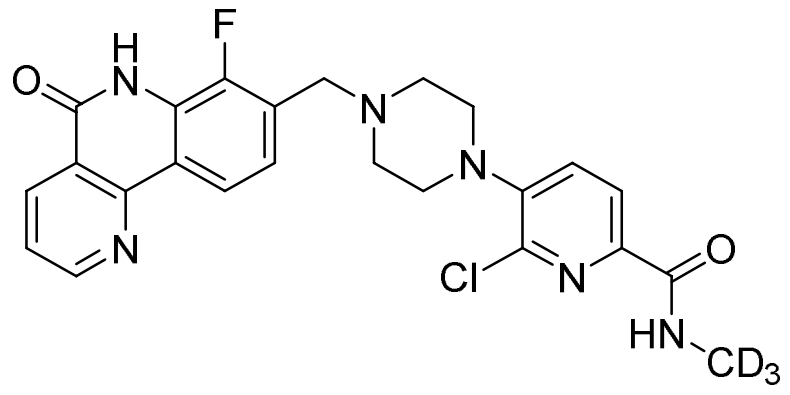
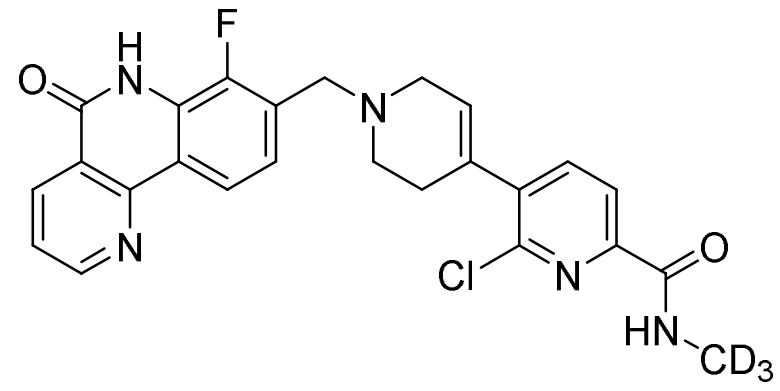
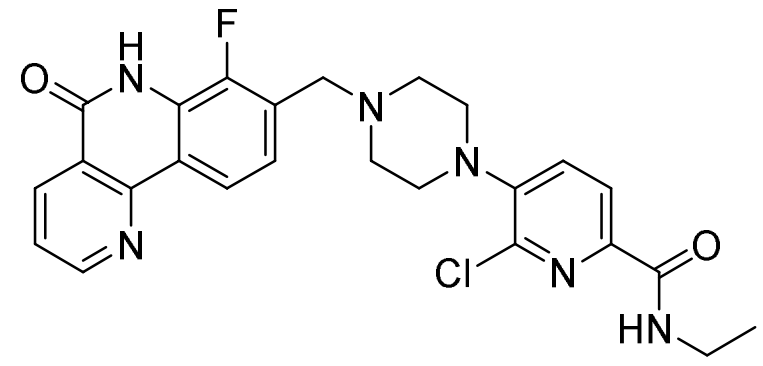
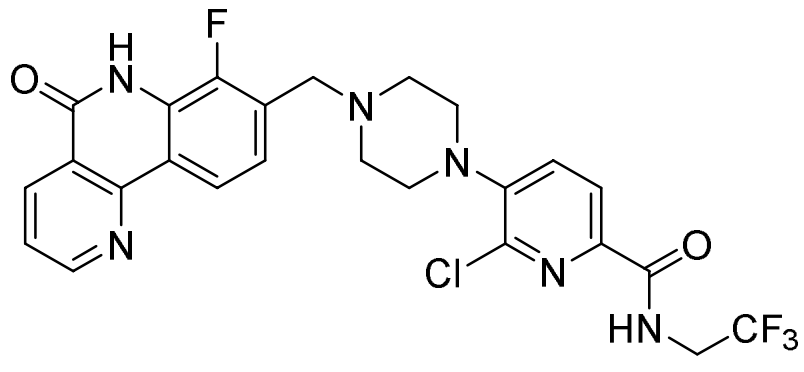
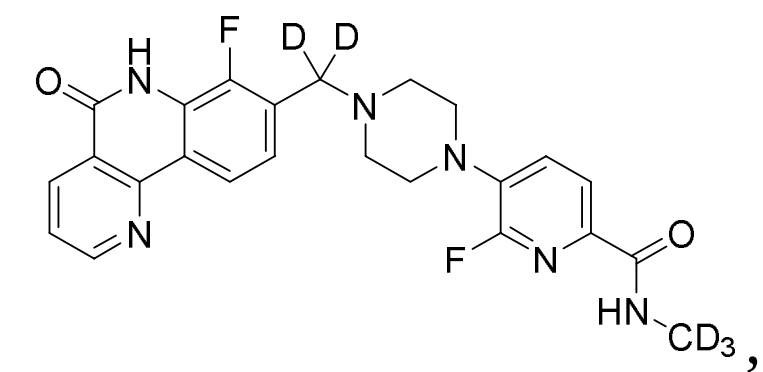
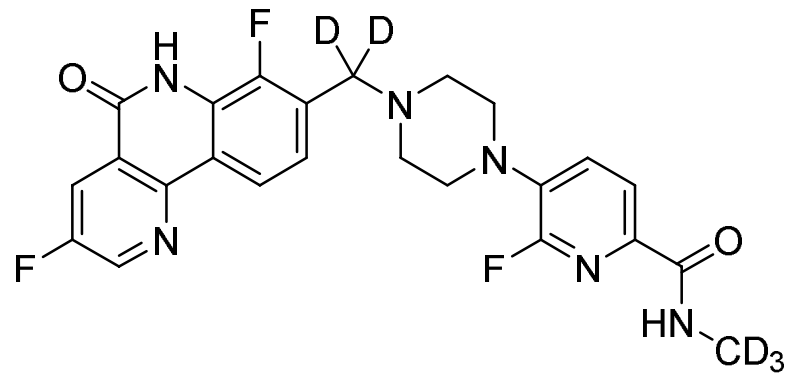
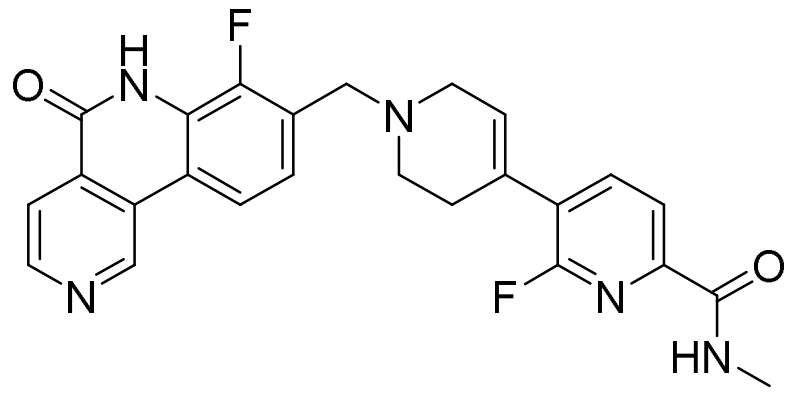
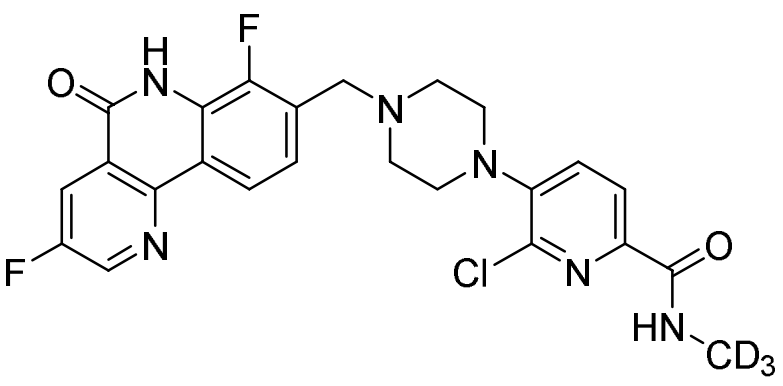
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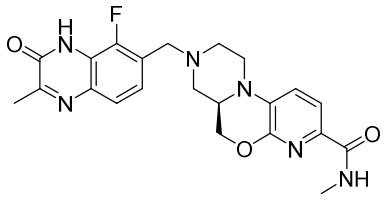
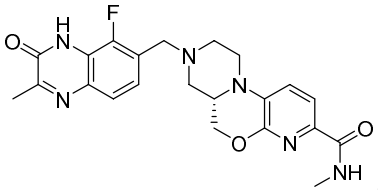
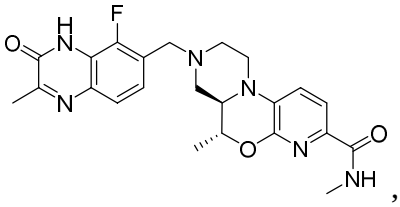
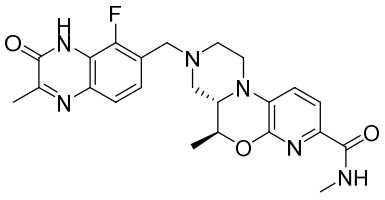
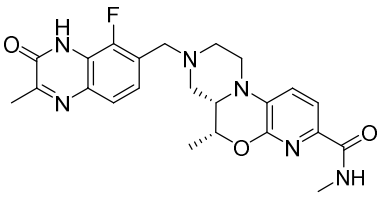
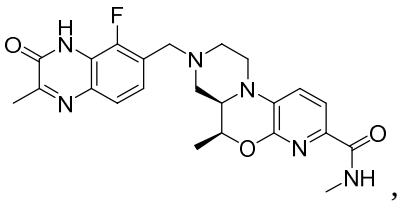
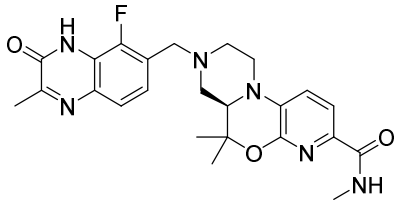
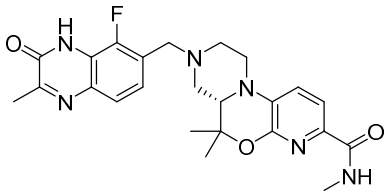
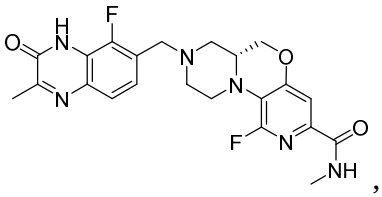
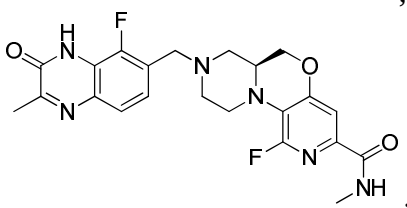
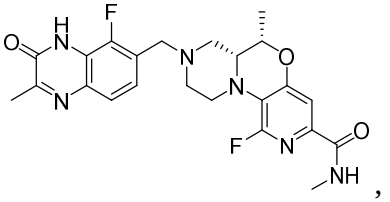
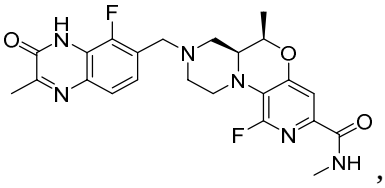
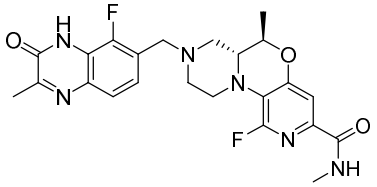
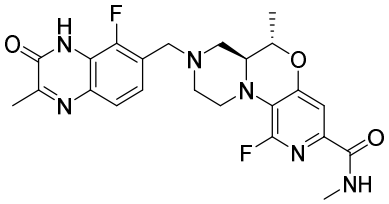
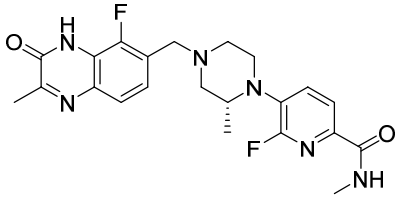
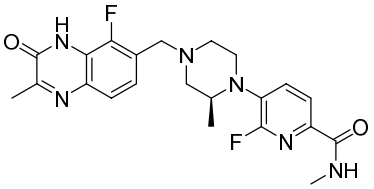
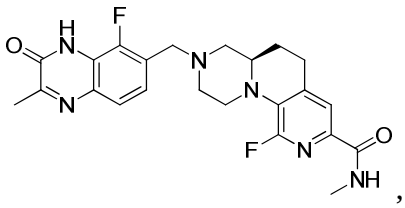
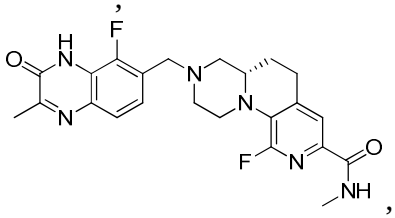
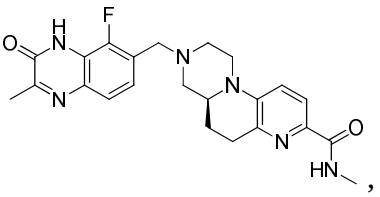
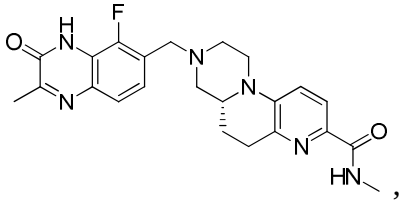
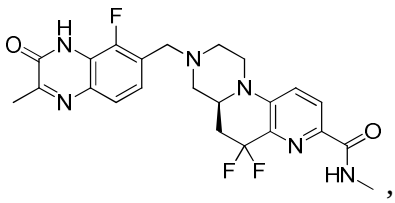
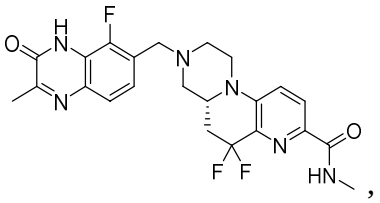

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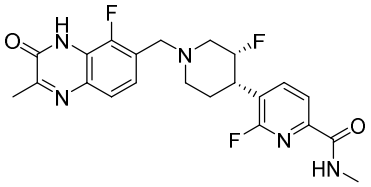
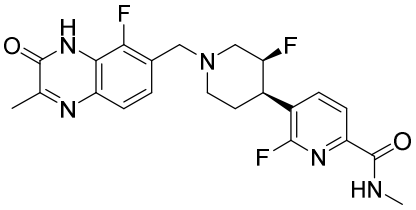
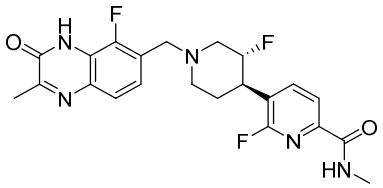
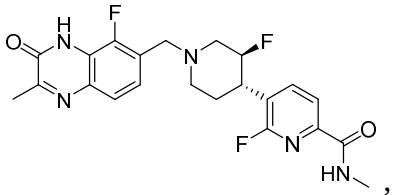
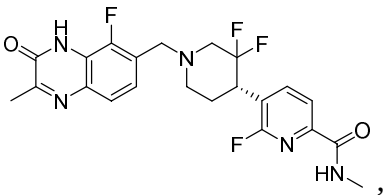
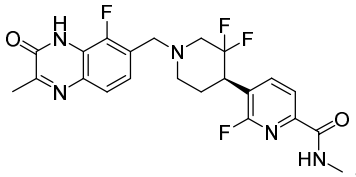
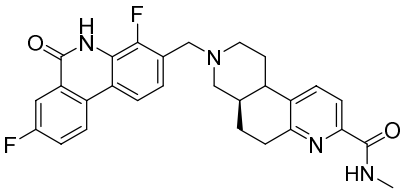
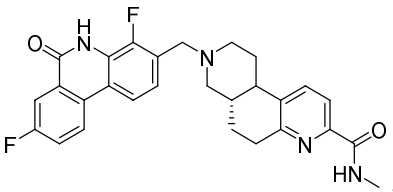
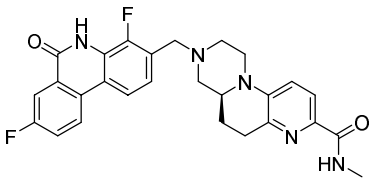
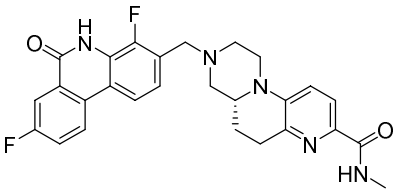
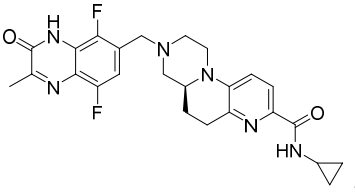
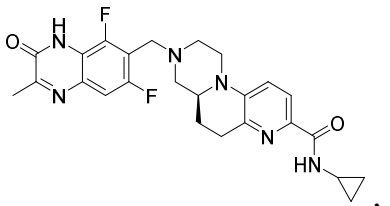
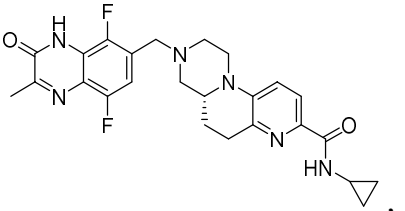
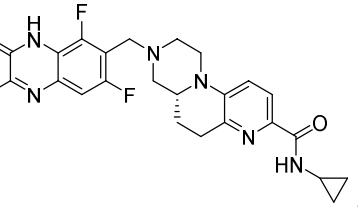
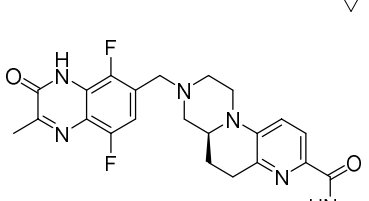
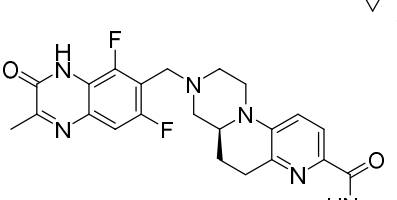
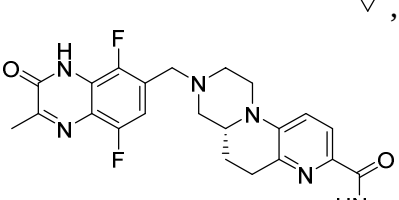
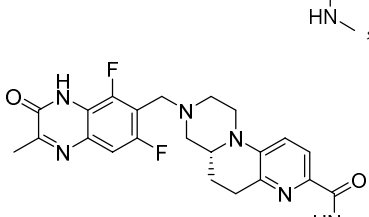
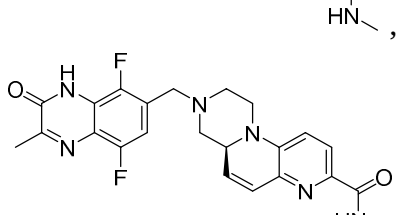
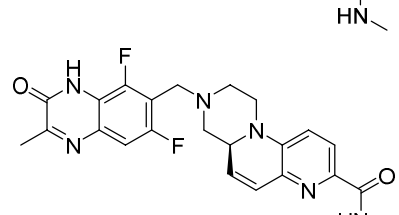
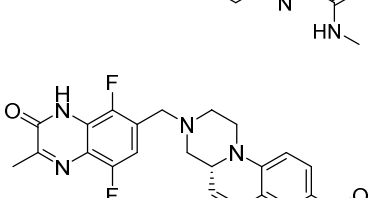
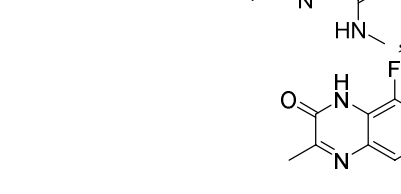
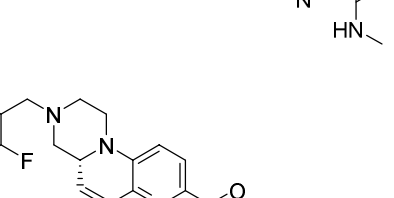
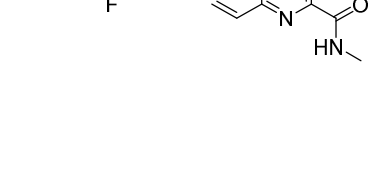
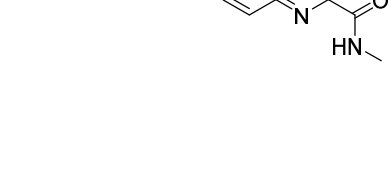
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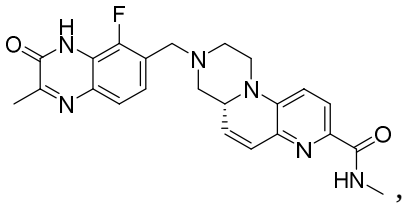
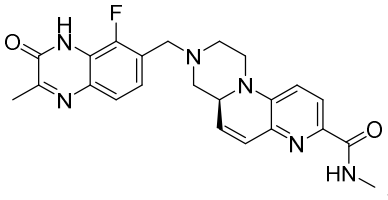
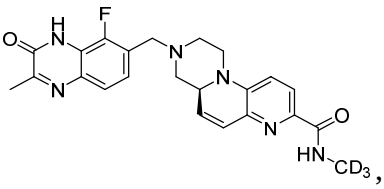
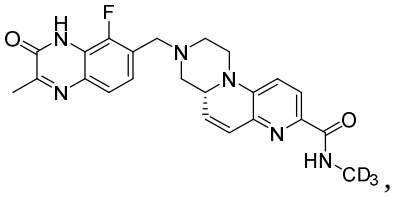
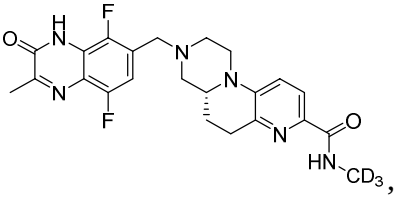
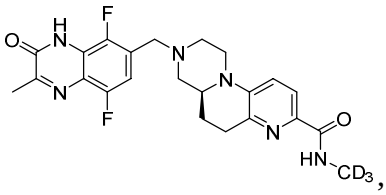
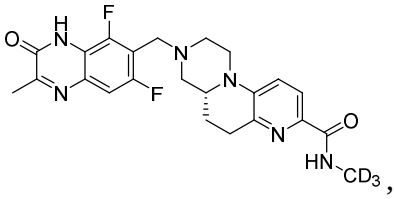
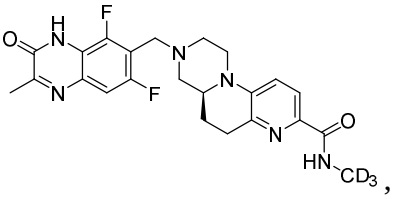
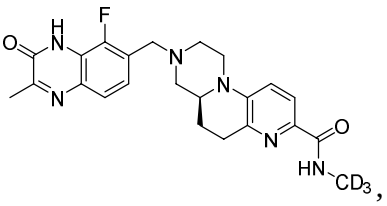
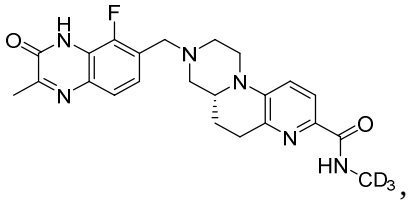
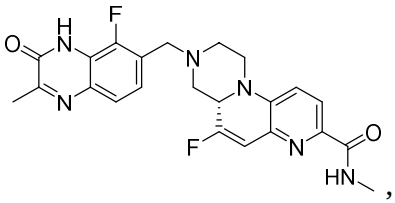
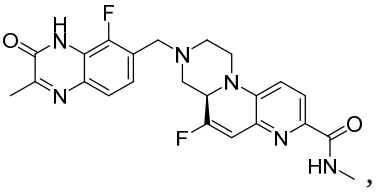
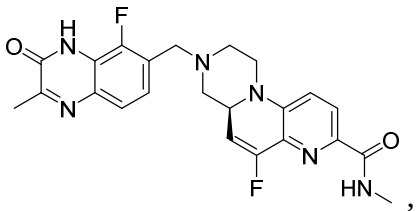
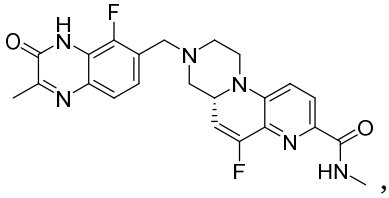
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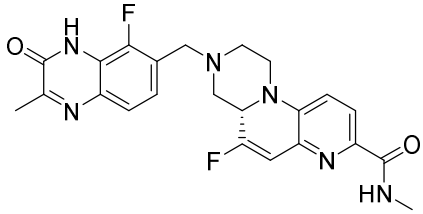
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12. The compound or the pharmaceutically acceptable salt thereof according to claim 11, wherein the compound is selected from:

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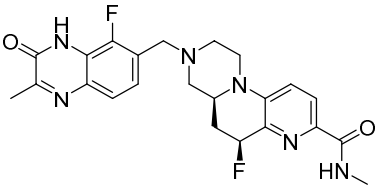
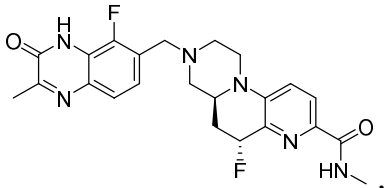
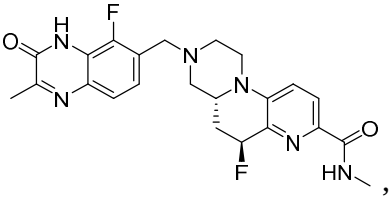
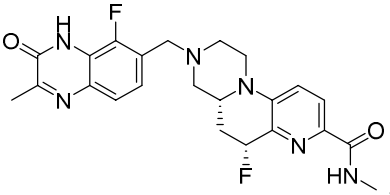
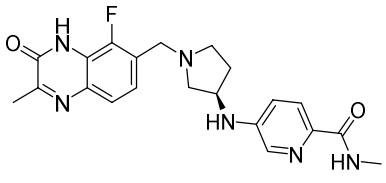
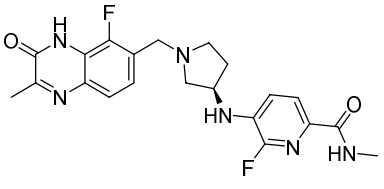
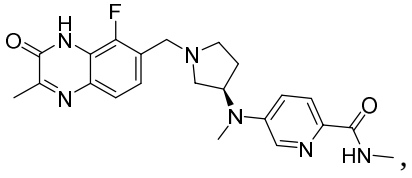
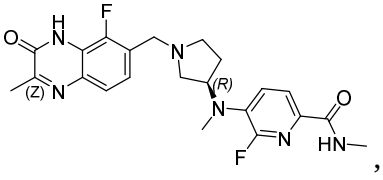
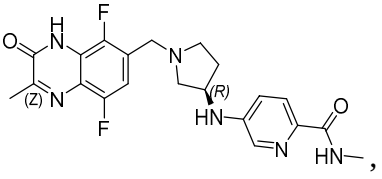

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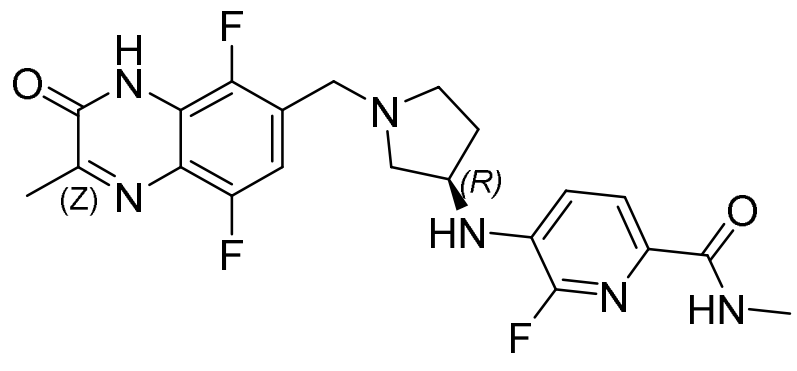
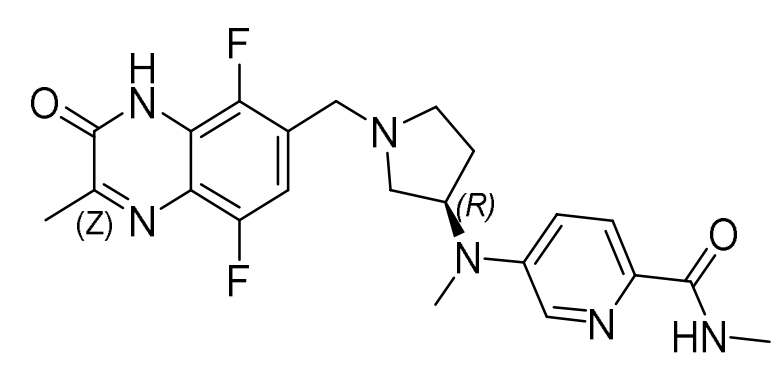
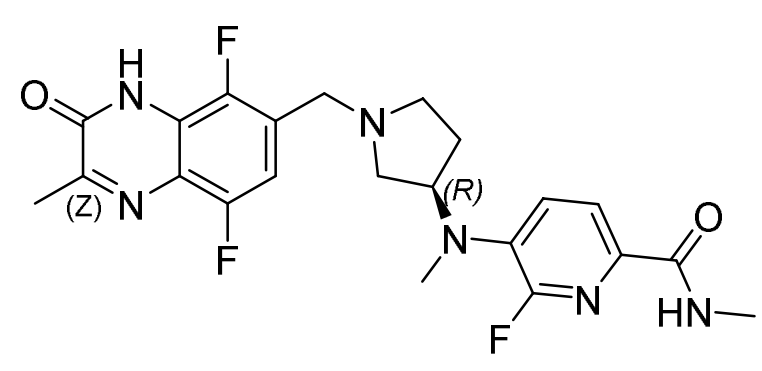
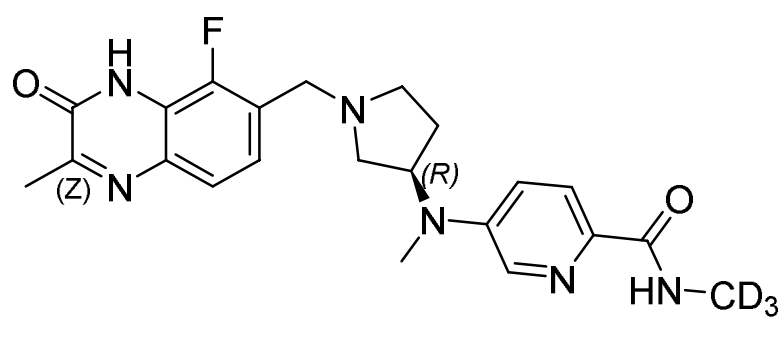
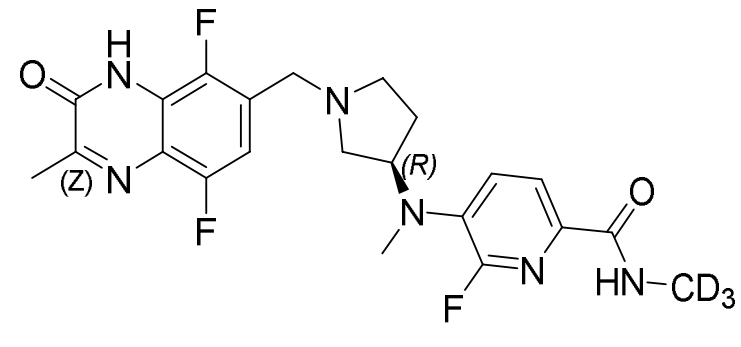
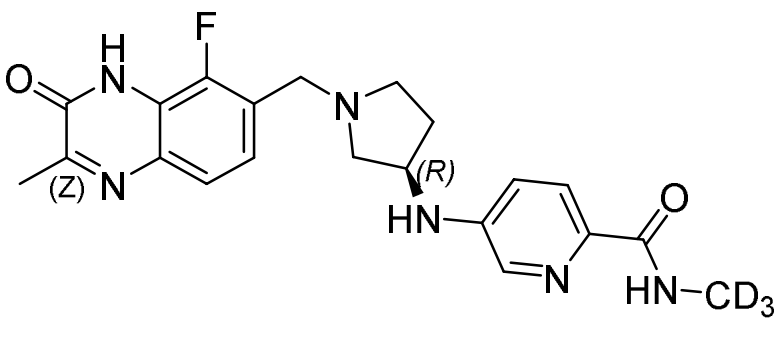
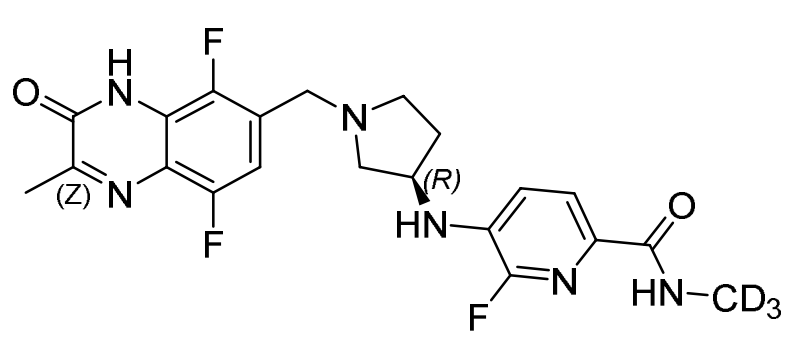
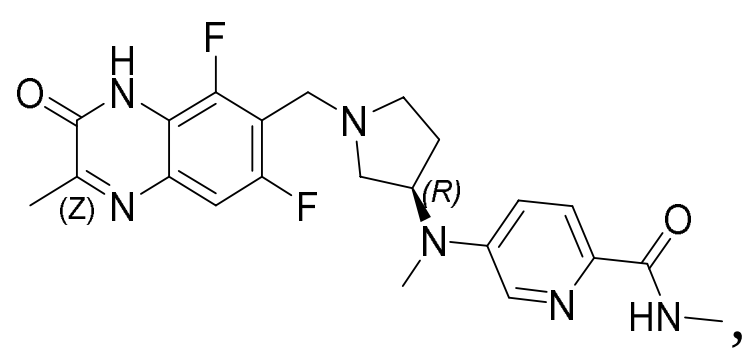
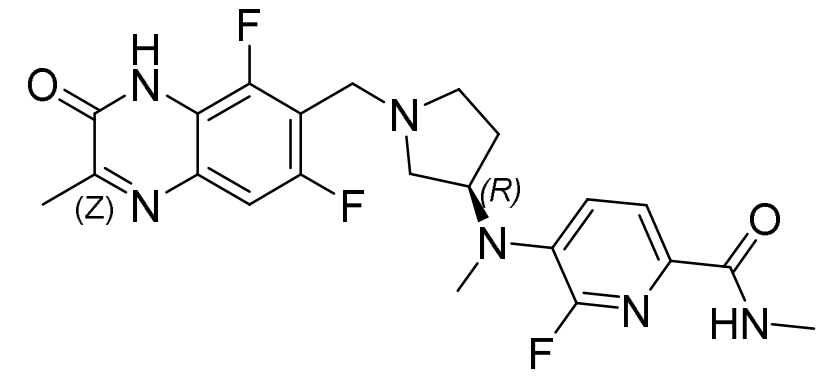
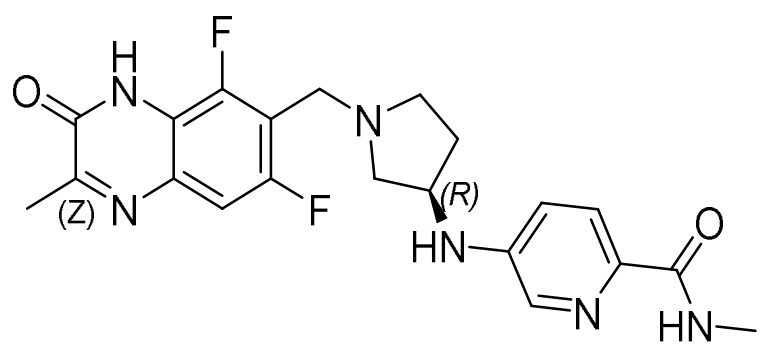
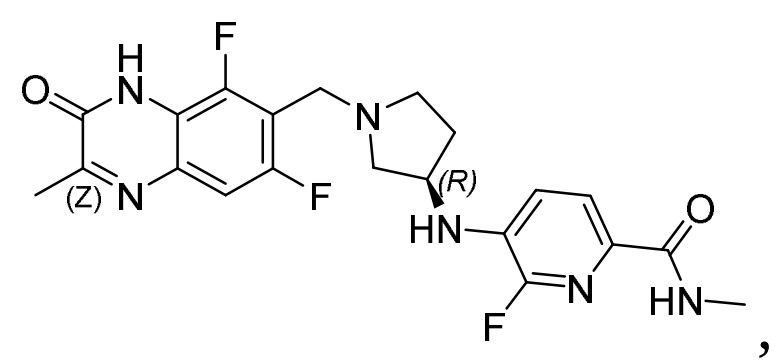
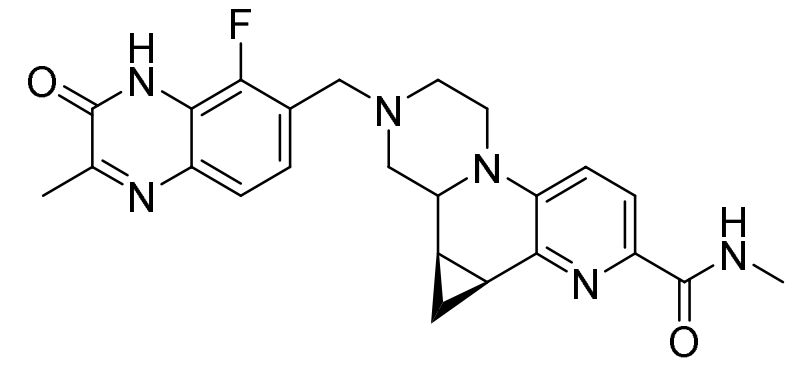
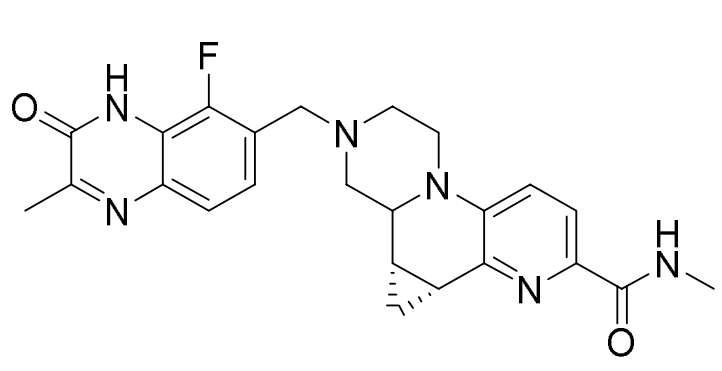
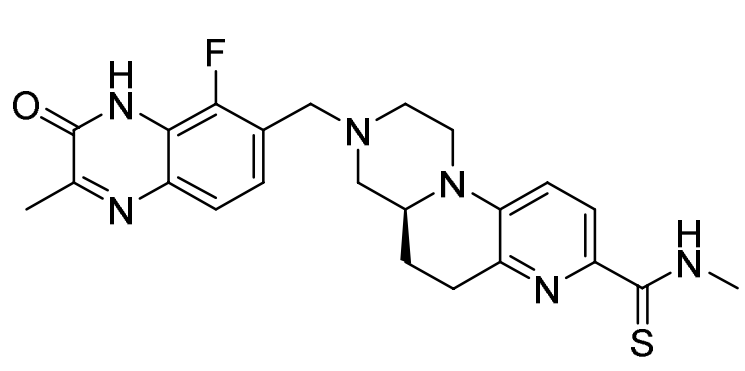
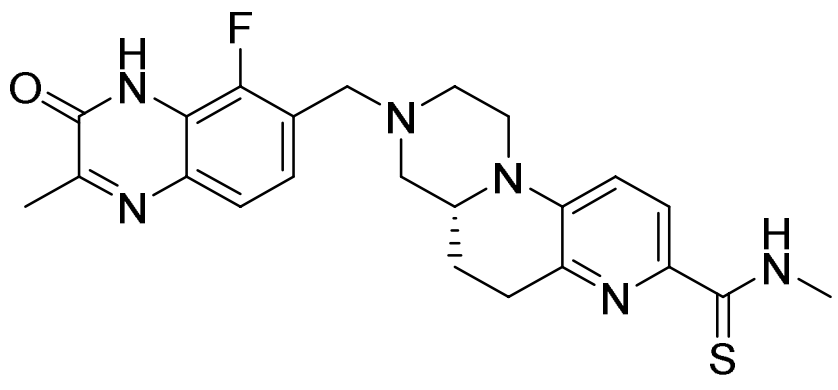
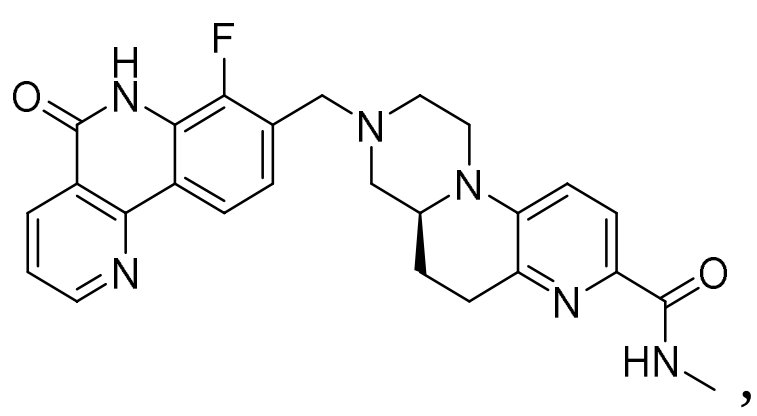
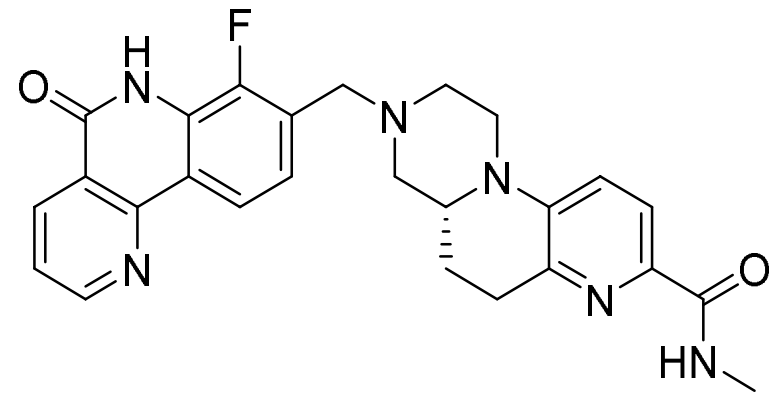
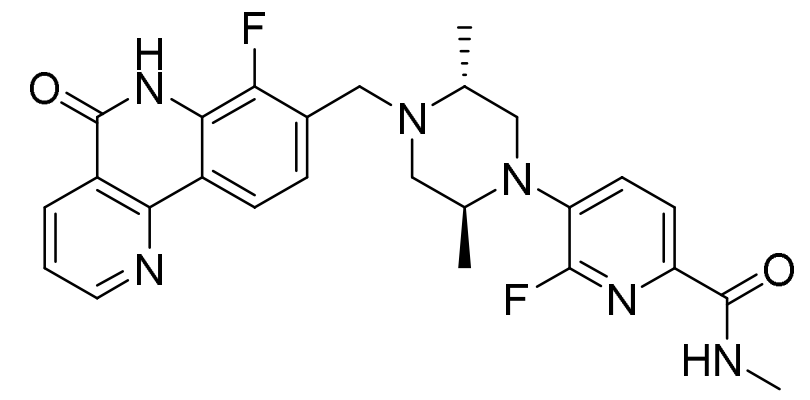
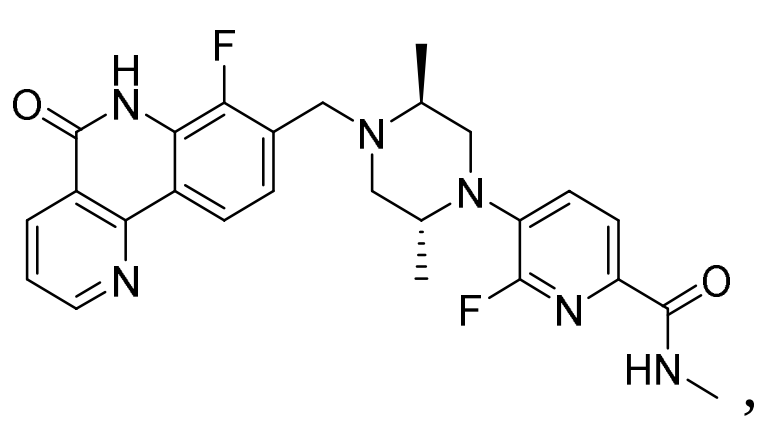
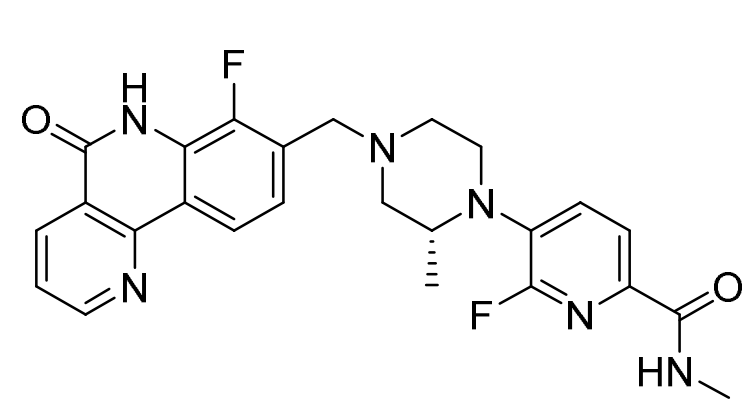
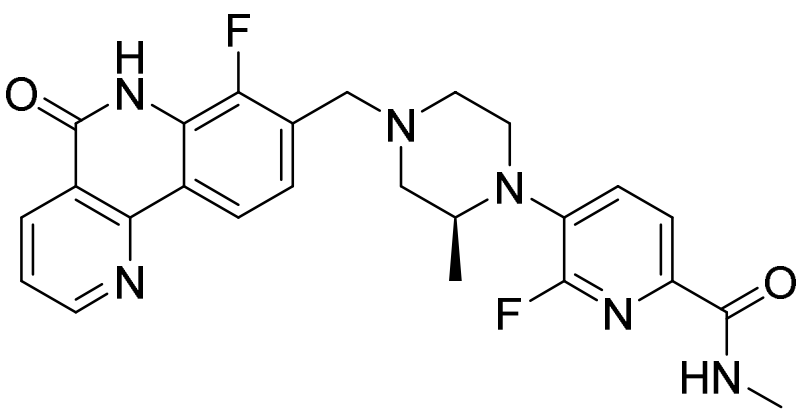
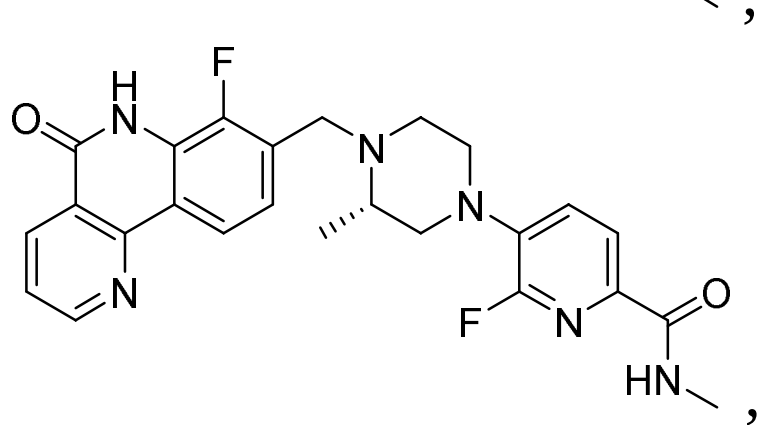
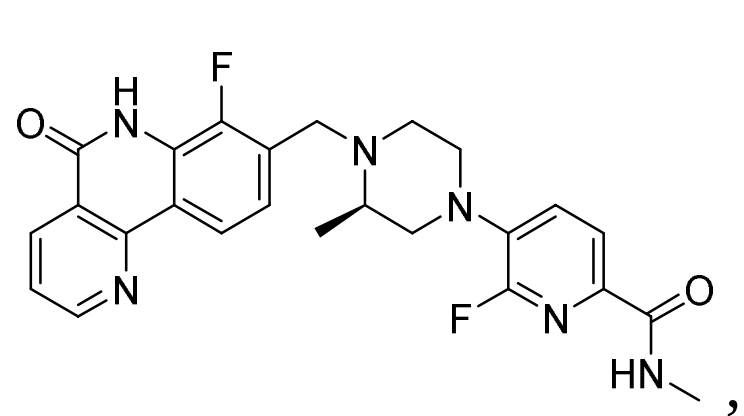
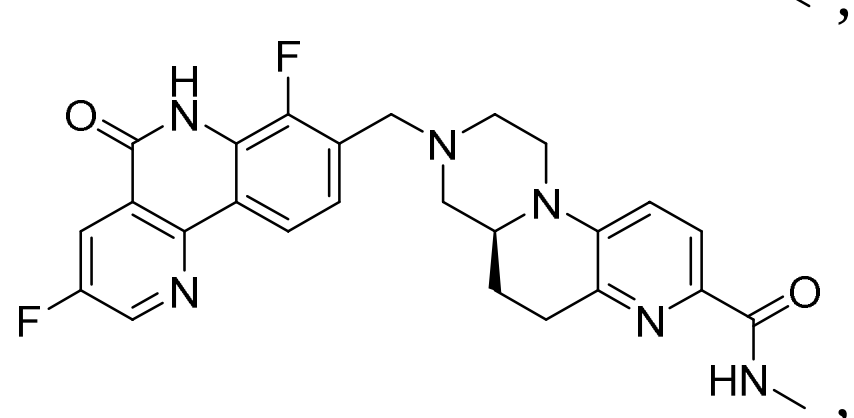
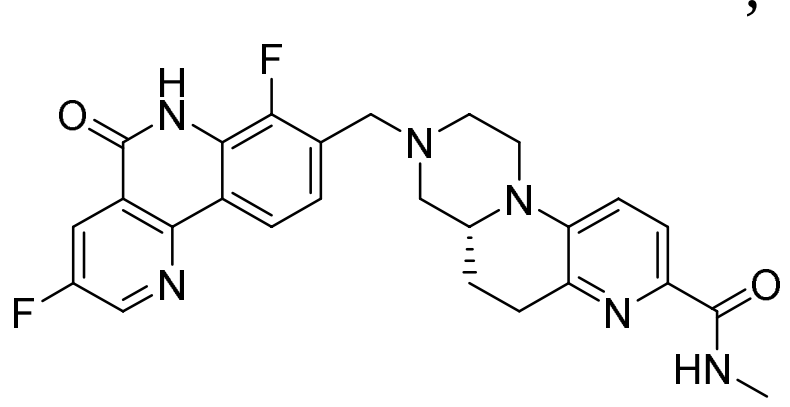
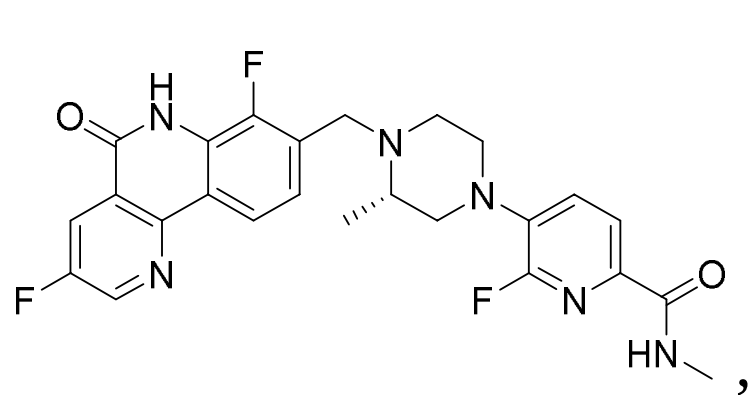
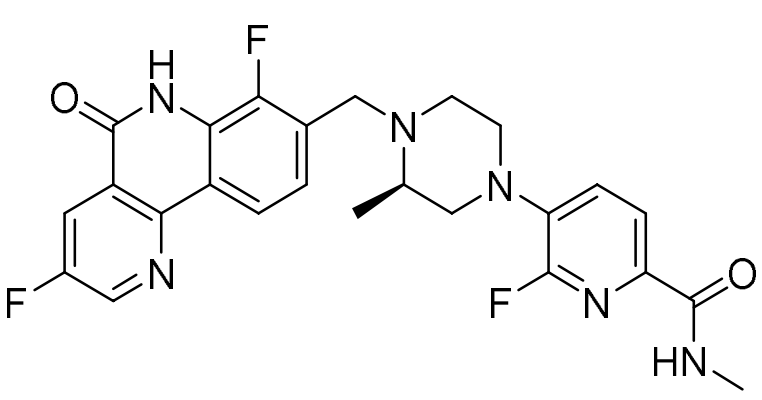

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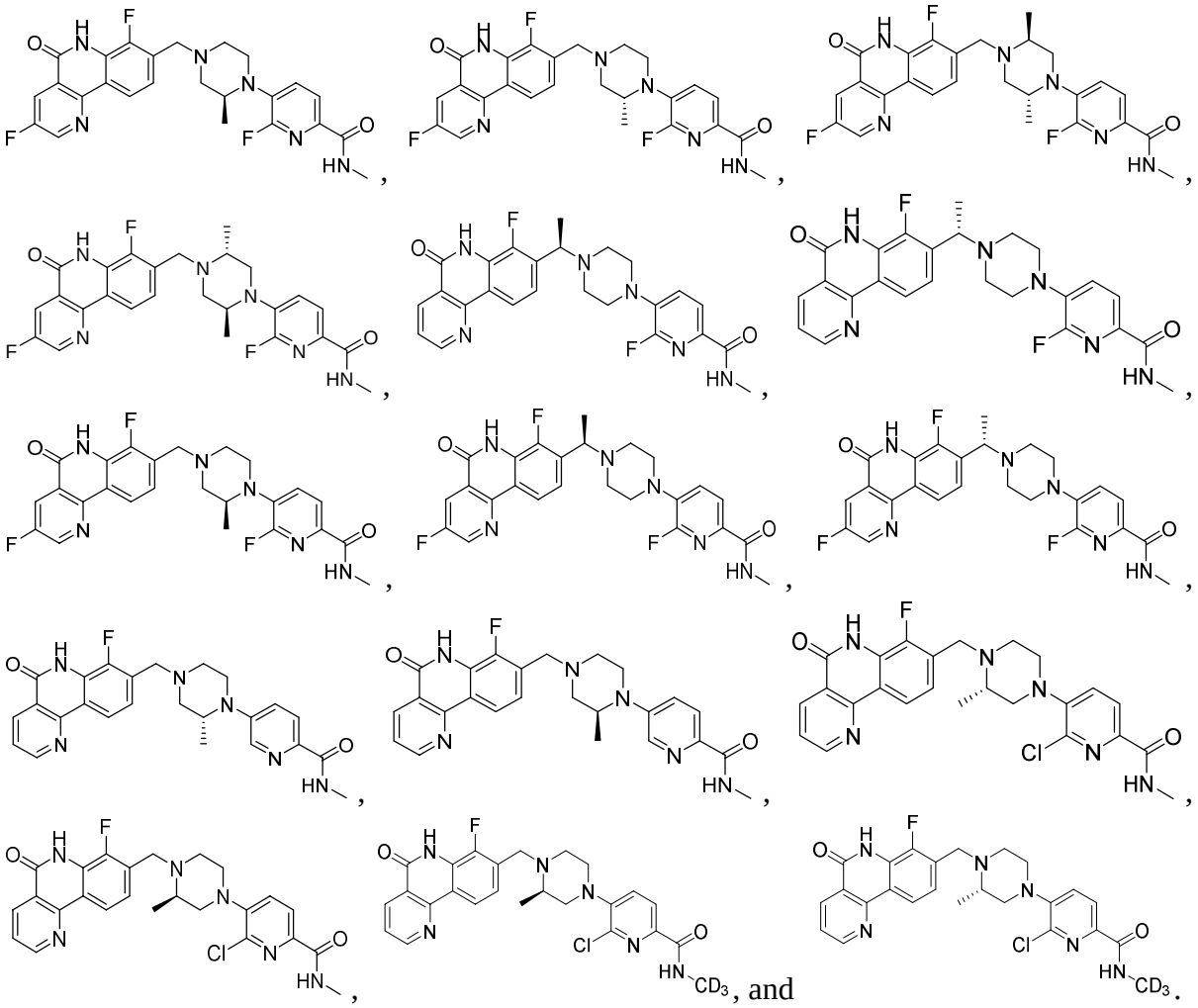
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13. A pharmaceutical composition comprising a therapeutically effective amount of the compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 12 as an active ingredient, and a pharmaceutically acceptable carrier, diluent, or excipient.

14. A use of the compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 12 or the composition according to claim 13 in the manufacture of a medicament for treating solid tumors.

15. The use according to claim 14, wherein the solid tumors refer to solid tumors such as ovarian cancer, breast cancer, prostate cancer, and glioma.