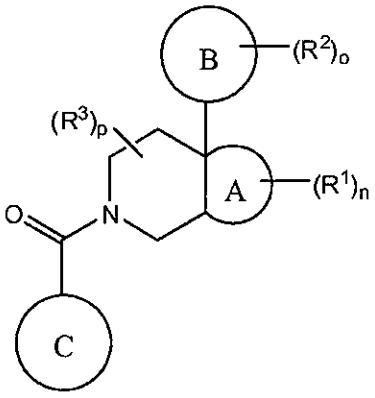
We claim:

1. A compound of formula **I**:



I

or a pharmaceutically acceptable salt thereof,

wherein, independently for each occurrence,

ring A is a fused heterocycloalkyl ring;

ring B is a substituted or unsubstituted aryl or heteroaryl ring;

ring C is a substituted or unsubstituted aryl or heteroaryl ring;

R^1 is C1-C6 alkyl, C1-C6 alkoxy, halo, fluoro-C1-C6 alkyl, fluoro-C1-C6 alkoxy, or oxo;

R^2 is C1-C6 alkyl, C1-C6 alkoxy, halo, CN, fluoro-C1-C6 alkyl, fluoro-C1-C6 alkoxy, $N(R^7)_2$, $NR^7SO_2R^7$, SO_2R^7, CO_2R^7, $SO_2N(R^7)_2$, or (C1-C8)-R^8 wherein up to two CH_2 units may be replaced with O, CO, CF_2, or NR^7;

R^3 is C1-C6 alkyl, C1-C6 alkoxy, halo, CN, fluoro-C1-C6 alkyl, or fluoro-C1-C6 alkoxy;

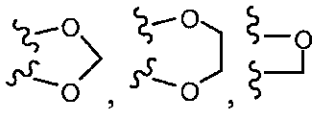
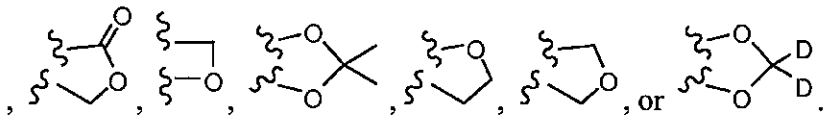
n, o, and p are integers from 0 to 4 inclusive;

R^7 is H, C1-C6 alkyl, CHF_2, CF_3, or C3-C8 cycloalkyl; and

R^8 is H, CF_3, CO_2R^7, OH, aryl, heteroaryl, C3-C8 cycloalkyl, heterocycloalkyl, $N(R^7)_2$, NR^7COR^7, $CON(R^7)_2$, CN, or SO_2R^7.

2. The compound of claim 1, wherein R^2 is C1-C6 alkyl, C1-C6 alkoxy, fluoro-C1-C6 alkyl, halo, CN, or (C1-C8)-R^8 wherein up to two CH_2 units may be replaced with O, CO, CF_2, or NR^7.

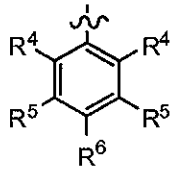
3. The compound of claim 1 or claim 2, wherein R^2 is CH_3, OCH_3, CF_3, F, Cl, Br, CN, OCH_2CH_2OtBu, $OCH_2CH(CH_3)_2$.

4. The compound of any one of claims 1 to 3, wherein ring A is , , or .

5. The compound of any one of claims 1 to 4, wherein ring C is a substituted or unsubstituted aryl ring.

6. The compound of any one of claims 1 to 4, wherein ring C is substituted or unsubtitued heteroaryl.

7. The compound of any one of claims 1 to 5, wherein ring C is



wherein:

R^4 is H, C1-C6 alkyl, C1-C6 alkoxy, halo, CN, or OH;

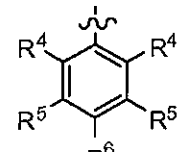
R^5 is H, C1-C6 alkyl, C1-C6 alkoxy, halo, CN, OH, OR^7, $N(R^7)_2$, $NR^7SO_2R^7$, SO_2R^7, CO_2R^7, $SO_2N(R^7)_2$, fluoro-C1-C6 alkyl, or fluoro-C1-C6 alkoxy;

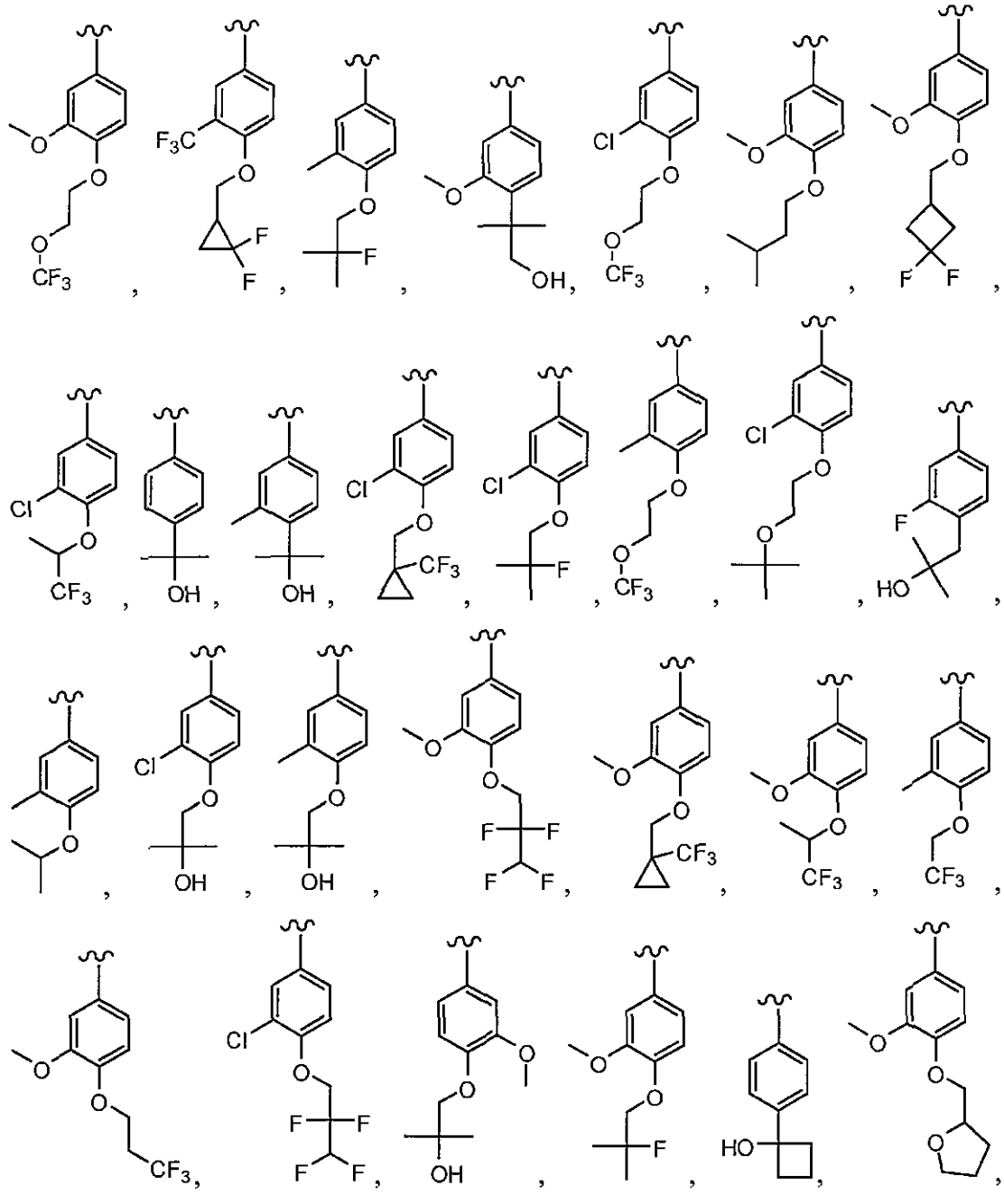
R^6 is H, C1-C6 alkyl, C3-C8 cycloalkyl, C1-C6 alkoxy, halo, CN, OH, OR^7, $N(R^7)_2$, $NR^7SO_2R^7$, SR^7, SOR^7, SO_2R^7, CO_2R^7, NR^7COR^7, $NR^7CO_2R^7$, $CON(R^7)_2$, $SO_2N(R^7)_2$, CF_3, OCF_3, $OCHF_2$, heterocycloalkyl, aryl, heteroaryl, or a straight chain, branched, or cyclic (C1-C8)-R^8 or fluoro-(C1-C8)-R^8 wherein up to three CH_2 units may be replaced with O, CO, S, SO, SO_2, or NR^7; or

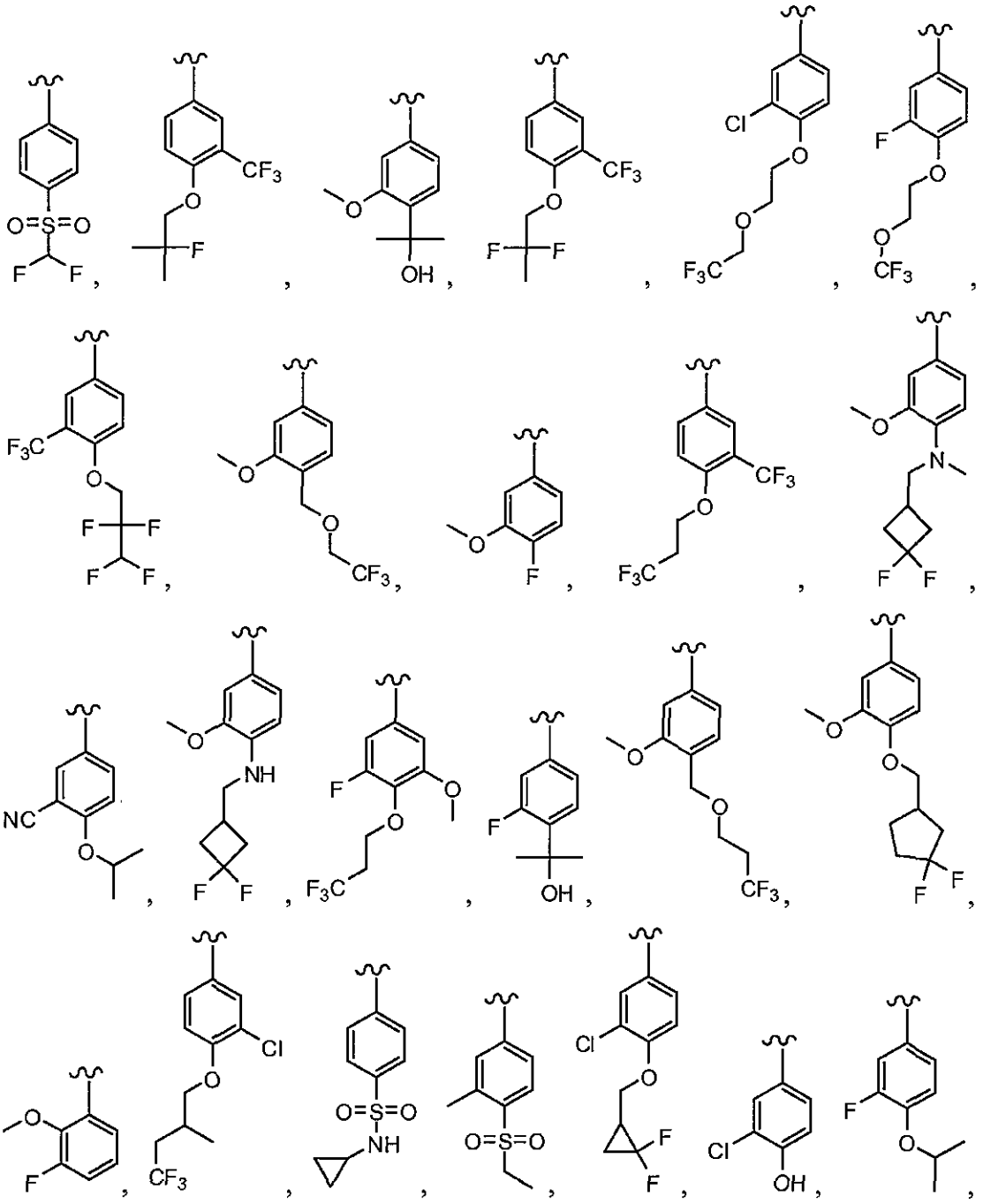
two occurrences of R^4 and R^5, or R^5 and R^6 together with the carbons to which they are attached form an optionally substituted ring comprising up to 2 heteroatoms.

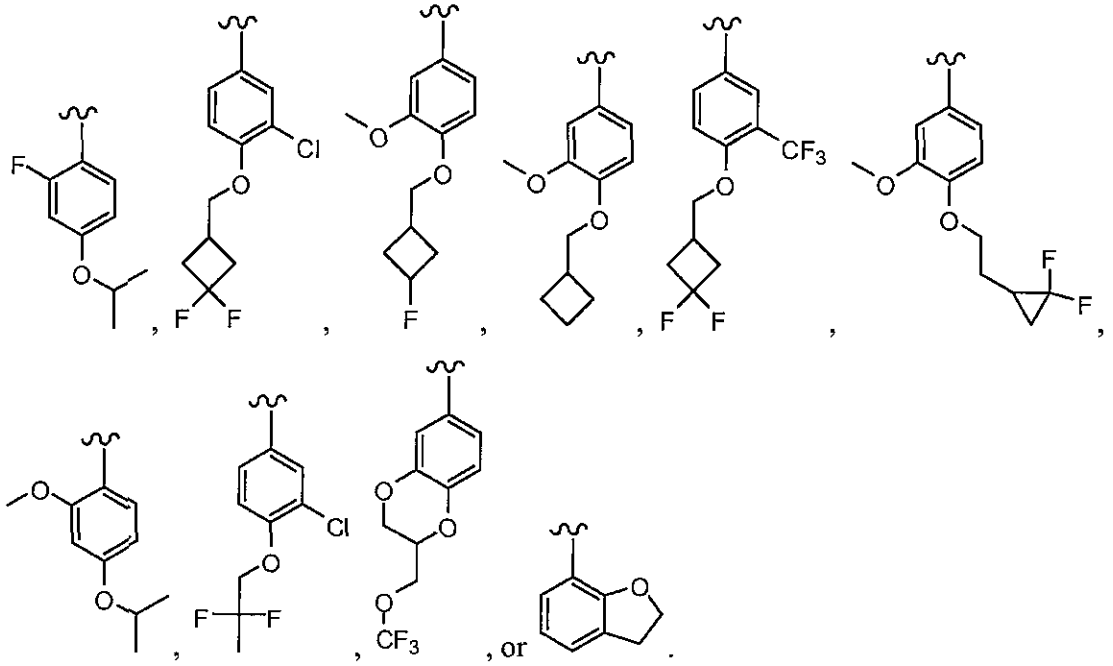
8. The compound of claim 7, wherein R^4 is H, C1-C6 alkoxy, or halo, optionally wherein R^4 is H, OCH_3, or F.

9. The compound of claim 7 or claim 8, wherein R^5 is H, CH_3, OCH_3, F, Cl, CN, OH, or CF_3.

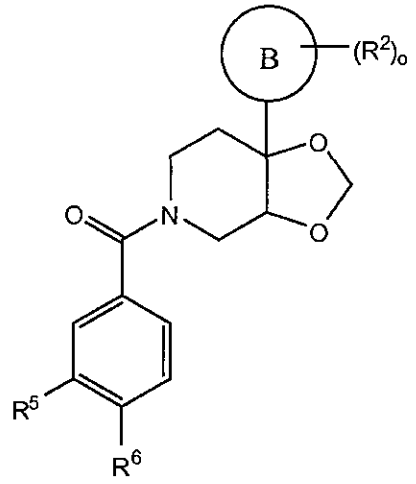
10. The compound of claim 7, wherein  is selected from:







11. The compound of claim 1, wherein the compound has formula **IA**:



IA

or a pharmaceutically acceptable salt thereof,

wherein, independently for each occurrence,

ring B is an aryl or heteroaryl ring;

R^2 is C1-C6 alkyl, C1-C6 alkoxy, halo, CN, fluoro-C1-C6 alkyl, fluoro-C1-C6 alkoxy, $N(R^7)_2$, $NR^7SO_2R^7$, SO_2R^7, CO_2R^7, $SO_2N(R^7)_2$, or (C1-C8)-R^8 wherein up to two CH_2 units may be replaced with O, CO, CF_2, or NR^7;

o is an integer from 0 to 4 inclusive;

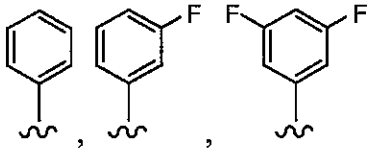
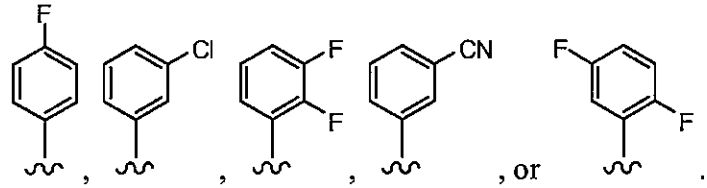
R^5 is H, C1-C6 alkyl, C1-C6 alkoxy, halo, CN, OH, OR^7, $N(R^7)_2$, $NR^7SO_2R^7$, SO_2R^7, CO_2R^7, $SO_2N(R^7)_2$, fluoro-C1-C6 alkyl, or fluoro-C1-C6 alkoxy;

R^6 is H, C1-C6 alkyl, C3-C8 cycloalkyl, C1-C6 alkoxy, halo, CN, OH, OR^7, $N(R^7)_2$, $NR^7SO_2R^7$, SR^7, SOR^7, SO_2R^7, CO_2R^7, NR^7COR^7, $NR^7CO_2R^7$, $CON(R^7)_2$, $SO_2N(R^7)_2$, CF_3, OCF_3, $OCHF_2$, heterocycloalkyl, aryl, heteroaryl, or a straight chain, branched, or cyclic (C1-C8)-R^8 or fluoro-(C1-C8)-R^8 wherein up to three CH_2 units may be replaced with O, CO, S, SO, SO_2, or NR^7;

R^7 is H, C1-C6 alkyl, CHF_2, CF_3, or C3-C8 cycloalkyl; and

R^8 is H, CF_3, CO_2R^7, OH, aryl, heteroaryl, C3-C8 cycloalkyl, heterocycloalkyl, $N(R^7)_2$, NR^7COR^7, $CON(R^7)_2$, CN, or SO_2R^7.

12. The compound of claim 11, wherein R^2 is C1-C6 alkyl, C1-C6 alkoxy, fluoro-C1-C6 alkyl, halo, CN, or (C1-C8)-R^8 wherein up to two CH_2 units may be replaced with O, CO, CF_2, or NR^7, optionally wherein R^2 is CH_3, OCH_3, CF_3, F, Cl, Br, CN, OCH_2CH_2OtBu, $OCH_2CH(CH_3)_2$.

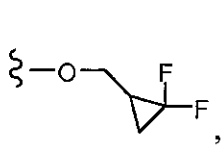
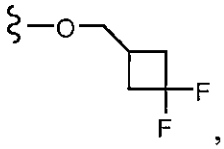
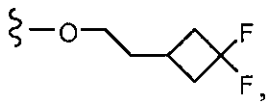
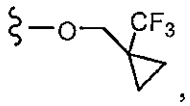
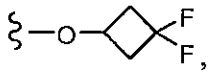
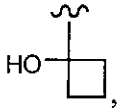
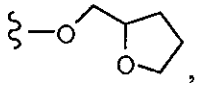
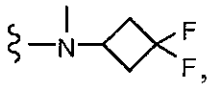
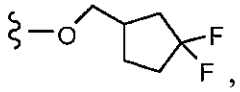
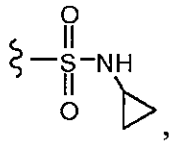
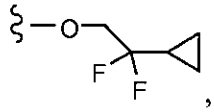
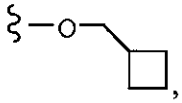
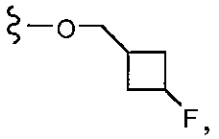
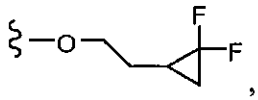
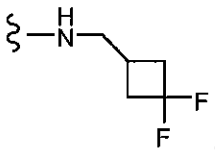
13. The compound of any one of claims 1 to 12, wherein ring B is an aryl ring, optionally wherein ring B is a phenyl ring, optionally wherein ring B is , , or .

14. The compound of any one of claims 1 to 12, wherein ring B is a heteroaryl ring, optionally wherein ring B a pyridyl, thiazole, pyrimidine, pyrazole, furan, thiophene, pyrrole, oxazole, imidazole, isoxazole, isothiazole, pyridazine, or pyrazine ring.

15. The compound of any one of claims 11 to 14, wherein R^5 is H, C1-C6 alkyl, C1-C6 alkoxy, halo, CN, OH, or fluoro-C1-C6 alkyl, optionally wherein R^5 is H, CH_3, OCH_3, F, Cl, CN, OH, or CF_3.

16. The compound of any one of claims 7 to 9 or 11 to 15, wherein R^6 is H, C1-C6 alkoxy, fluoro-C1-C6 alkoxy, SO_2R^7, $SO_2N(R^7)_2$, or a straight chain, branched, or cyclic (C1-C8)-

R^8 or fluoro-(C1-C8)-R^8 wherein up to three CH_2 units may be replaced with O, CO, S, SO, SO_2, or NR^7, optionally wherein R^6 is H, $OCH_2CH_2CF_3$, $OCH_2CF(CH_3)_2$, $C(CH_3)_2CH_2OH$, $OCH_2CH_2CH(CH_3)_2$, $OCH(CH_3)CF_3$, $CH_2OCH_2CH_2CF_3$, $C(CH_3)_2OH$, OCH_2CH_2OtBu, $CH_2C(CH_3)_2OH$, $OCH(CH_3)_2$, $OCH_2C(CH_3)_2OH$, $OCH_2CF_2CHF_2$, OCH_2CF_3, $OCH_2CH_2OCF_3$, $OCH(CH_3)CF_2CHF_2$, SO_2CHF_2, $OCH_2CF_2CH_3$, $OCH_2CH_2OCH_2CF_3$, OCH_2CF_3, $OCH_2C(CH_3)_3$, $OCH_2CH(CH_3)CH_2CF_3$, $SO_2CH_2CH_3$, $OCH(CH_3)CH_2CF_3$, $OCH_2CF_2CHF_2$,

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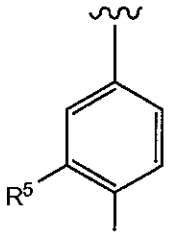
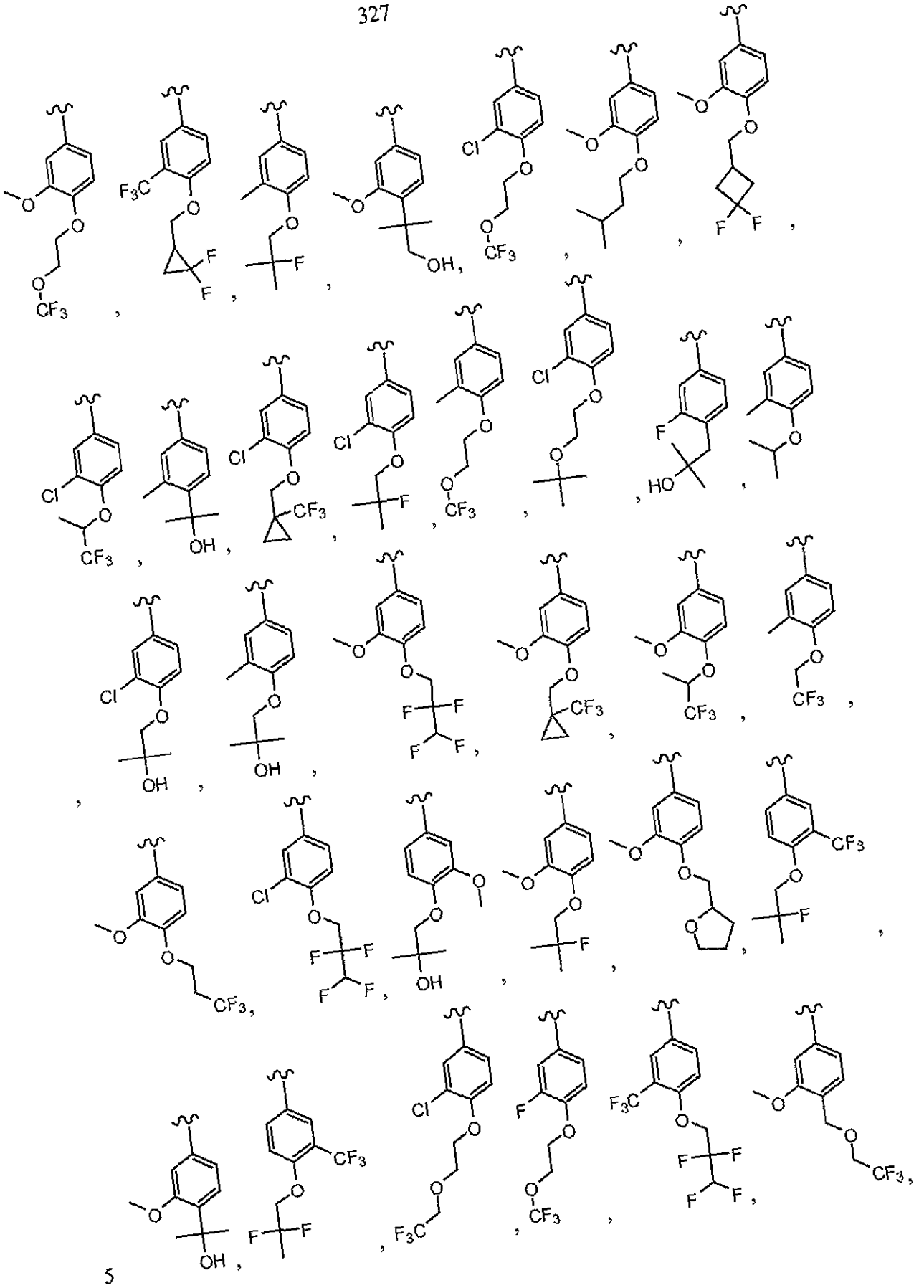
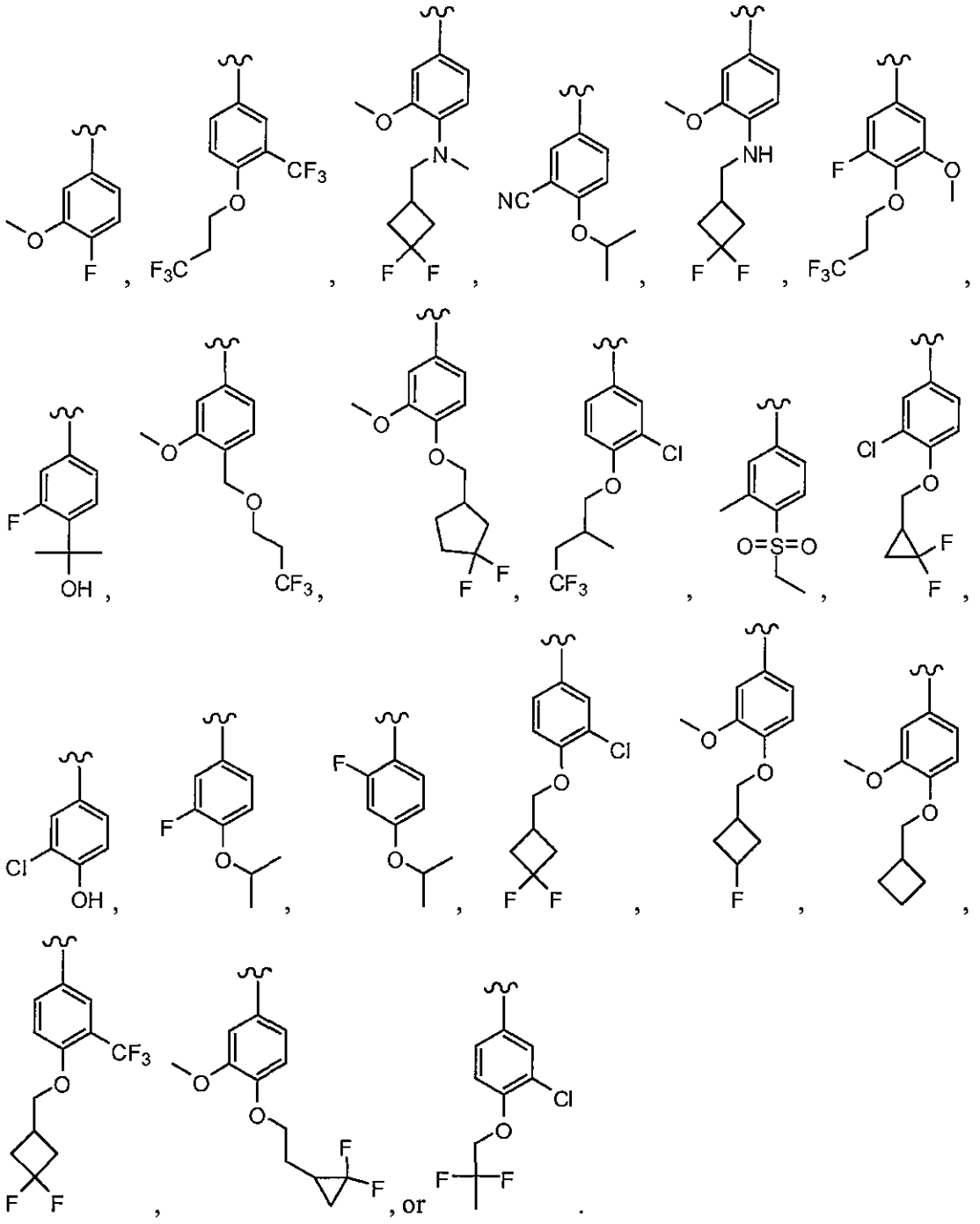
17. The compound of any one of claims 11 to 16, wherein  is selected from:





18. The compound of claim 1, wherein the compound is selected from

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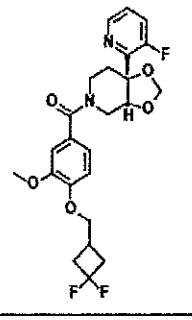	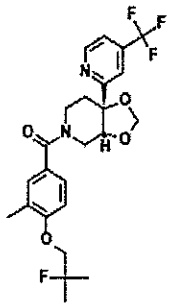	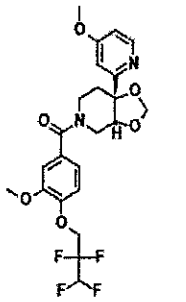
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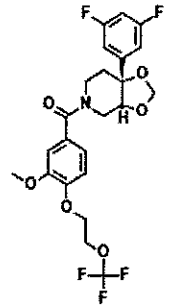	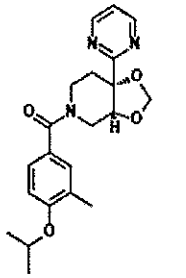	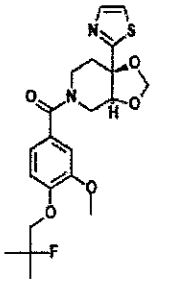
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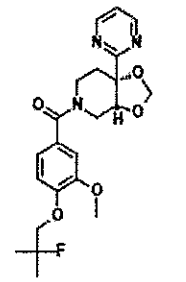	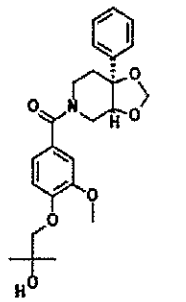	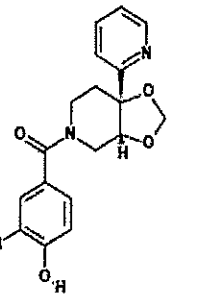
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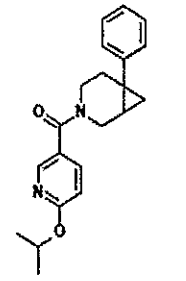	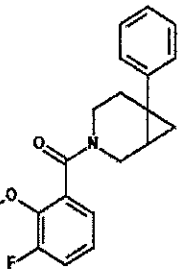	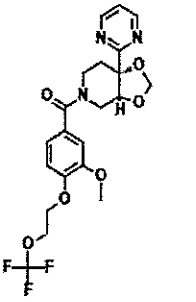

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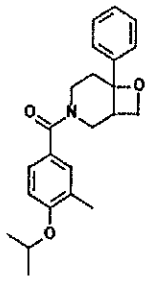	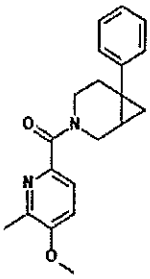	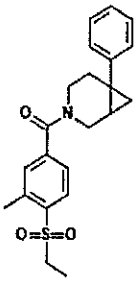
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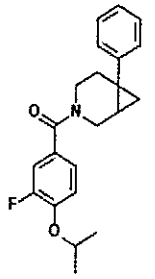	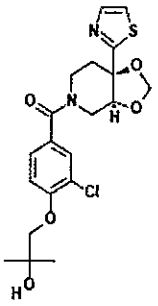	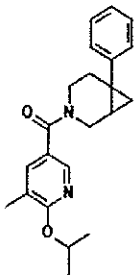
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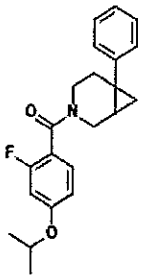	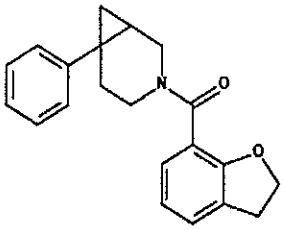	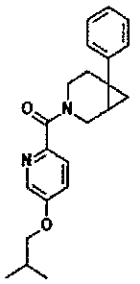
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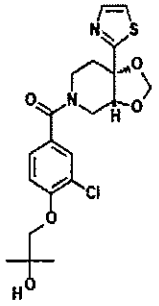	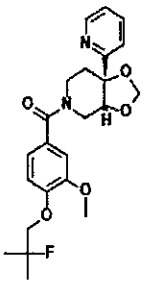	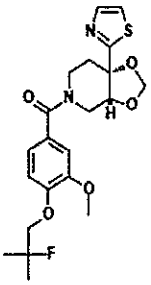

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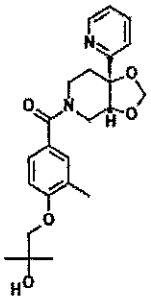	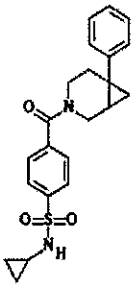	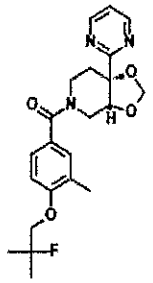
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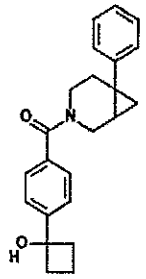	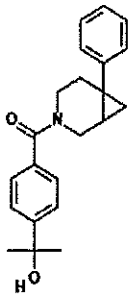	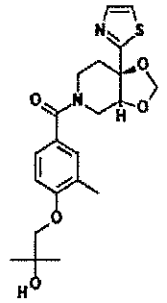
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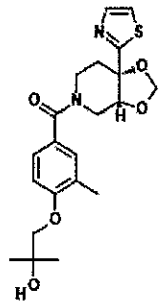	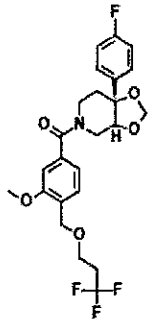	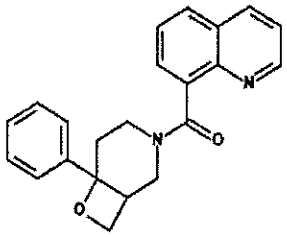
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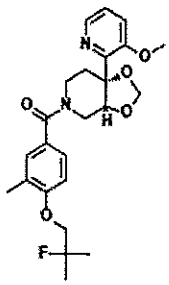	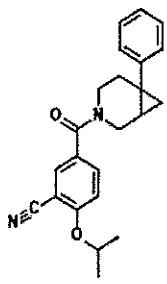	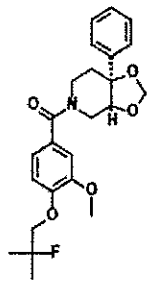

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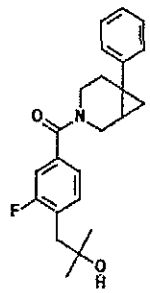	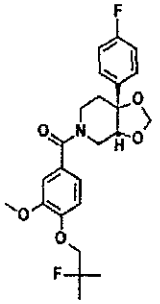	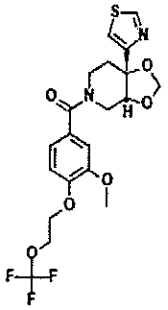
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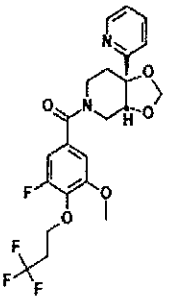	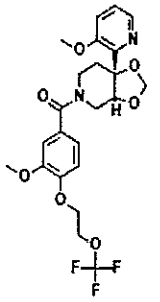	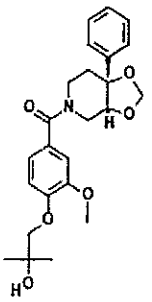
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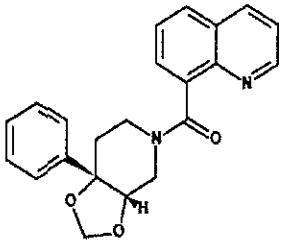	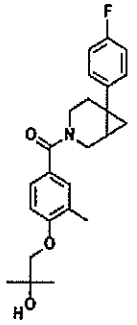	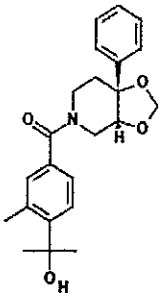
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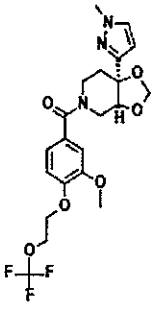	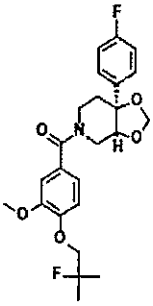	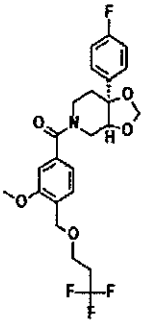

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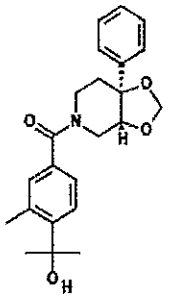	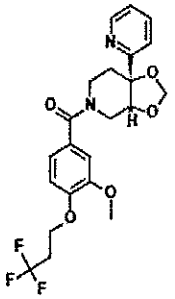	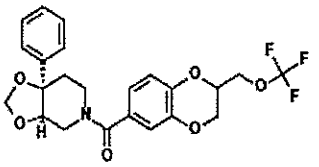
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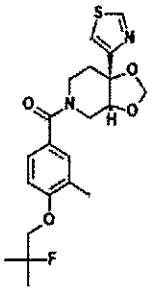	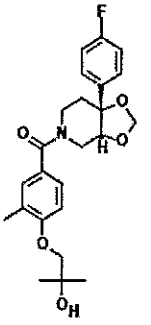	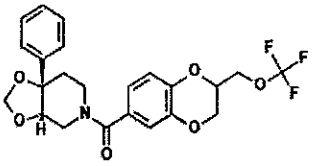
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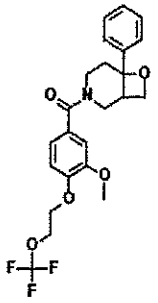	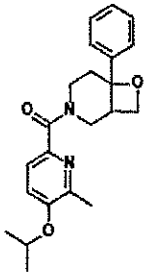	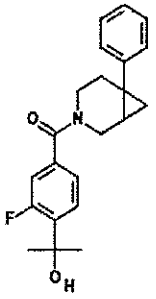
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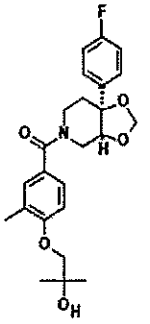	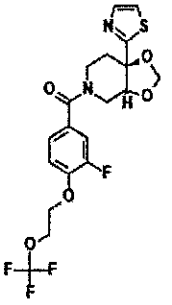	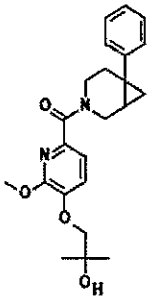

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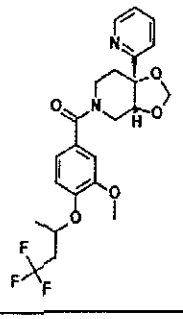	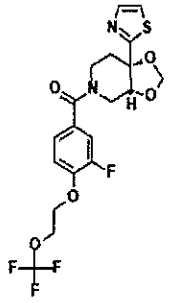	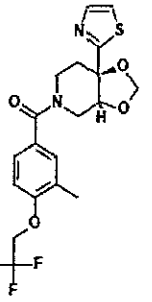
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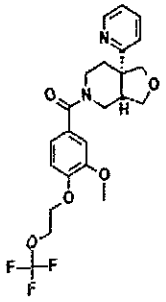	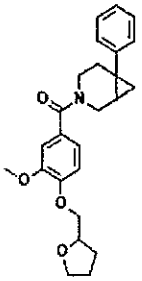	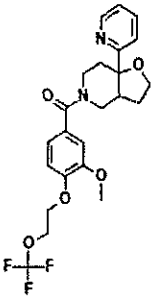
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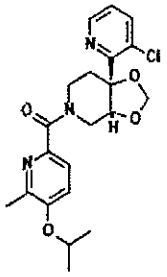	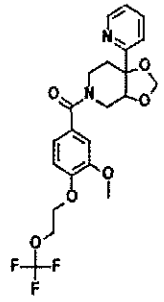	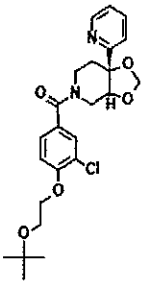
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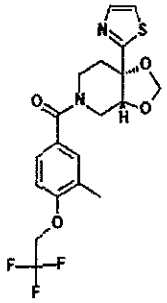	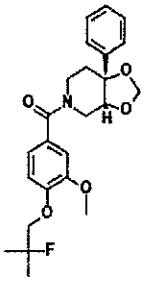	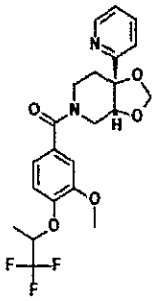

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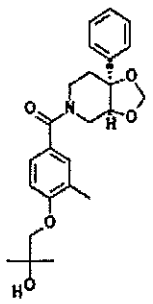	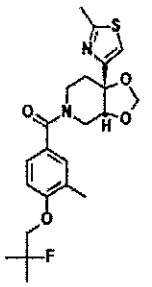	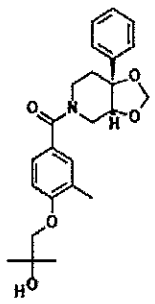
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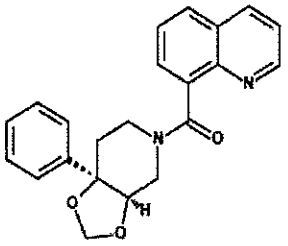	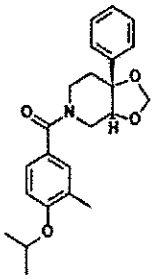	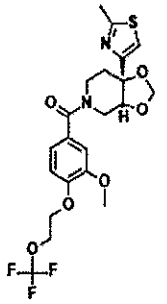
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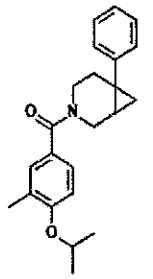	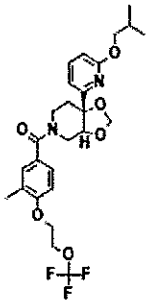	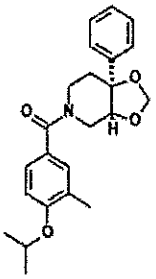
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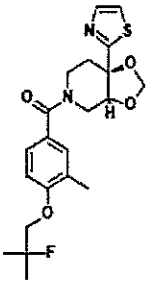	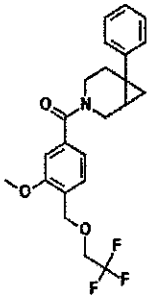	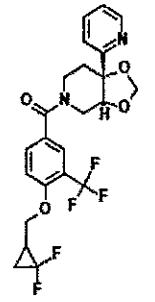

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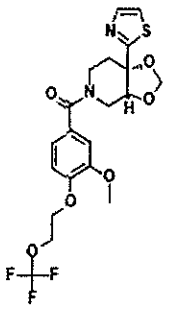	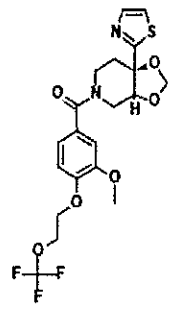	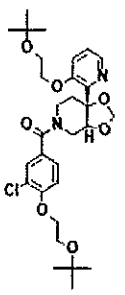
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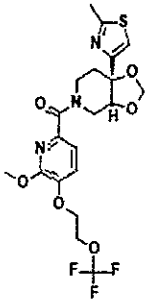	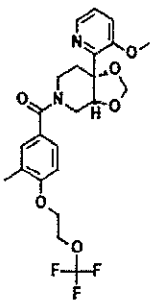	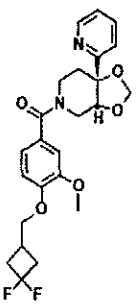
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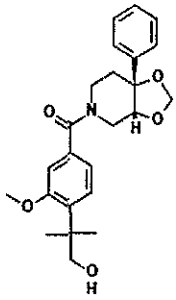	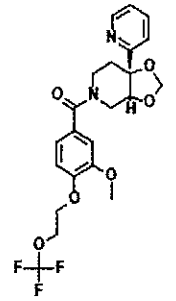	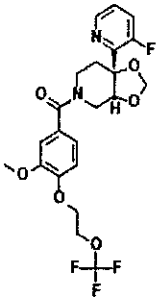
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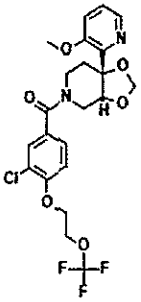	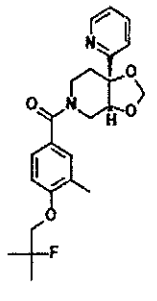	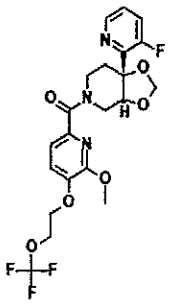

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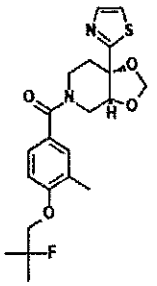	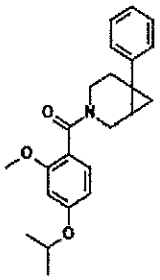	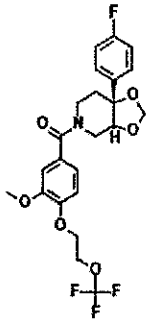
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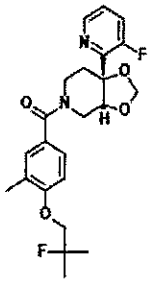	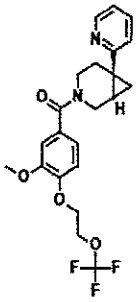	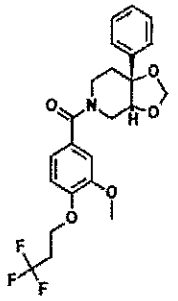
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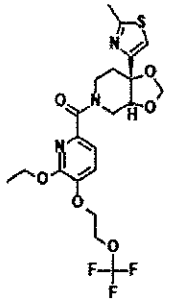	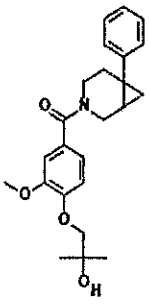	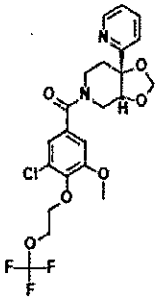
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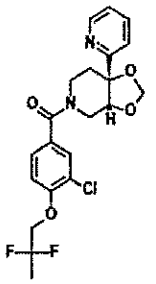	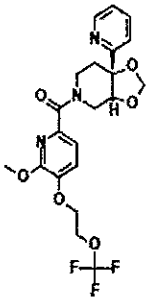	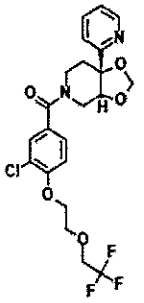

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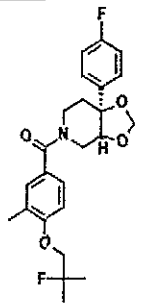	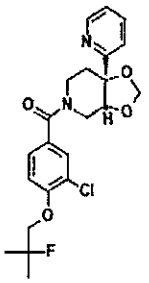	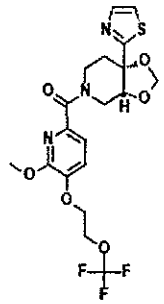
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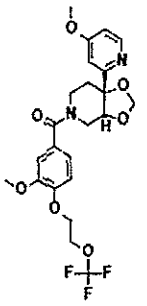	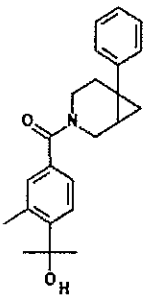	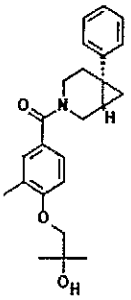
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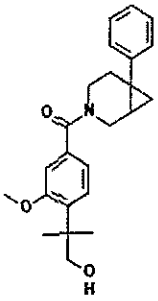	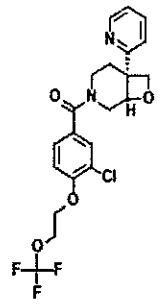	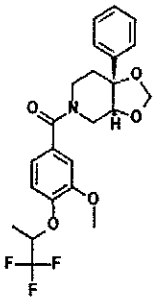
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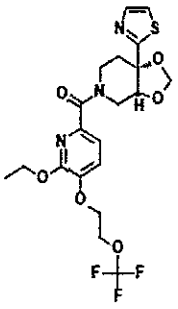	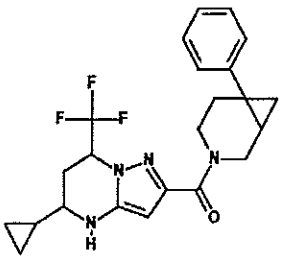	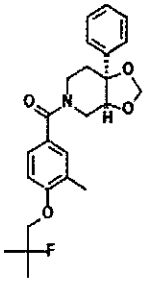

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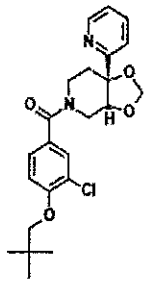	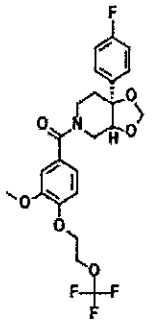	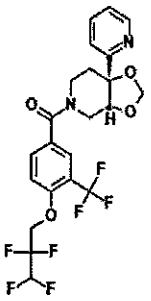
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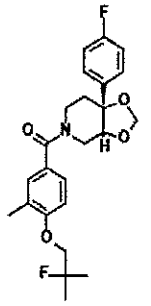	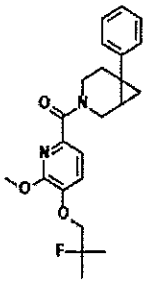	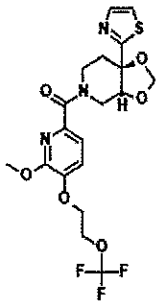
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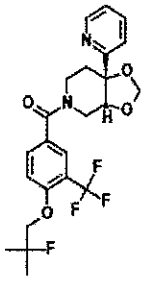	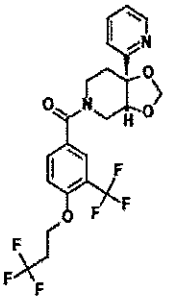	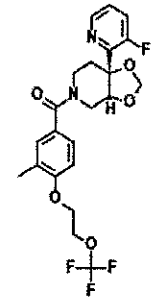
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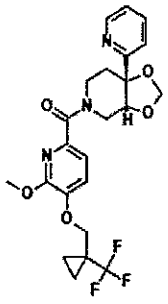	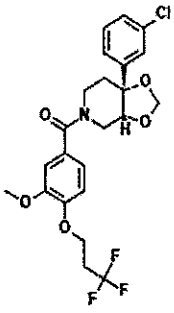	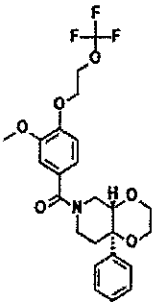

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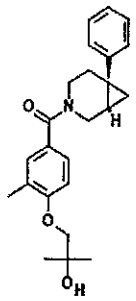	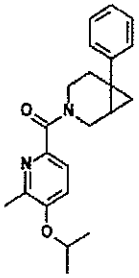	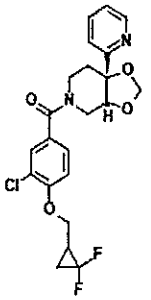
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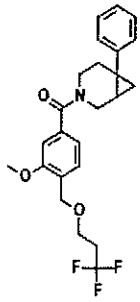	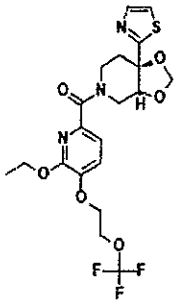	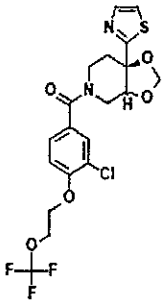
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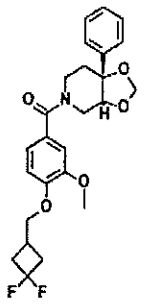	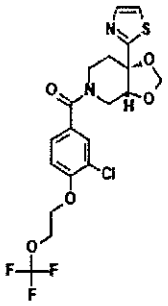	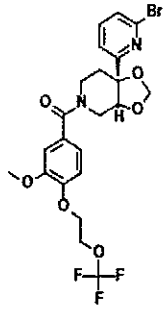
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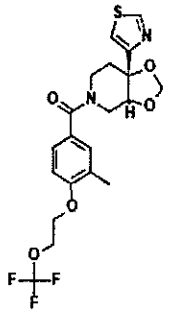	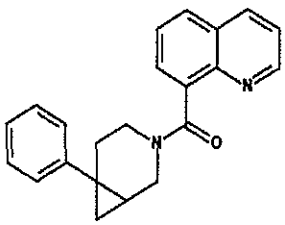	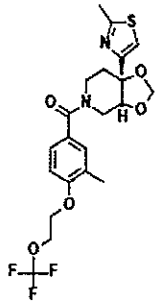

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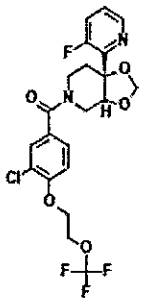	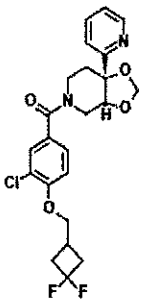	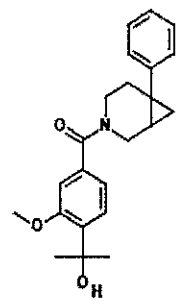
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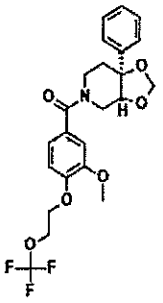	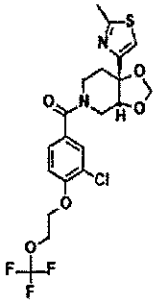	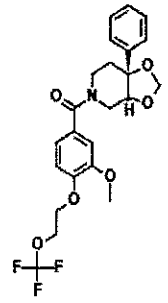
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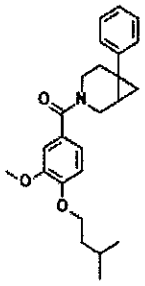	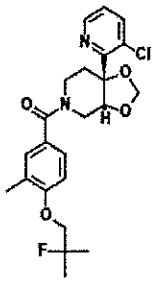	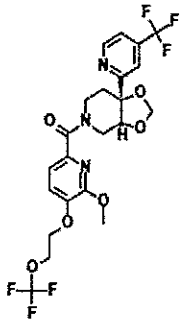
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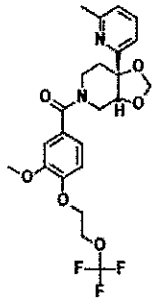	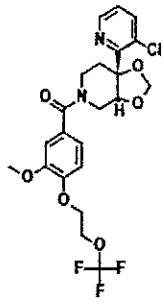	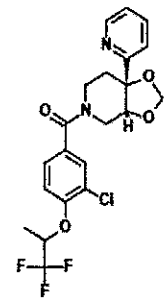

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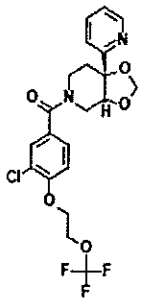	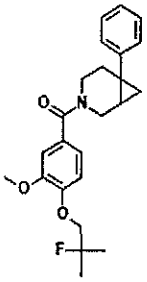	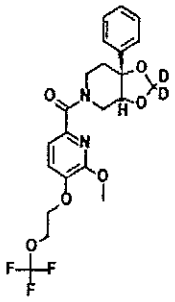
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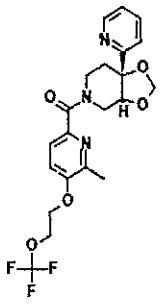	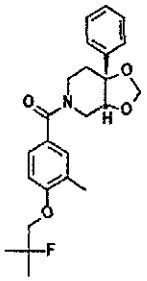	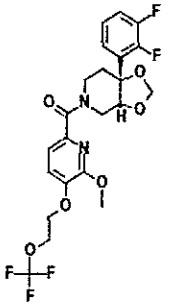
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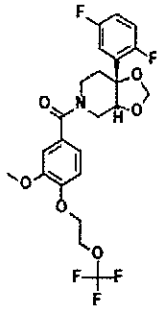	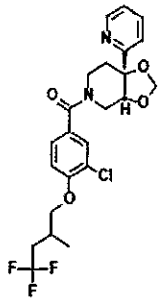	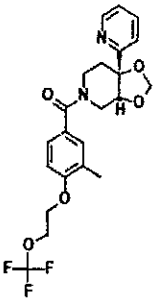
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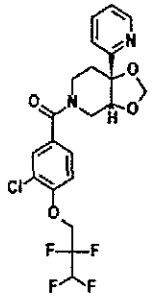	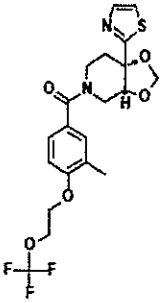	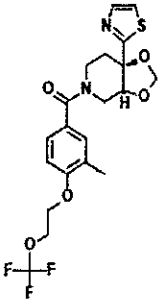

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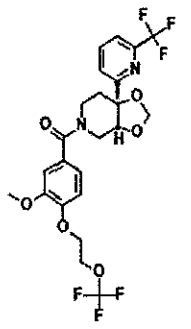	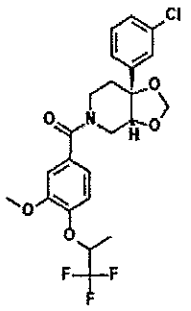	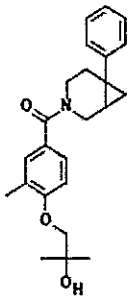
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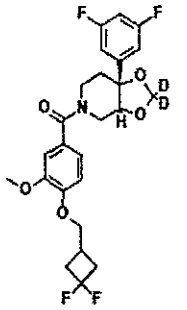	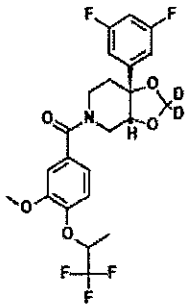	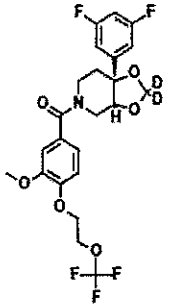
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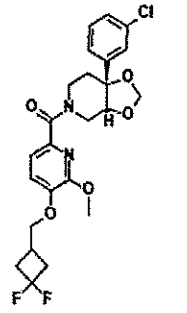	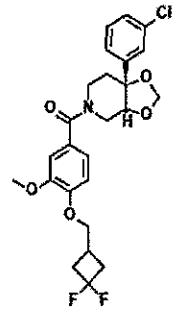	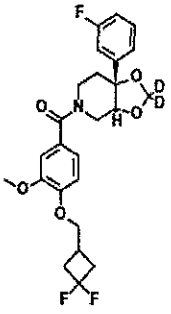
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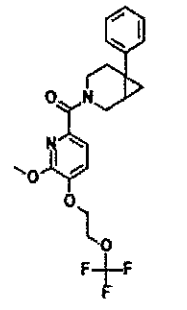	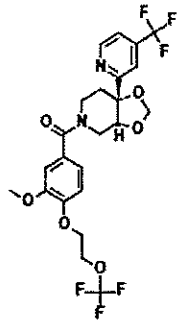	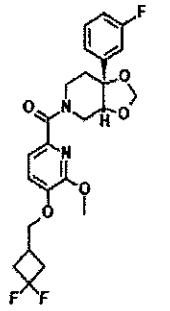

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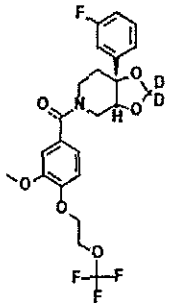	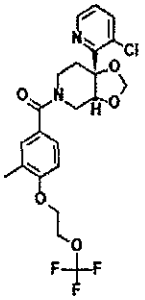	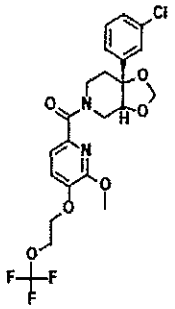
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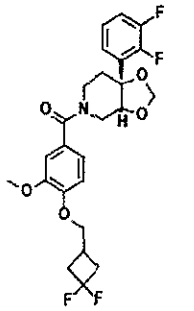	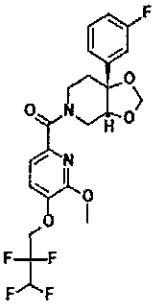	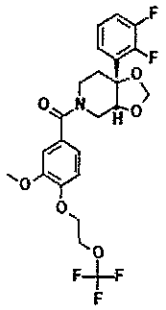
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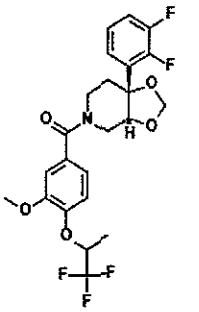	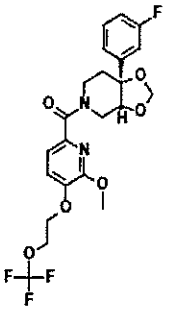	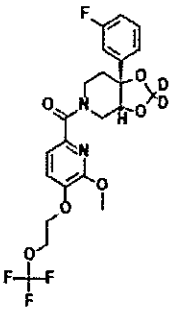
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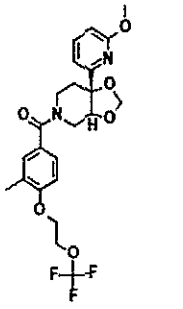	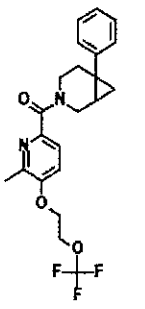	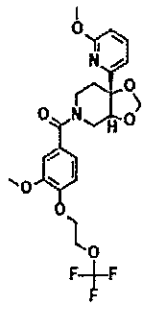

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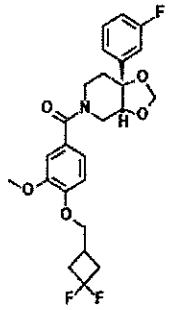	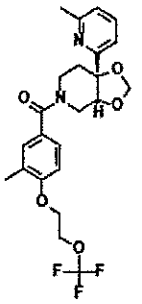	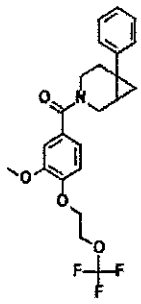
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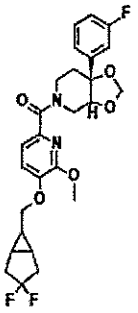	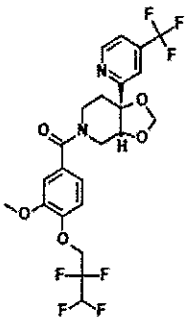	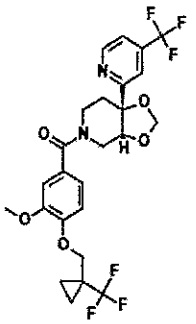
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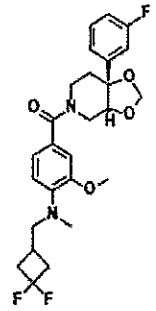	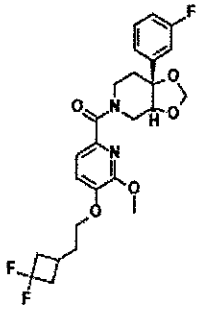	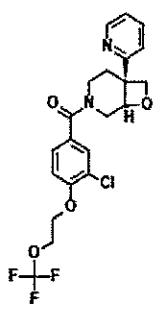
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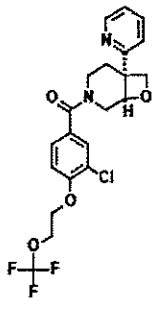	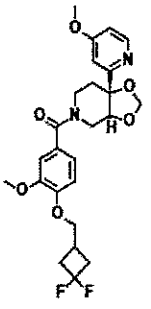	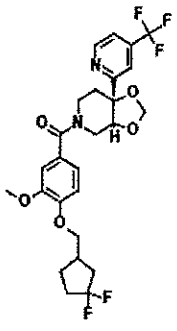

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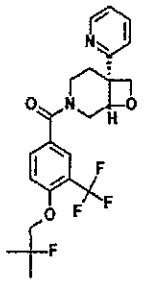	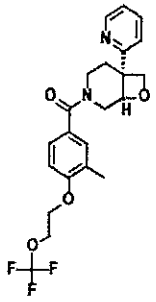	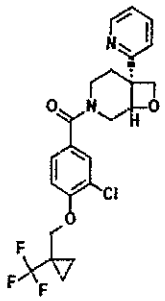
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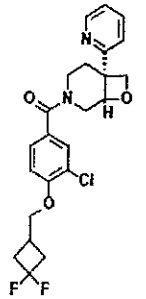	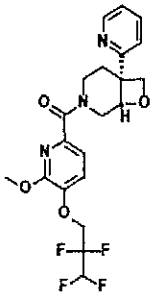	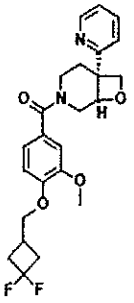
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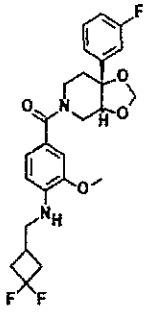	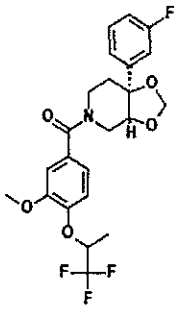	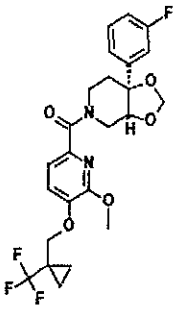
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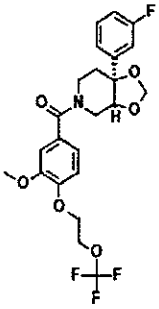	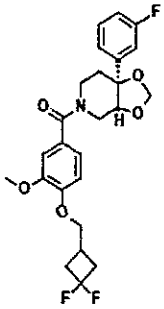	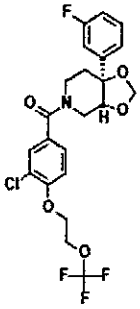

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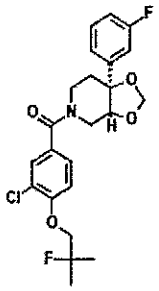	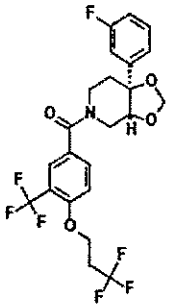	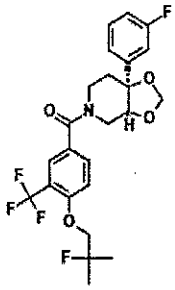
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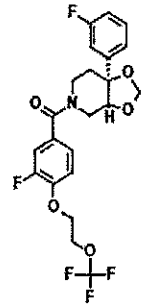	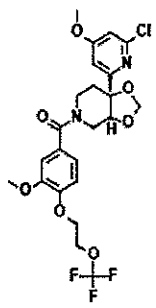	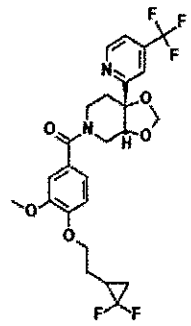
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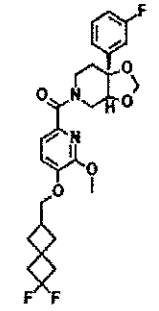	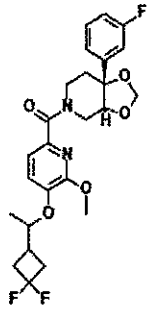	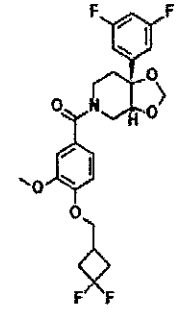
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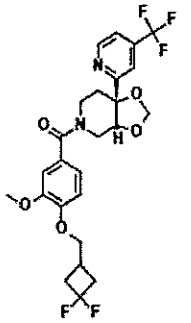	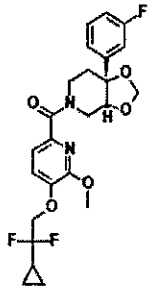	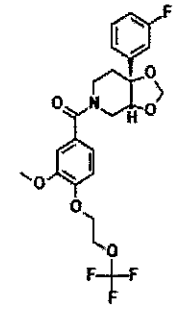

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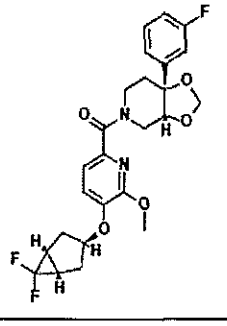	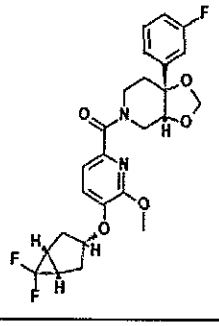	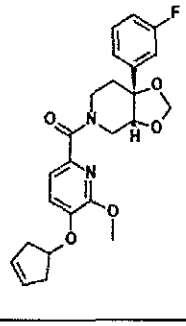
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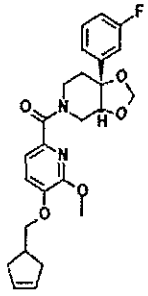	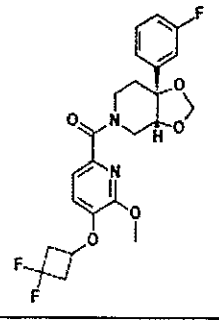	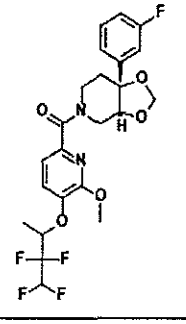
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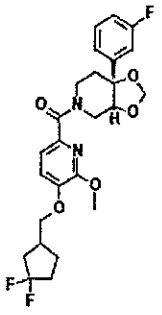	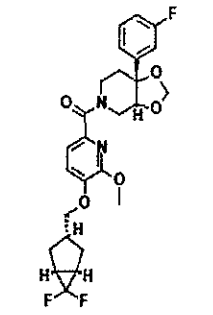	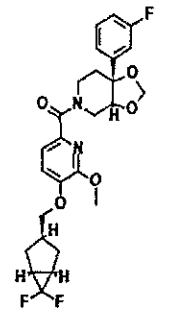
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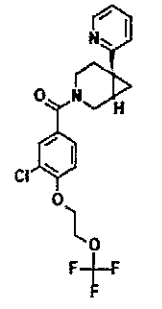	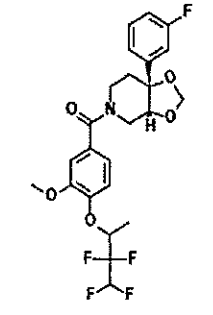	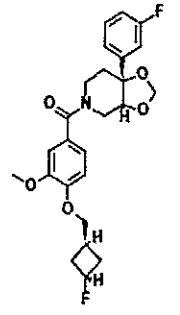

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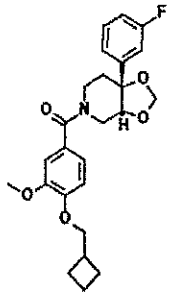	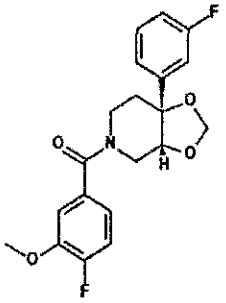	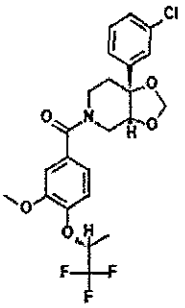
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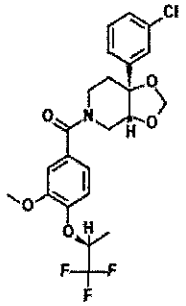	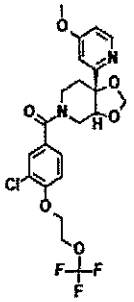	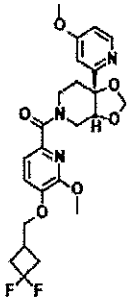
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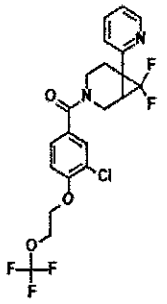	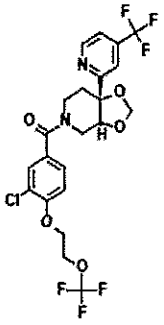	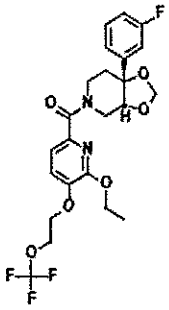
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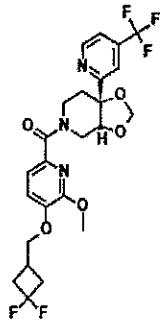	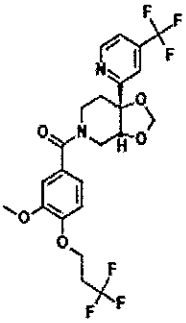	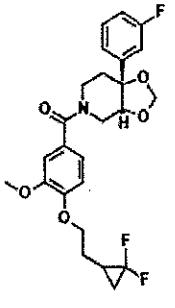

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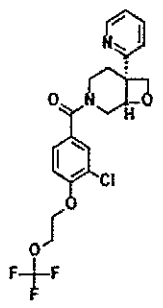	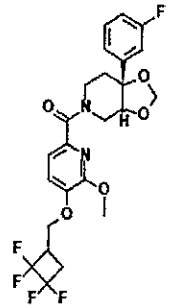	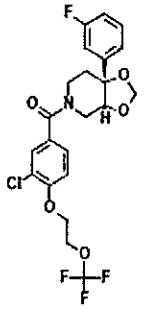
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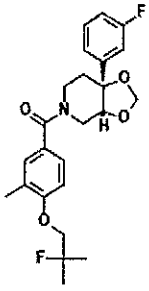	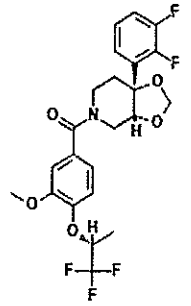	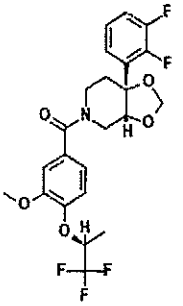
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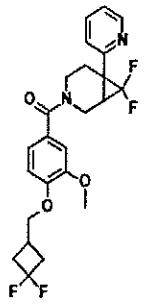	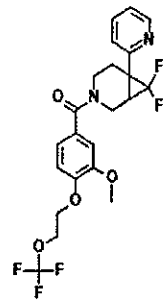	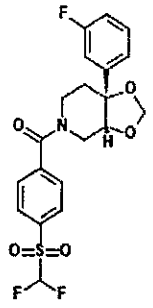
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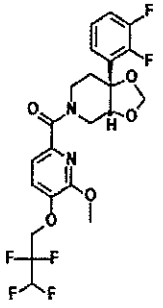	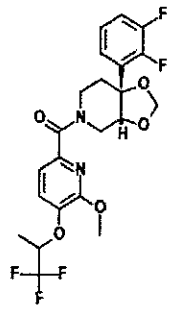	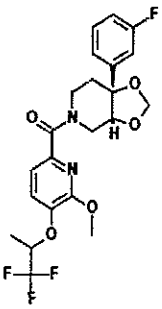

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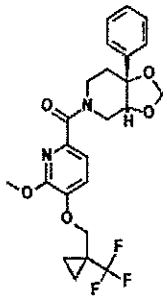	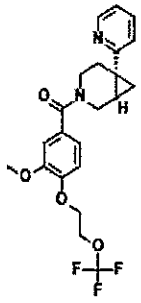	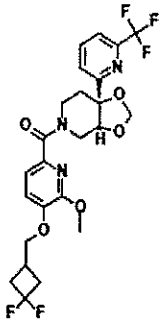
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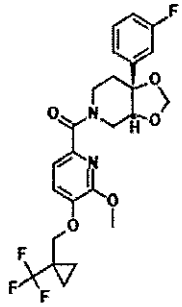	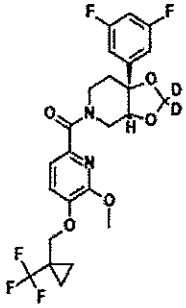	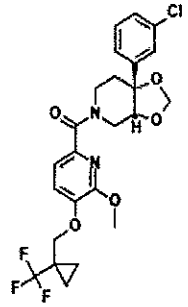
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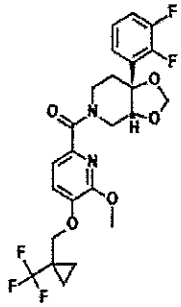	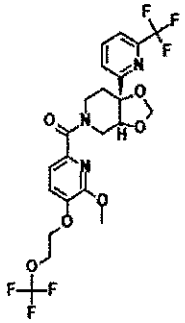	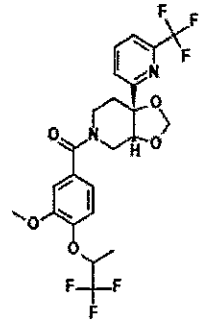
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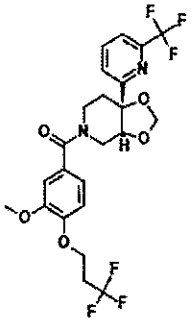	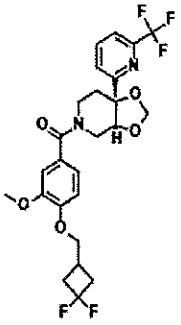	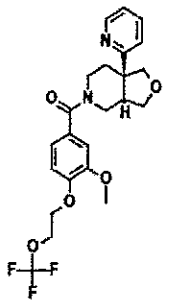

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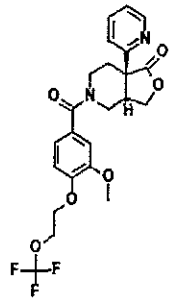	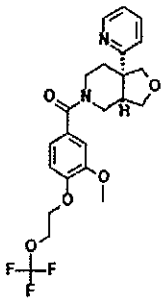	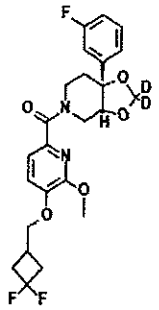
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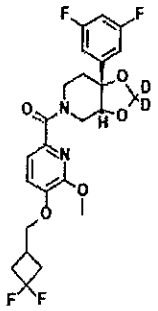	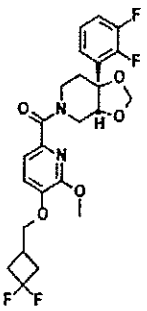	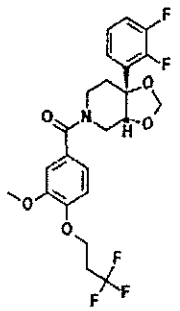
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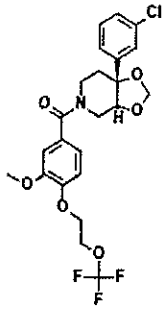	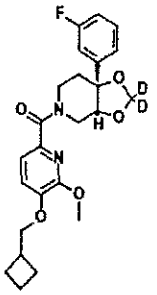	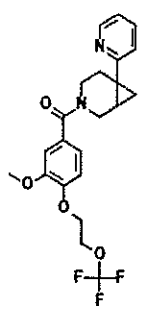
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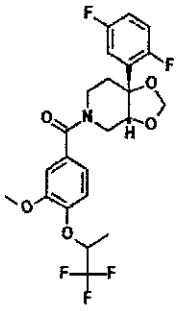	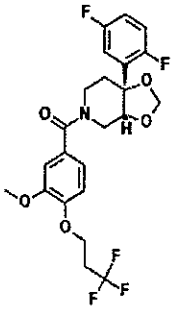	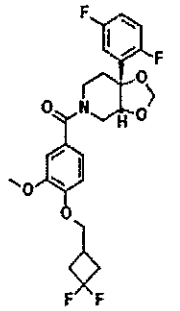

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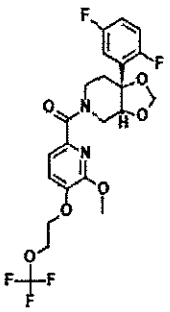	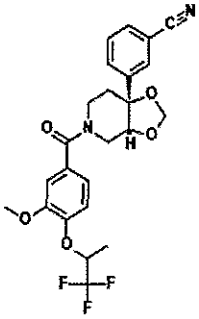	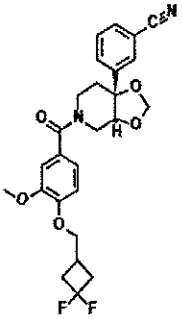
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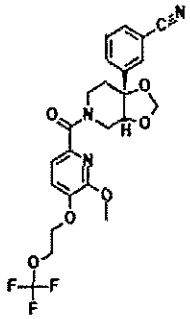	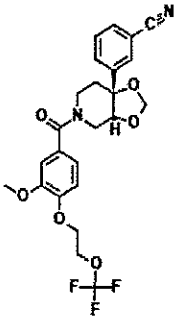	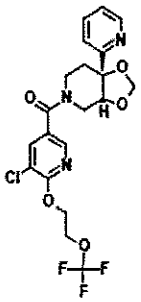
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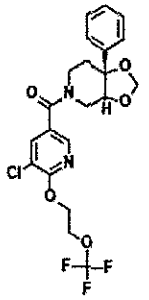	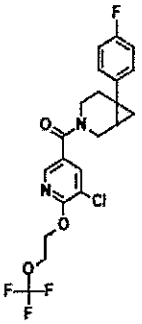	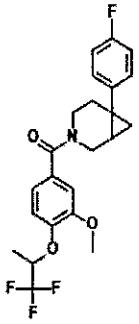
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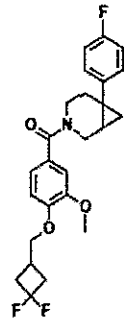	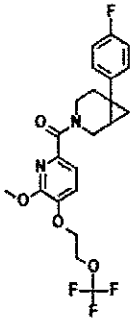	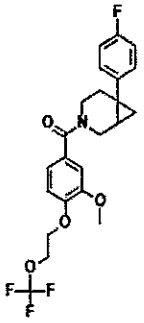

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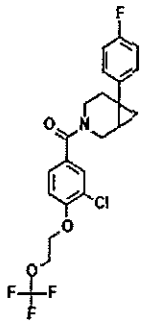	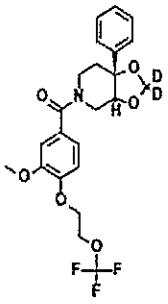	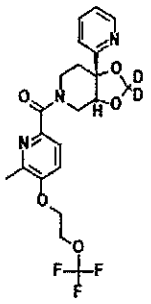
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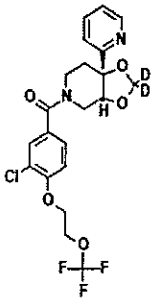	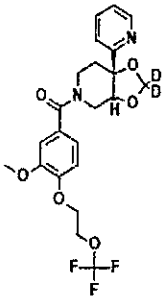	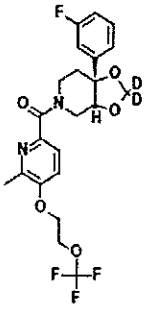
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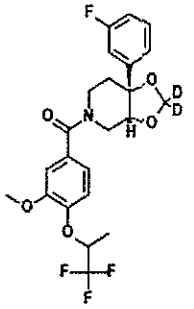	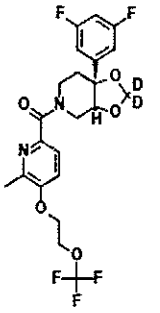	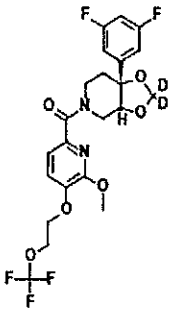
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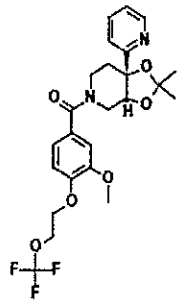	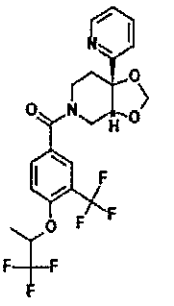	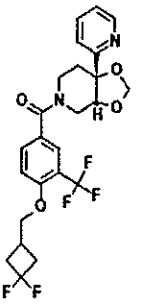

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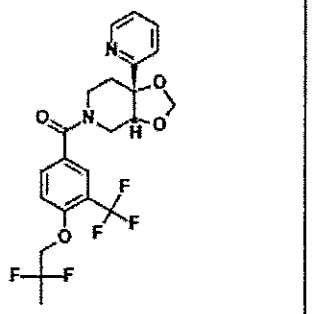	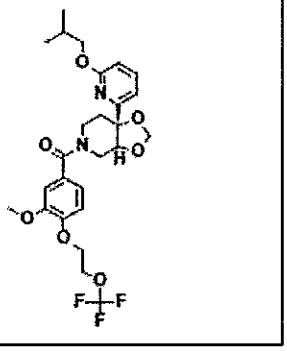

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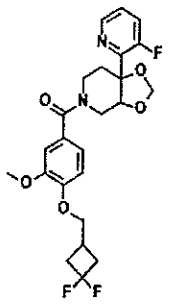	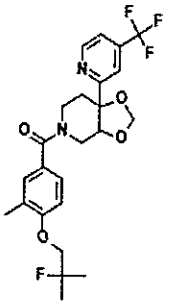	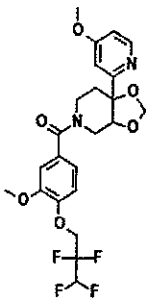
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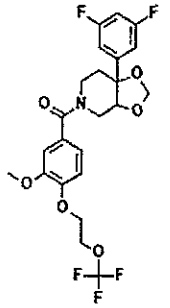	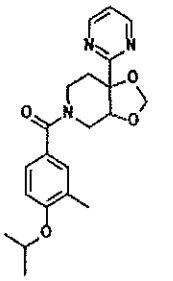	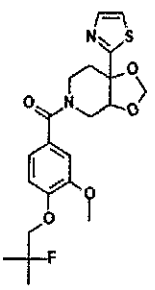
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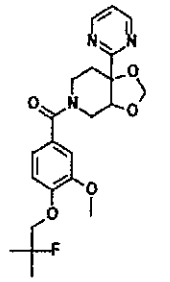	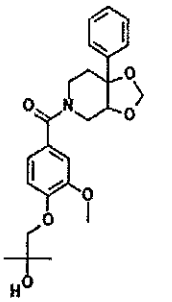	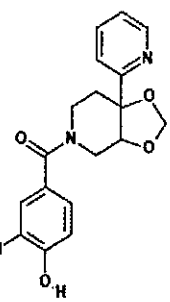
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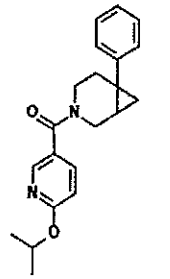	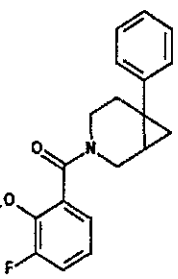	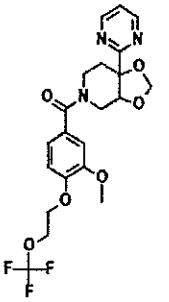

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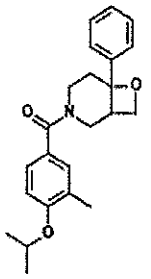	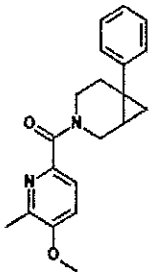	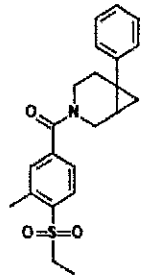
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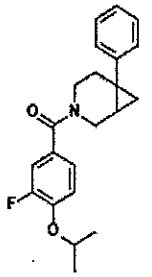	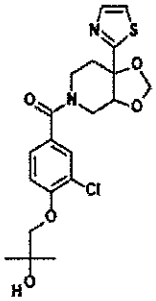	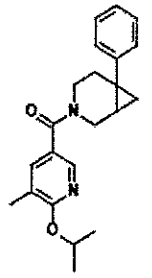
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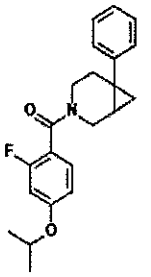	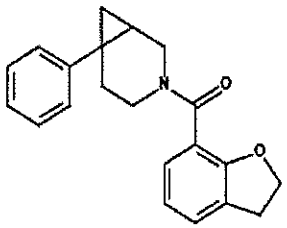	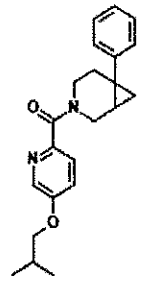
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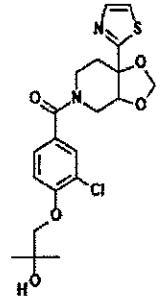	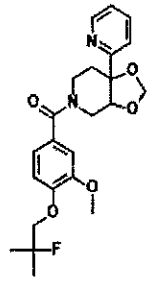	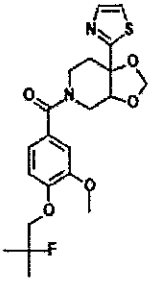

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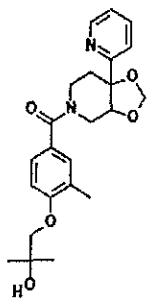	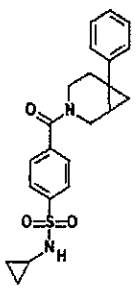	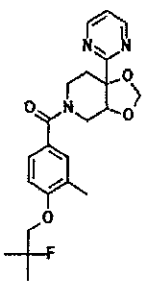
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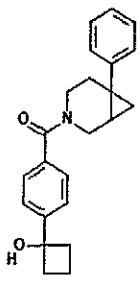	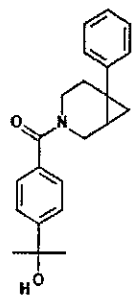	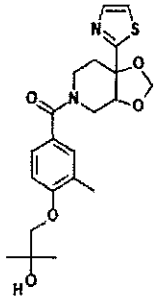
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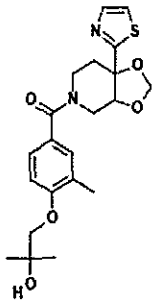	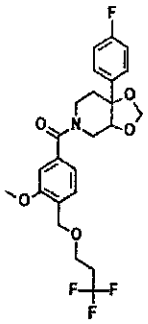	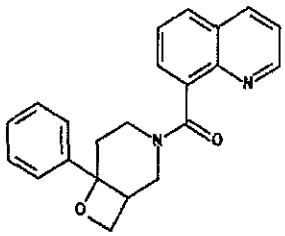
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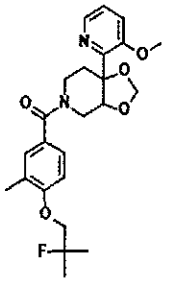	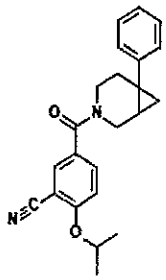	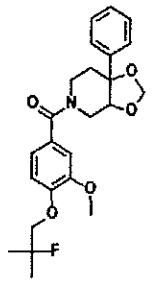

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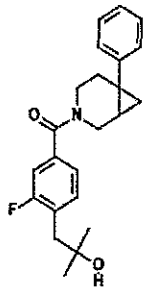	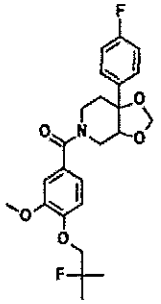	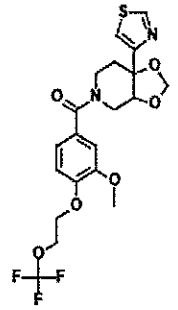
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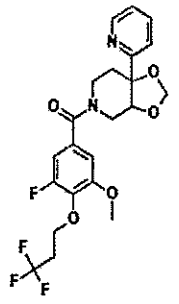	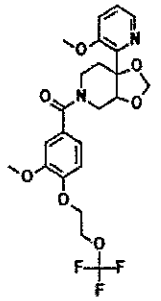	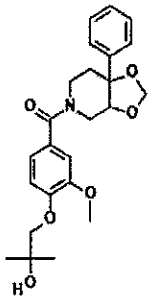
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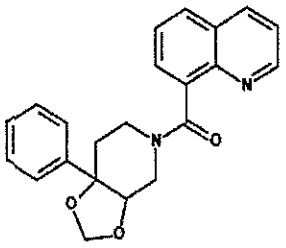	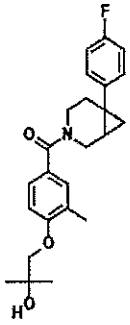	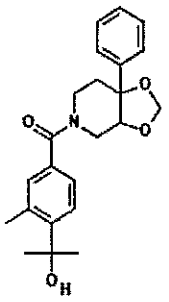
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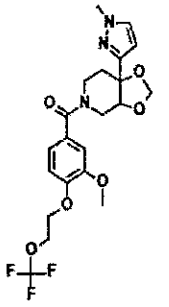	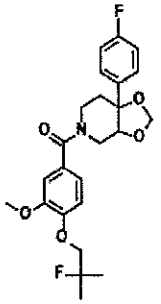	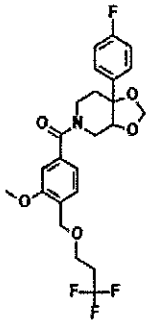

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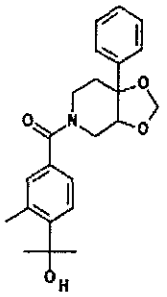	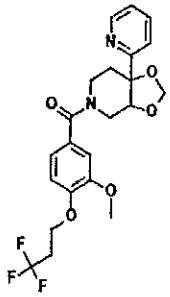	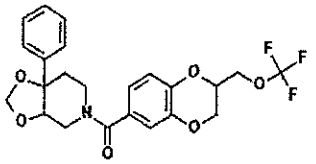
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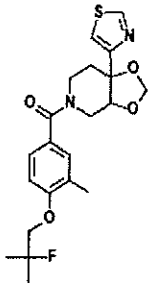	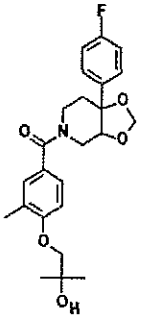	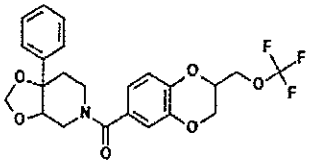
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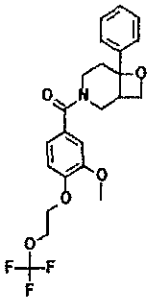	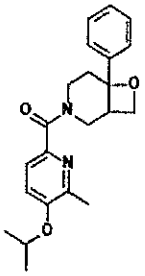	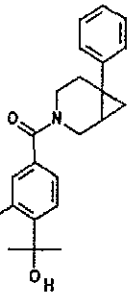
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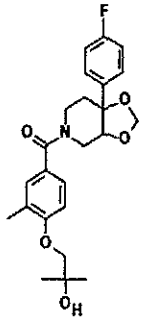	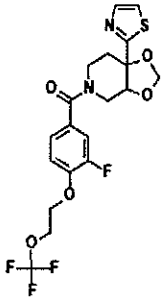	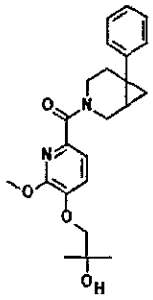

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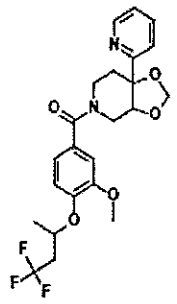	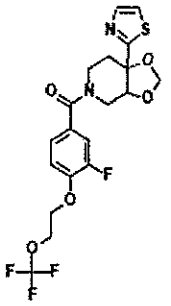	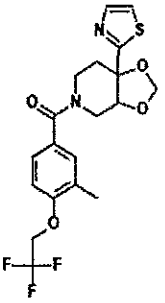
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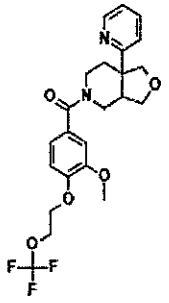	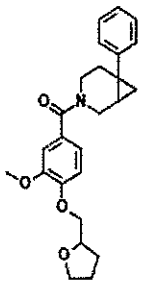	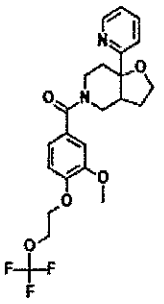
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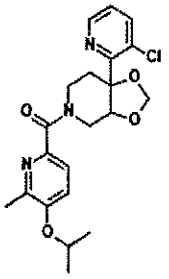	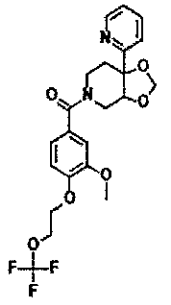	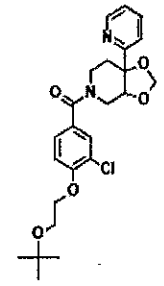
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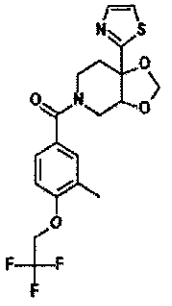	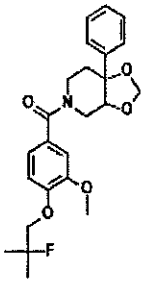	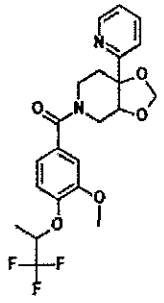

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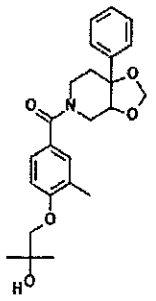	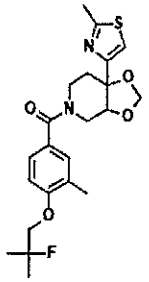	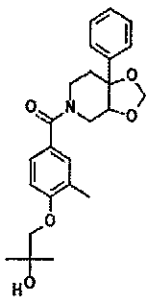
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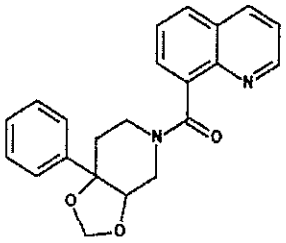	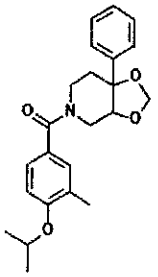	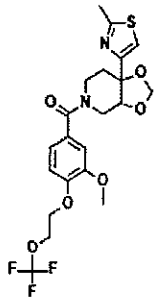
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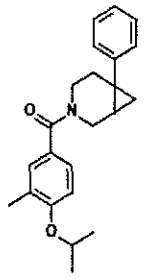	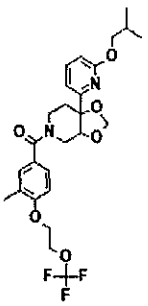	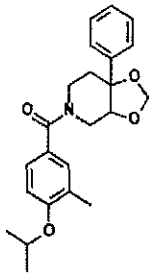
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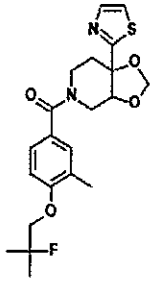	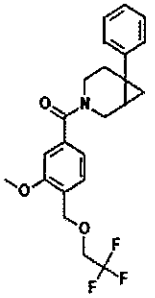	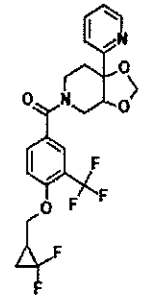

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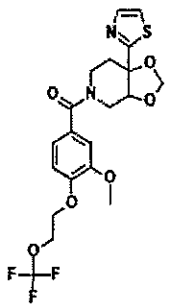	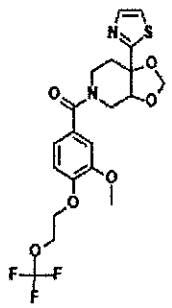	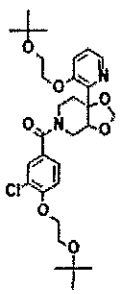
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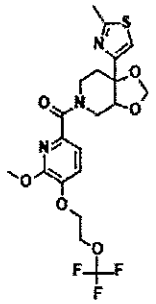	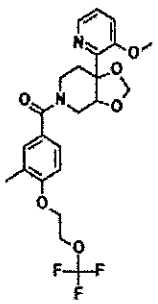	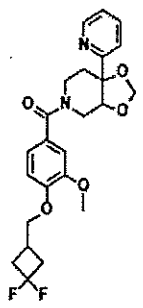
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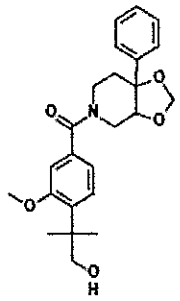	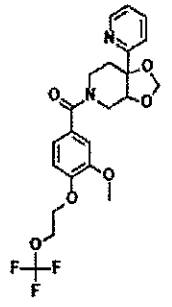	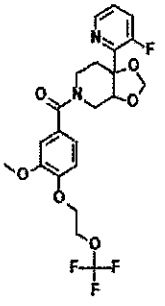
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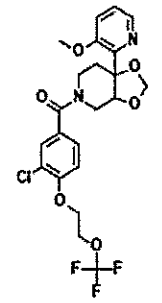	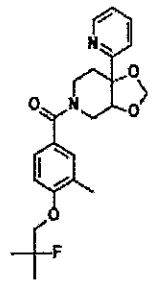	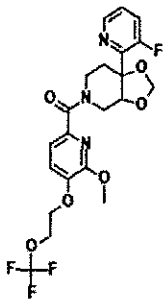

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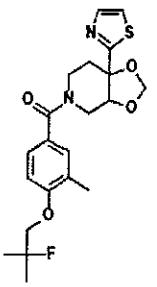	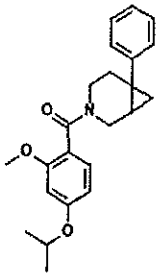	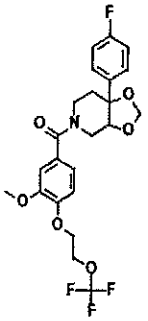
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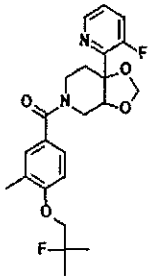	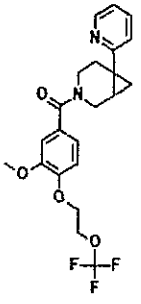	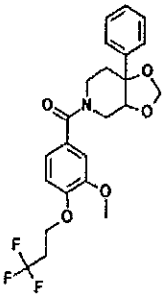
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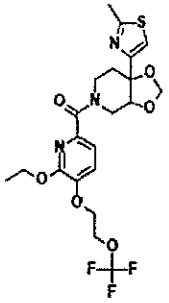	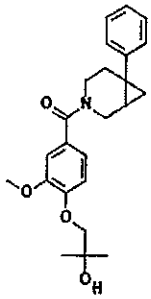	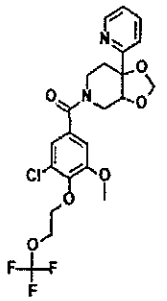
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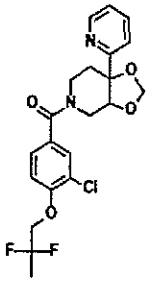	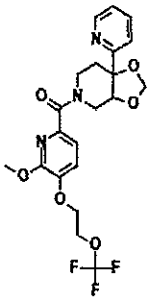	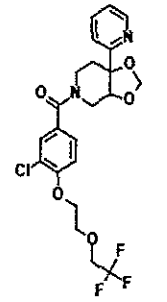

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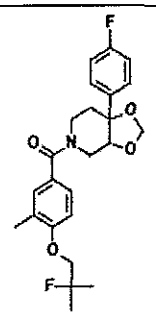	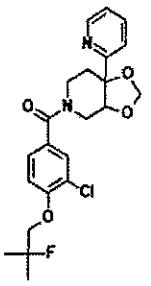	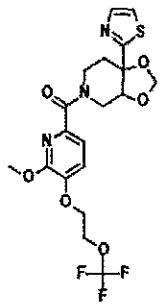
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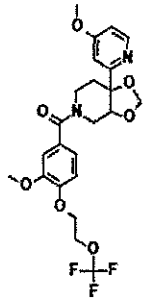	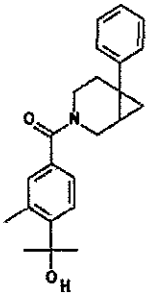	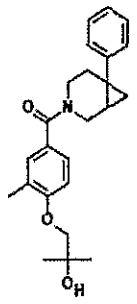
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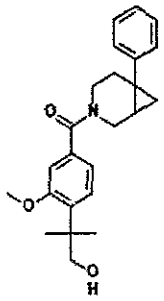	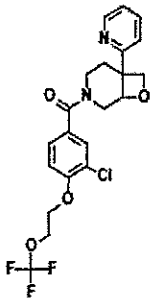	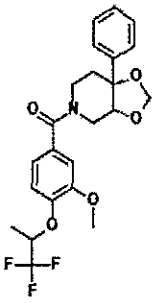
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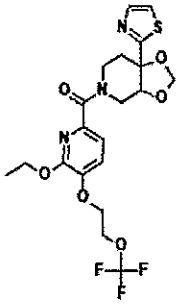	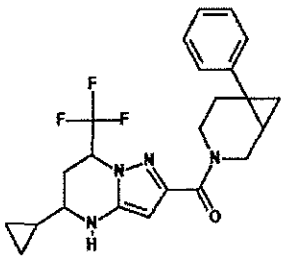	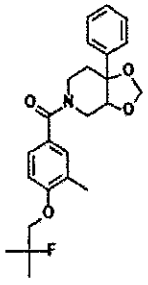

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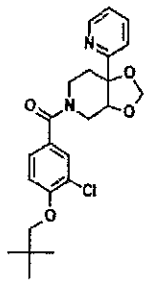	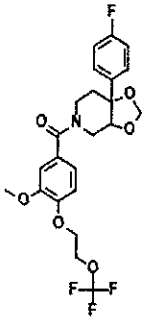	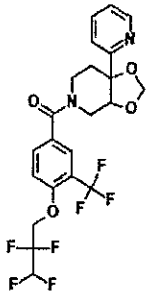
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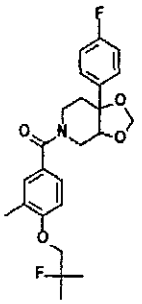	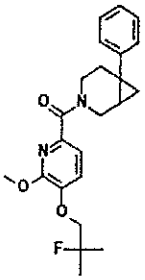	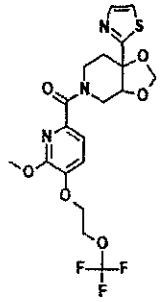
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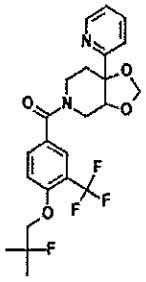	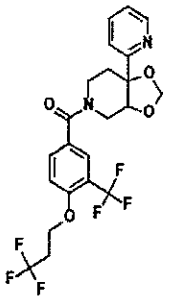	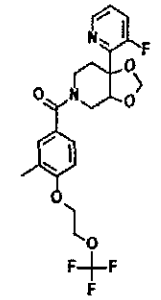
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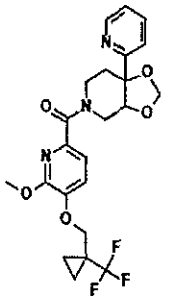	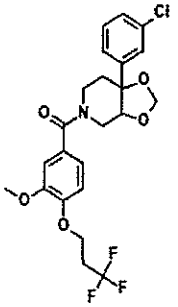	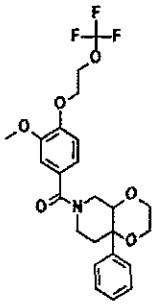

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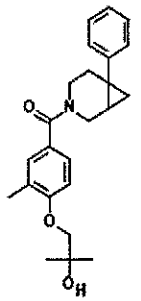	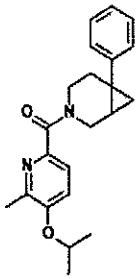	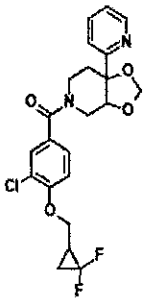
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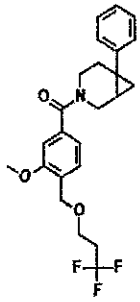	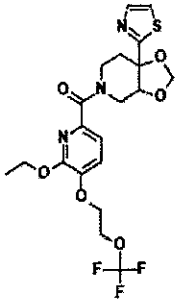	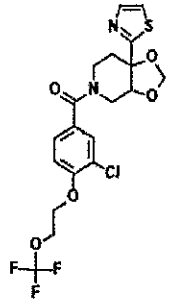
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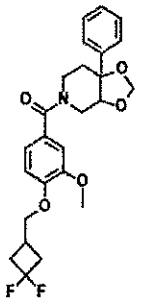	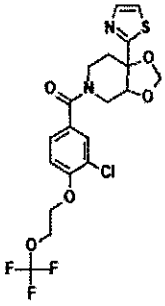	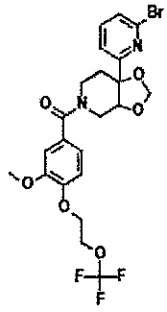
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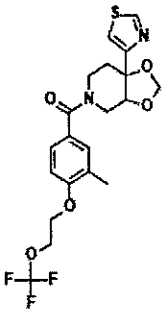	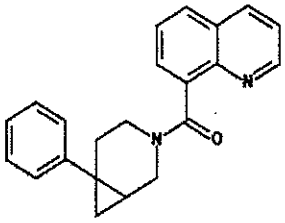	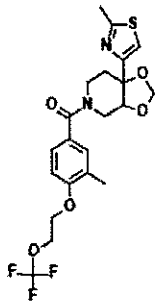

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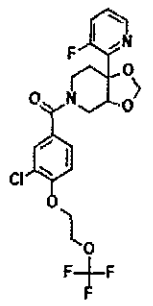	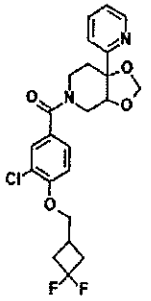	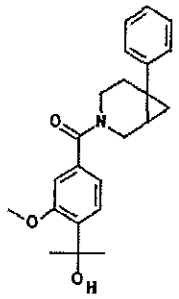
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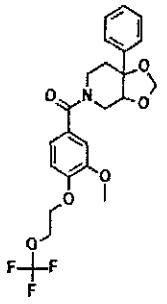	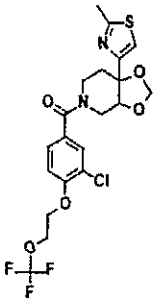	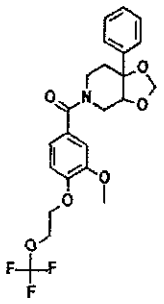
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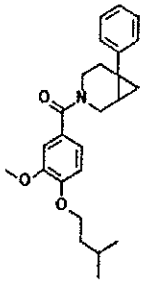	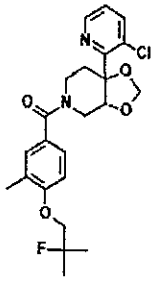	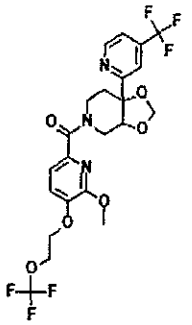
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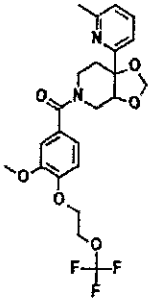	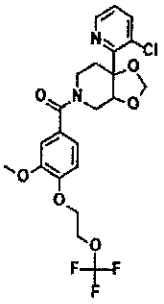	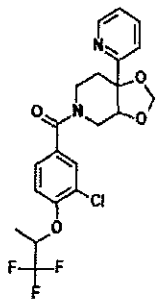

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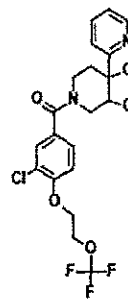	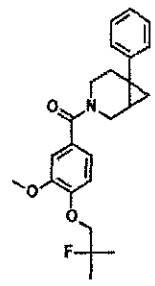	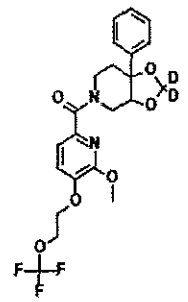
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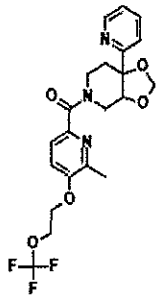	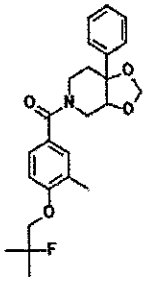	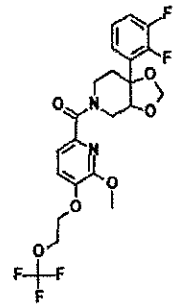
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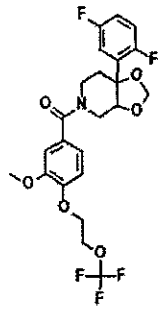	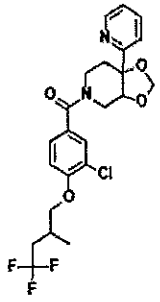	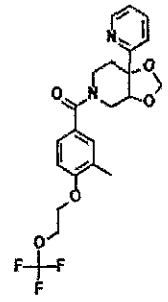
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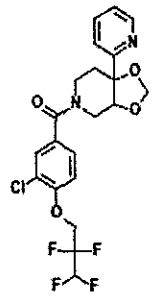	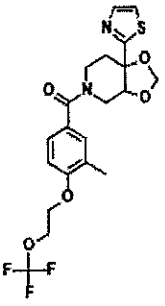	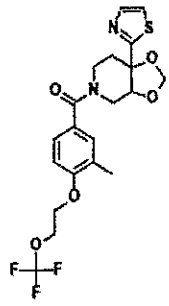

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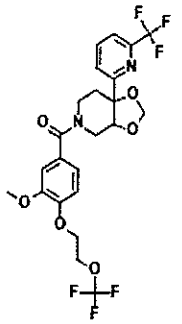	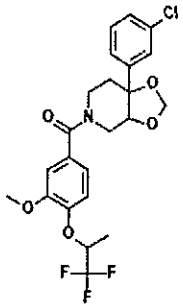	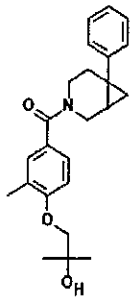
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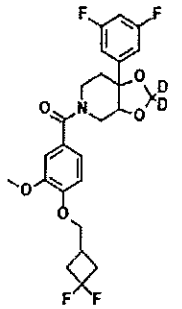	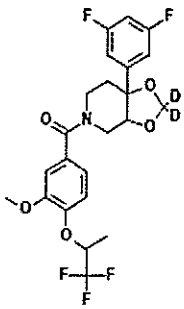	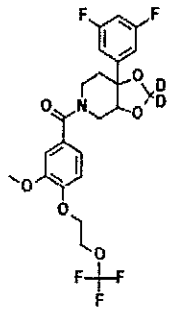
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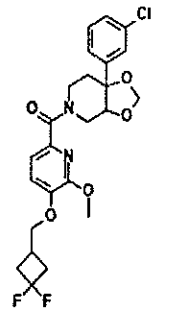	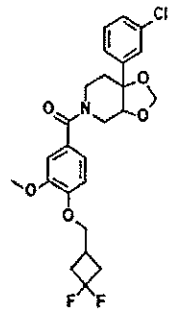	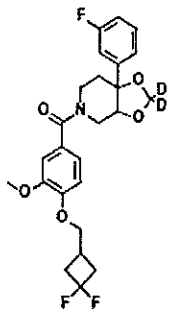
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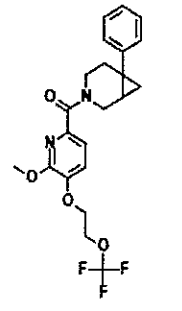	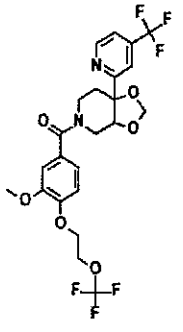	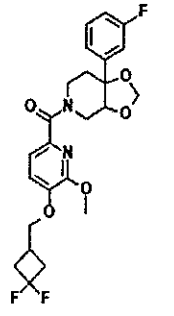

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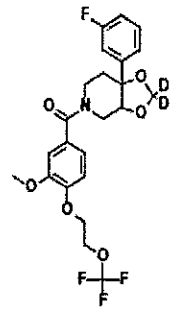	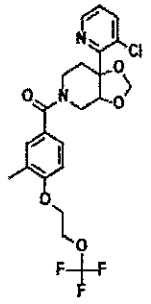	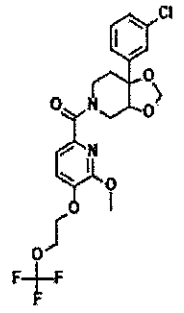
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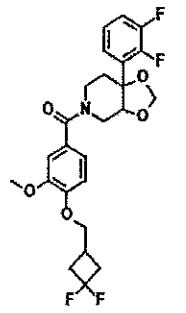	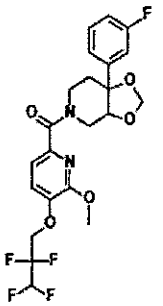	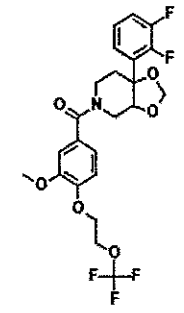
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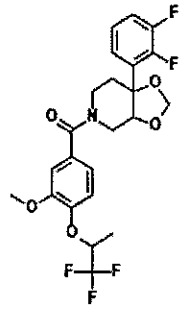	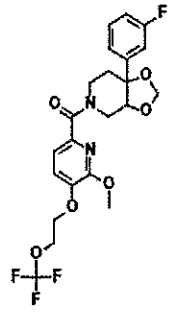	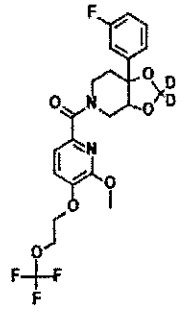
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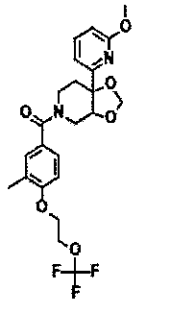	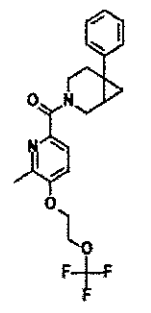	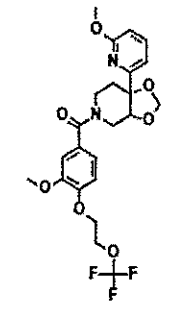

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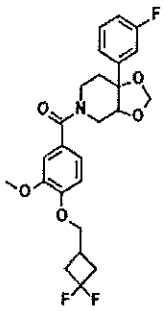	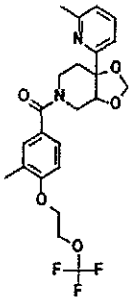	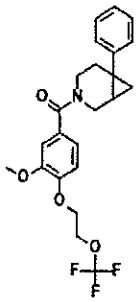
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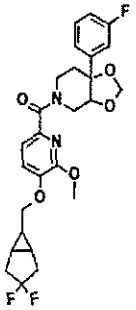	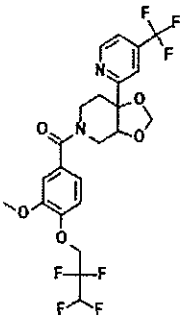	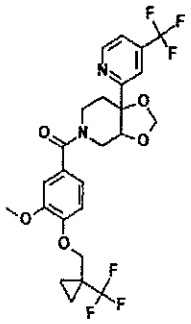
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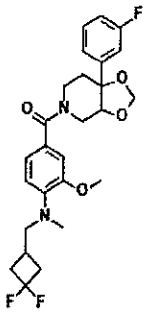	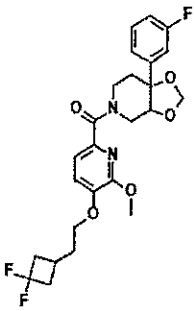	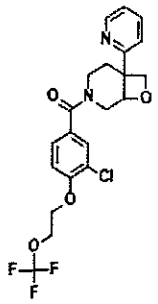
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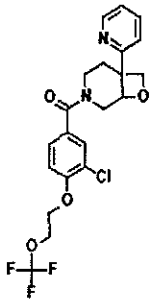	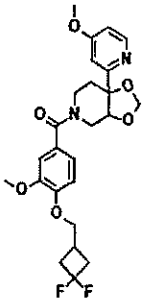	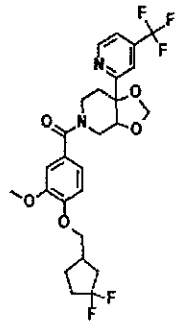

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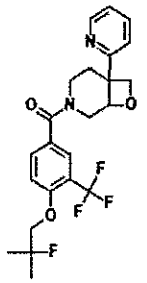	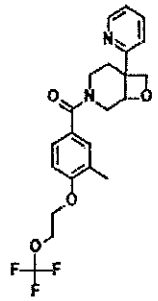	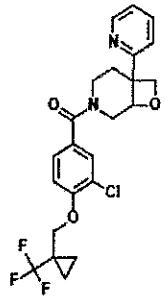
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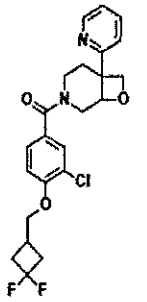	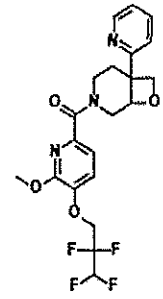	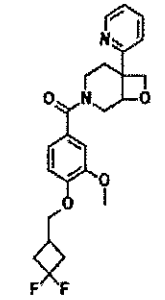
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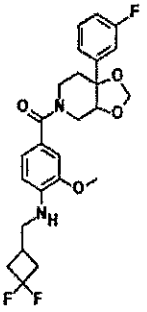	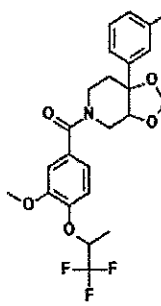	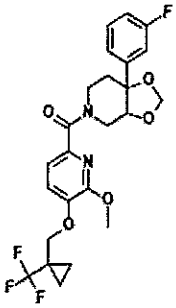
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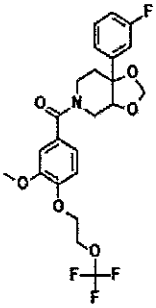	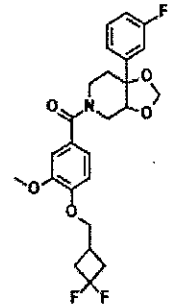	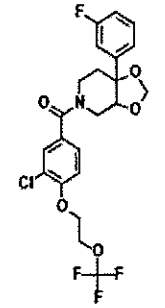

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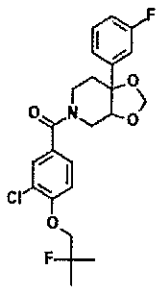	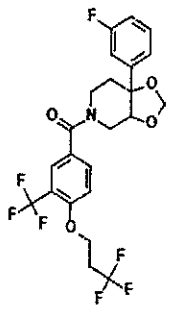	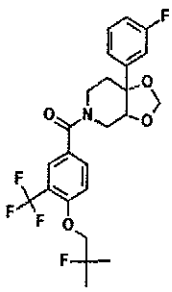
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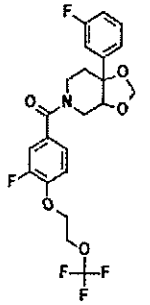	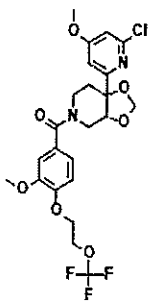	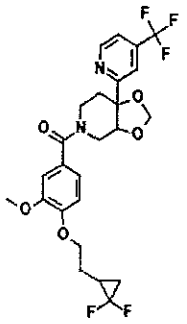
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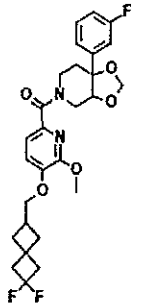	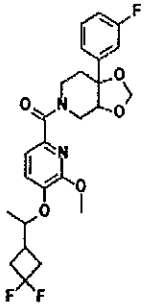	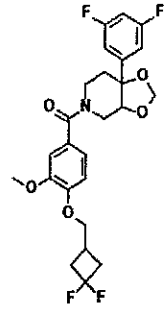
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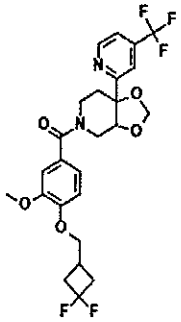	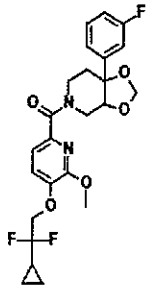	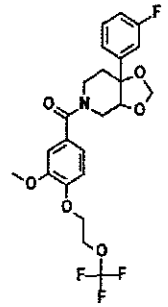

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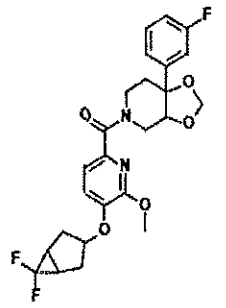	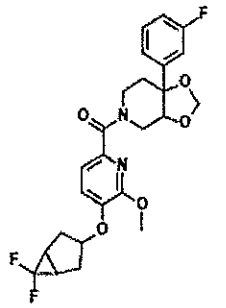	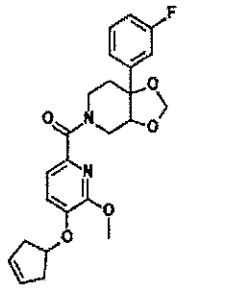
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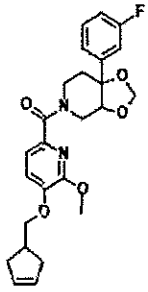	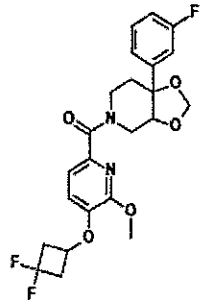	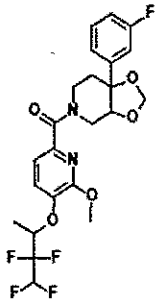
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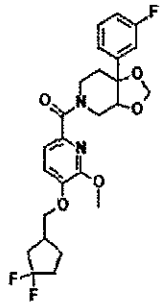	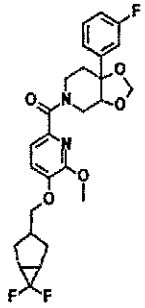	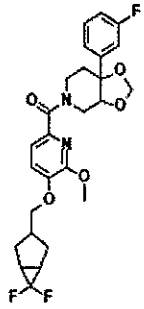
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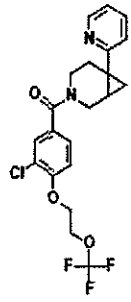	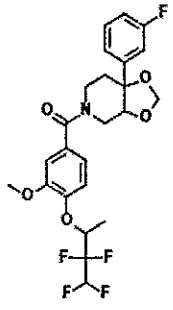	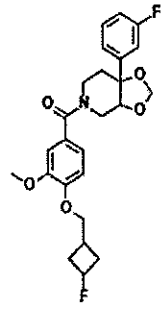

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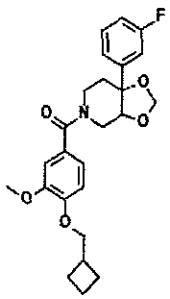	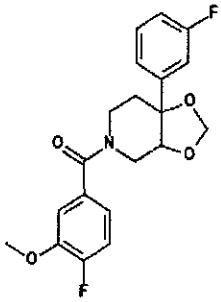	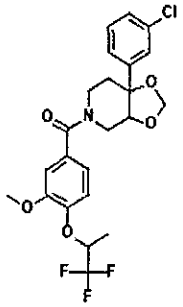
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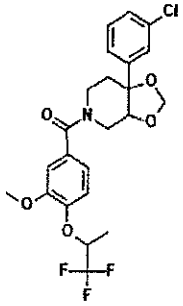	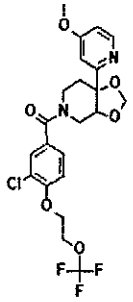	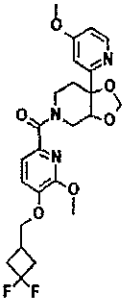
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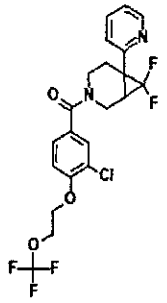	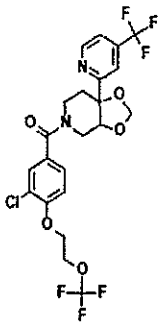	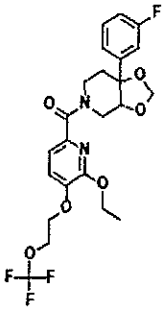
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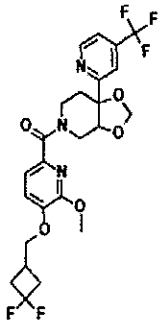	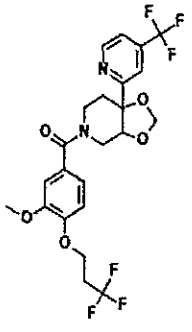	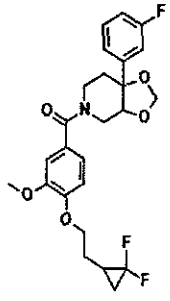

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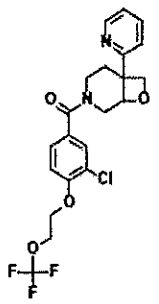	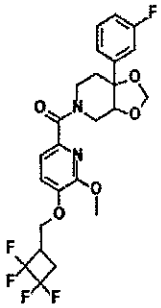	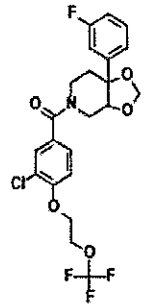
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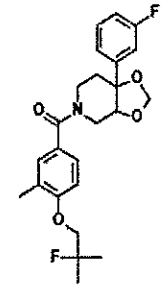	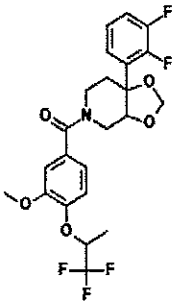	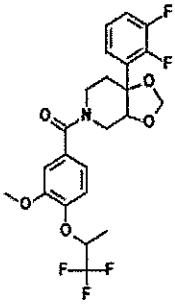
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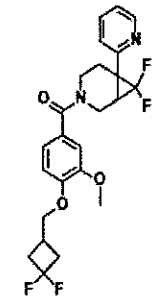	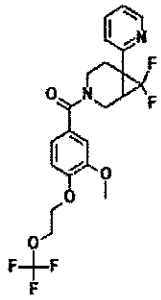	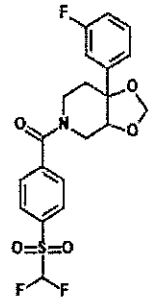
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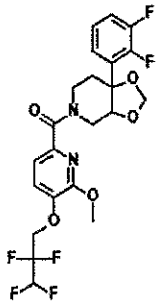	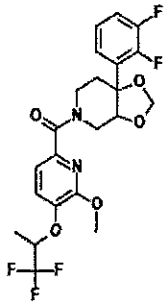	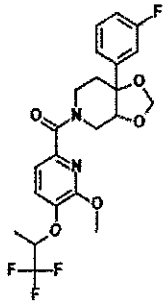

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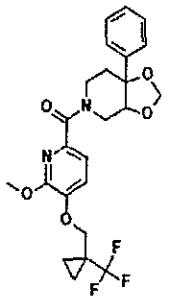	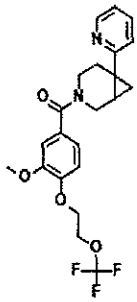	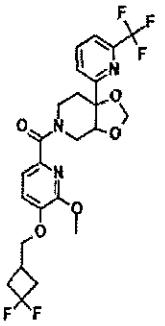
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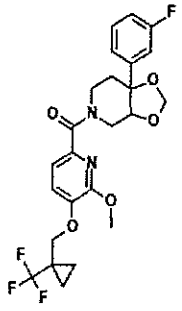	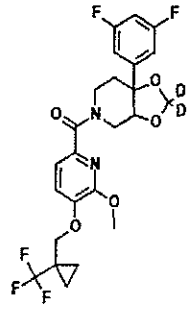	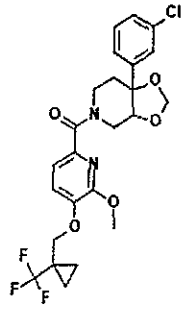
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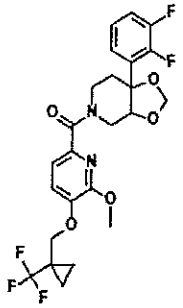	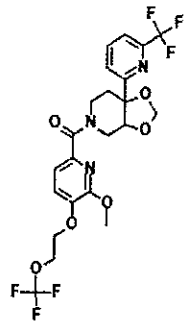	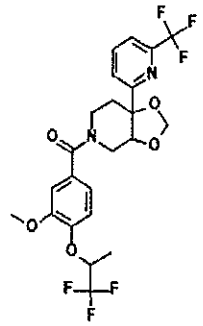
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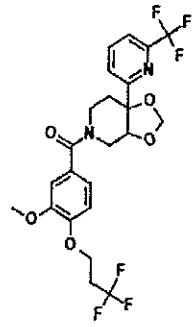	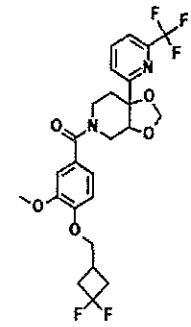	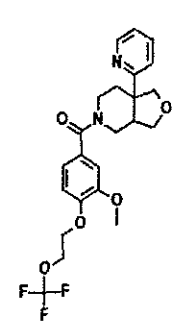

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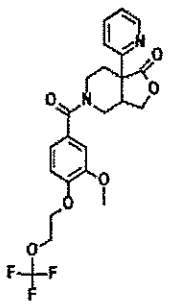	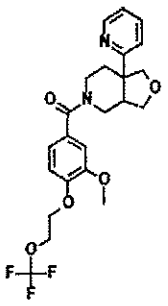	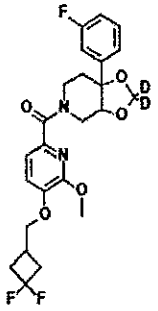
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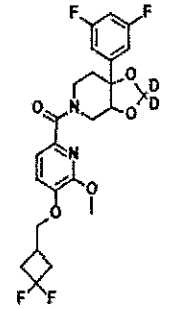	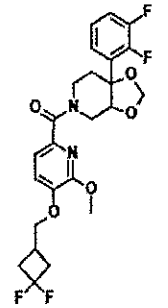	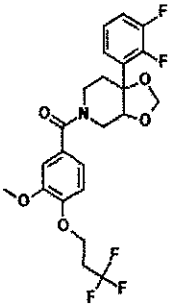
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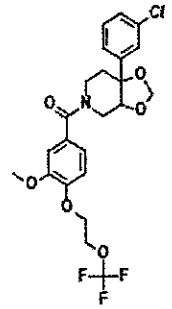	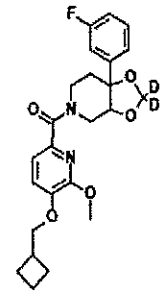	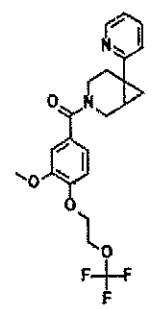
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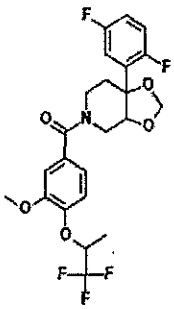	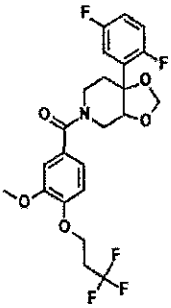	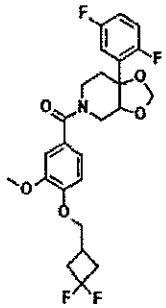

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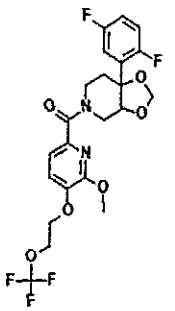	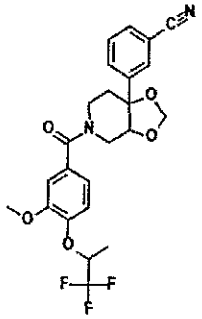	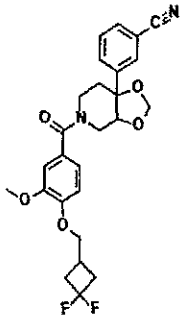
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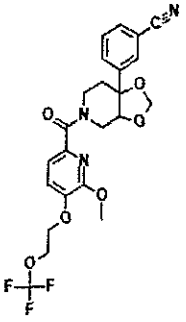	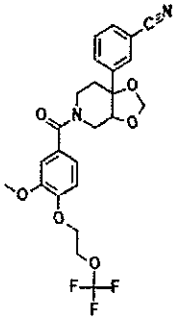	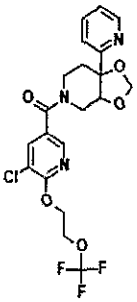
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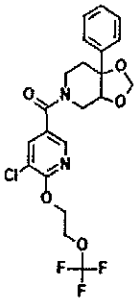	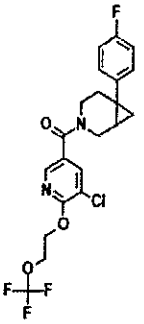	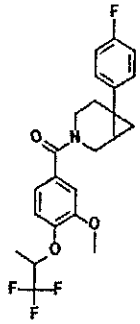
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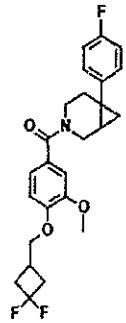	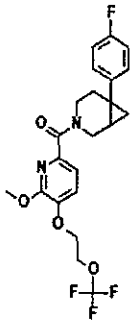	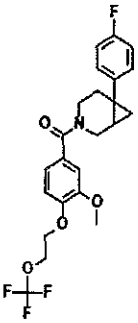

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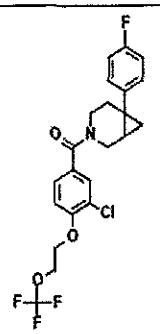	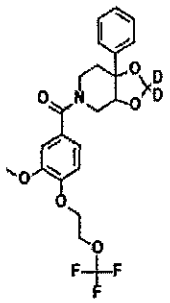	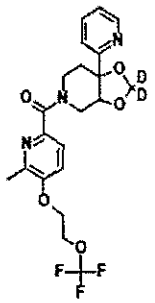
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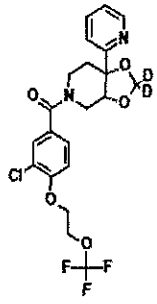	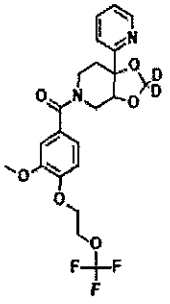	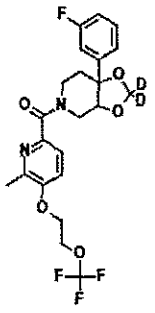
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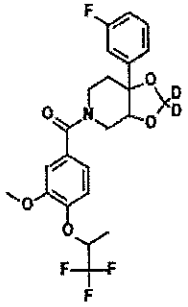	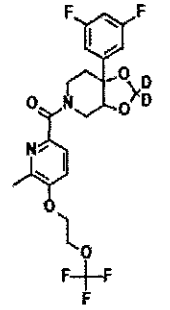	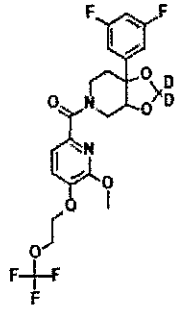
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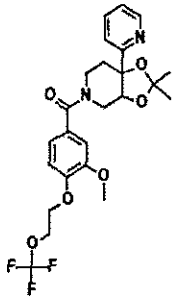	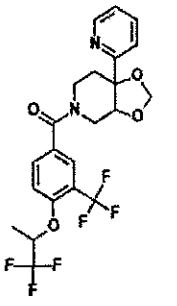	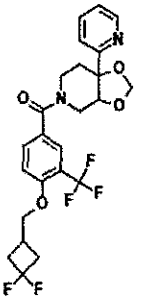

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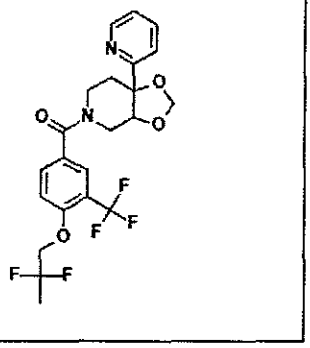	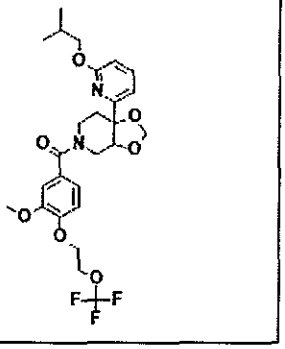

20. A pharmaceutical composition comprising the compound of any one of claims 1 to 19 and a pharmaceutically acceptable carrier.

21. A compound or composition of any one of claims 1 to 19 for use in a method of inhibiting a voltage-gated sodium ion channel in a patient or a biological sample.

22. A compound or composition for the use according to claim 21, wherein the voltage-gated sodium ion channel is NaV 1.7.

23. A compound or composition of any one of claims 1 to 19 for use in a method of treating or lessening the severity of the pain in a subject afflicted with acute, chronic, neuropathic, or inflammatory pain, arthritis, migraine, cluster headaches, trigeminal neuralgia, herpatic neuralgia, general neuralgias, epilepsy or epilepsy conditions, neurodegenerative disorders, psychiatric disorders, anxiety, depression, dipolar disorder, myotonia, arrhythmia, movement disorders, neuroendocrine disorders, ataxia, multiple sclerosis, irritable bowel syndrome, incontinence, visceral pain, osteoarthritis pain, postherpetic neuralgia, diabetic neuropathy, radicular pain, sciatica, back pain, head or neck pain, severe or intractable pain, nociceptive pain, breakthrough pain, postsurgical pain, cancer pain, stroke, cerebral ischemia, traumatic brain injury, amyotrophic lateral sclerosis, stress- or exercise induced angina, palpitations, hypertension, migraine, or abormal gastro-intestinal motility, optionally wherein said method is used for treating or lessening the severity of the pain in a subject afflicted with femur cancer pain; non-malignant chronic bone pain; rheumatoid arthritis; osteoarthritis; spinal stenosis; neuropathic low back pain; neuropathic low back pain; myofascial pain syndrome; fibromyalgia; temporomandibular joint pain; chronic visceral pain, abdominal pain; pancreatic; IBS pain; chronic and acute headache pain; migraine; tension headache, cluster headaches; chronic and acute neuropathic pain, post-herpatic neuralgia; diabetic

neuropathy; HIV-associated neuropathy; trigeminal neuralgia; Charcot-Marie Tooth neuropathy; hereditary sensory neuropathies; peripheral nerve injury; painful neuromas; ectopic proximal and distal discharges; radiculopathy; chemotherapy induced neuropathic pain; radiotherapy-induced neuropathic pain; post-mastectomy pain; central pain; spinal cord injury pain; post-stroke pain; thalamic pain; complex regional pain syndrome; phantom pain; intractable pain; acute pain, acute post-operative pain; acute musculoskeletal pain; joint pain; mechanical low back pain; neck pain; tendonitis; injury/exercise pain; acute visceral pain, abdominal pain; pyelonephritis; appendicitis; cholecystitis; intestinal obstruction; hernias; chest pain, cardiac pain; pelvic pain, renal colic pain, acute obstetric pain, labor pain; cesarean section pain; acute inflammatory, burn and trauma pain; acute intermittent pain, endometriosis; acute herpes zoster pain; sickle cell anemia; acute pancreatitis; breakthrough pain; orofacial pain, sinusitis pain, dental pain; multiple sclerosis (MS) pain; pain in depression; leprosy pain; Behcet's disease pain; adiposis dolorosa; phlebitic pain; Guillain-Barre pain; painful legs and moving toes; Haglund syndrome; erythromelalgia pain; Fabry's disease pain; bladder and urogenital disease, urinary incontinence; hyperactivity bladder; painful bladder syndrome; interstitial cyctitis (IC); prostatitis; complex regional pain syndrome (CRPS), type I and type II; widespread pain, paroxysmal extreme pain, pruritis, tinnitis, or angina-induced pain.