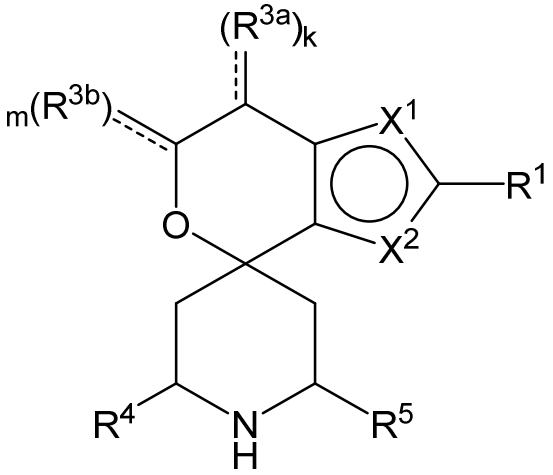
CLAIMS

1. A compound represented by the following structural formula:



Formula **I**

a tautomer thereof, a deuterated derivative of that compound or tautomer, or a pharmaceutically acceptable salt of any of the foregoing, wherein:

X1 is selected from S and -C**R2a** and **X2** is selected from S and -C**R2b**, wherein:

one of **X1** and **X2** is S;

when **X1** is S, then **X2** is -C**R2b**; and

when **X2** is S, then **X1** is -C**R2a**;

R1 is selected from hydrogen, halogen, cyano, -OH, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_6 cycloalkyl, and phenyl, wherein:

the C_1-C_6 alkyl of **R1** is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, $-NH_2$, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, and C_1-C_4 alkoxy;

the C_1-C_6 alkoxy of **R1** is optionally substituted with 1 to 3 groups independently selected from halogen;

the C_3-C_6 cycloalkyl of **R1** is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, $-NH_2$, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, C_1-C_4 alkyl, C_1-C_4 alkoxy, $-C(=O)NH_2$, -C(=O)NH(C_1-C_4 alkyl), and -C(=O)N(C_1-C_4 alkyl)$_2$; and

the phenyl of **R1** is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, $-NH_2$, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, C_1-C_4 alkyl, C_1-C_4 alkoxy, $-C(=O)NH_2$, -C(=O)NH(C_1-C_4 alkyl), and -C(=O)N(C_1-C_4 alkyl)$_2$;

R2a is selected from hydrogen, halogen, cyano, -OH, =O, and C_1-C_6 alkyl, wherein:

the C_1-C_6 alkyl of $\mathbf{R^{2a}}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, and C_1-C_4 alkoxy;

$\mathbf{R^{2b}}$ is selected from hydrogen, halogen, cyano, -OH, =O, and C_1-C_6 alkyl;

$\mathbf{R^{3a}}$ is selected from halogen, cyano, -OH, C_1-C_6 alkyl, and =O; wherein:

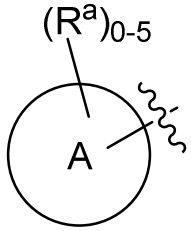
the C_1-C_6 alkyl of $\mathbf{R^{3a}}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, and -OH;

$\mathbf{R^{3b}}$ is selected from C_1-C_2 alkyl and =O; wherein:

the C_1-C_2 alkyl of $\mathbf{R^{3b}}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, and -OH;

------, for each occurrence, is a single bond when $\mathbf{R^{3a}}$ is selected from halogen, cyano, -OH, C_1-C_6 alkyl or when $\mathbf{R^{3b}}$ is selected from C_1-C_2 alkyl; or alternatively ======, for each occurrence, is a double bond when $\mathbf{R^{3a}}$ is =O or when $\mathbf{R^{3b}}$ is =O;

$\mathbf{R^4}$ is selected from C_1-C_6 alkyl, -C(=O)O(C_1-C_4 alkyl), C_2-C_6 alkynyl, and



, wherein:

the C_1-C_6 alkyl of $\mathbf{R^4}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, -NH_2, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, C_1-C_4 alkoxy, -C(=O)NH_2, -C(=O)NH(C_1-C_4 alkyl), -C(=O)N(C_1-C_4 alkyl)$_2$, C_3-C_6 cycloalkyl, 5 to 10-membered heterocyclyl, phenyl, and 5 to 10-membered heteroaryl;

Ring A is selected from C_3-C_{12} carbocyclyl, 3 to 12-membered heterocyclyl, C_6 and C_{10} aryl, and 5 to 10-membered heteroaryl, wherein **Ring A** is optionally substituted with 1, 2, 3, 4, or 5 $\mathbf{R^a}$ groups; wherein:

$\mathbf{R^a}$, for each occurrence, is independently selected from halogen, cyano, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_1-C_6 alkoxy, C_1-C_6 haloalkyl, C_1-C_6 haloalkenyl, C_1-C_6 haloalkoxy, -C(=O)N$\mathbf{R^h}\mathbf{R^i}$, -N$\mathbf{R^h}\mathbf{R^i}$, -N$\mathbf{R^h}$C(=O)$\mathbf{R^k}$, -N$\mathbf{R^h}$C(=O)O$\mathbf{R^k}$, -N$\mathbf{R^h}$C(=O)N$\mathbf{R^i}\mathbf{R^j}$, -N$\mathbf{R^h}$S(=O)$_p\mathbf{R^k}$, -O$\mathbf{R^k}$, -OC(=O)$\mathbf{R^k}$, -OC(=O)O$\mathbf{R^k}$, -OC(=O)N$\mathbf{R^h}\mathbf{R^i}$, -[O(CH_2)$_q$]$_r$O(C_1-C_6 alkyl), -S(=O)$_p\mathbf{R^k}$, -S(=O)$_p$N$\mathbf{R^h}\mathbf{R^i}$, -C(=O)O$\mathbf{R^k}$, C_3-C_{12} carbocyclyl, 3- to 12-membered heterocyclyl, C_6 and C_{10} aryl, and 5- to 10-membered heteroaryl; wherein:

the C_1-C_6 alkyl, C_1-C_6 alkoxy, and the C_2-C_6 alkenyl of $\mathbf{R^a}$ are each optionally substituted with 1 to 3 groups independently selected

from C_6 to C_{10} aryl (optionally substituted with 1 to 3 $\mathbf{R^m}$ groups), 5- to 10-membered heterocyclyl (optionally substituted with 1 to 3 $\mathbf{R^m}$ groups), 5- to 10-membered heteroaryl (optionally substituted with 1 to 3 $\mathbf{R^m}$ groups), cyano, -C(=O)$\mathbf{R^k}$, -C(=O)O$\mathbf{R^k}$, -C(=O)N$\mathbf{R^h}\mathbf{R^i}$, -N$\mathbf{R^h}\mathbf{R^i}$, -N$\mathbf{R^h}$C(=O)$\mathbf{R^k}$, -N$\mathbf{R^h}$C(=O)O$\mathbf{R^k}$, -N$\mathbf{R^h}$C(=O)N$\mathbf{R^i}\mathbf{R^j}$, -N$\mathbf{R^h}$S(=O)$_\mathbf{p}\mathbf{R^k}$, -O$\mathbf{R^k}$, -OC(=O)$\mathbf{R^k}$, -OC(=O)O$\mathbf{R^k}$, -OC(=O)N$\mathbf{R^h}\mathbf{R^i}$, -S(=O)$_\mathbf{p}\mathbf{R^k}$, -S(=O)$_\mathbf{p}$N$\mathbf{R^h}\mathbf{R^i}$, and C_3-C_6 carbocyclyl (optionally substituted with 1 to 3 $\mathbf{R^m}$ groups);

the C_3-C_{12} carbocyclyl, the 3 to 12-membered heterocyclyl, the C_6 and C_{10} aryl, and the 5 to 10-membered heteroaryl of $\mathbf{R^a}$ are each optionally substituted with 1 to 3 groups independently selected from halogen, cyano, C_1-C_4 alkyl, -N$\mathbf{R^h}\mathbf{R^i}$, and -O$\mathbf{R^k}$; wherein:

$\mathbf{R^h}$, $\mathbf{R^i}$, and $\mathbf{R^j}$, for each occurrence, are each independently selected from hydrogen, C_1-C_4 alkyl, C_6-C_{10} aryl, and C_3-C_6 cycloalkyl; wherein:

the C_1-C_4 alkyl of any one of $\mathbf{R^h}$, $\mathbf{R^i}$, and $\mathbf{R^j}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, and -OH;

$\mathbf{R^k}$, for each occurrence, are each independently selected from hydrogen, C_1-C_4 alkyl, 5- to 10-membered heterocyclyl, and C_3-C_6 carbocyclyl; wherein:

the C_1-C_4 alkyl of any one of $\mathbf{R^k}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, and -OH;

$\mathbf{R^m}$, for each occurrence, is independently selected from halogen, cyano, oxo, C_1-C_6 alkyl, C_1-C_6 alkoxy, -S(=O)$_\mathbf{p}\mathbf{R^k}$, and -O$\mathbf{R^k}$; wherein:

the C_1-C_6 alkyl of $\mathbf{R^m}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, and -OH;

$\mathbf{R^5}$ is selected from C_1-C_6 alkyl, -C(=O)O(C_1-C_4 alkyl), C_3-C_{12} carbocyclyl, 3- to 12-membered heterocyclyl, C_6 and C_{10} aryl, and 5- to 10-membered heteroaryl; wherein:

the C_1-C_6 alkyl of $\mathbf{R^5}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, -NH_2, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, C_1-C_4

alkoxy,

-C(=O)NH_2, -C(=O)NH(C_1-C_4 alkyl), and -C(=O)N(C_1-C_4 alkyl)$_2$;

the C_3-C_{12} carbocyclyl, the 3 to 12-membered heterocyclyl, the C_6 and C_{10} aryl, and the 5 to 10-membered heteroaryl of **R^5** are each optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, -NH_2, -NH(C_1-C_4 alkyl) (optionally substituted with -OH), -N(C_1-C_4 alkyl)$_2$, C_1-C_5 alkyl (optionally substituted with -OH), C_1-C_4 alkoxy, -C(=O)NH_2, -C(=O)NH(C_1-C_4 alkyl), -NHC(=O)(C_1-C_4 alkyl), -C(=O)(C_1-C_4 alkoxy), and -C(=O)N(C_1-C_4 alkyl)$_2$;

k is an integer selected from 0, 1, and 2, wherein:

when **R^{3a}** is selected from halogen, cyano, -OH, and C_1-C_6 alkyl, k is 1 or 2; and

when **R^{3a}** is =O, k is 1;

m is an integer selected from 0, 1, and 2, wherein:

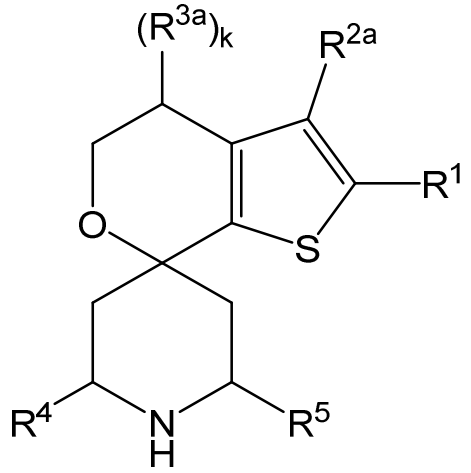
when **R^{3b}** is selected from C_1-C_2 alkyl, m is 1 or 2; and

when **R^{3b}** is =O, **m** is 1;

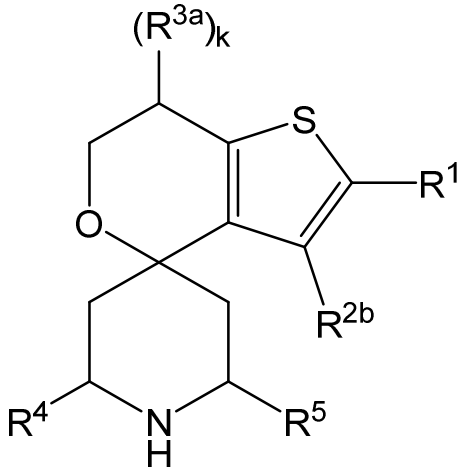
p is an integer selected from 1 and 2; and

q and **r** are each an integer selected from 1, 2, 3, and 4.

2. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to claim 1, wherein the compound is represented by one of the following structural formulae:



Formula **IIa**



Formula **IIb**

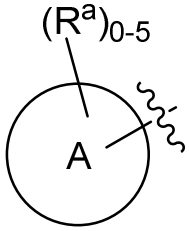
or is a tautomer thereof, a deuterated derivative of that compound or tautomer, or a pharmaceutically acceptable salt of any of the foregoing, wherein:

R^{2a} is selected from hydrogen, halogen, cyano, and C_1-C_4 alkyl; wherein:

the C_1-C_4 alkyl of $\mathbf{R^{2a}}$ is optionally substituted with 1 to 3 groups independently selected from halogen, -OH, and C_1-C_2 alkoxy;

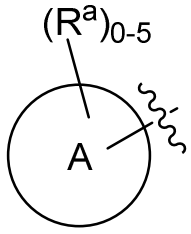
$\mathbf{R^{2b}}$ is selected from hydrogen, halogen, cyano, and C_1-C_4 alkyl; and

k is an integer selected from 0, 1, and 2.

3. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to claim 1 or claim 2, wherein $\mathbf{R^4}$ is selected from C_1-C_4 alkyl and 

; wherein:

the C_1-C_4 alkyl of $\mathbf{R^4}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, $-NH_2$, $-NH(C_1$-C_4 alkyl), $-N(C_1$-C_4 alkyl$)_2$, C_1-C_2 alkoxy, C_3-C_6 cycloalkyl, 5 to 6-membered heterocyclyl, phenyl, and 5 to 6-membered heteroaryl.

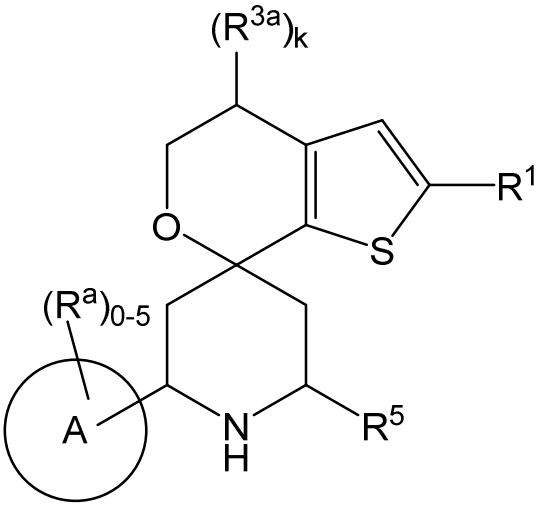
4. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4, wherein $\mathbf{R^4}$ is selected from C_1-C_2 alkyl and 

; wherein:

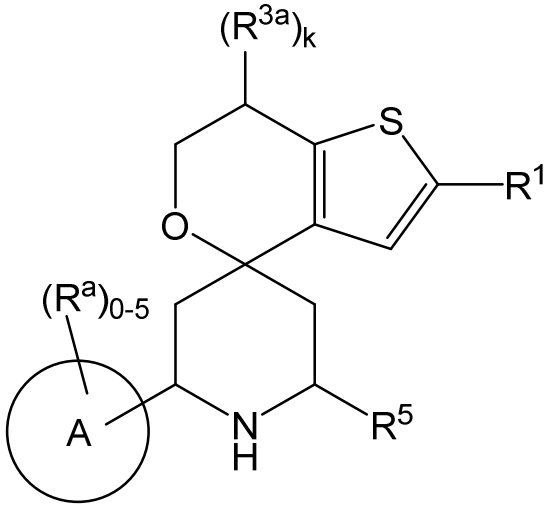
the C_1-C_2 alkyl of $\mathbf{R^4}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, and 5 to 6-membered heterocyclyl.

5. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4, wherein $\mathbf{R^4}$ is selected from $-CH_3$, $-CH_2OH$, and (tetrahydro-2H-pyran-4-yl)methyl.

6. The compound according to any one of claims 1 to 4, wherein the compound is represented by one of the following structural formulae:



Formula **IIIa**



Formula **IIIb**

or is a tautomer thereof, a deuterated derivative of that compound or tautomer, or a pharmaceutically acceptable salt of any of the foregoing, wherein:

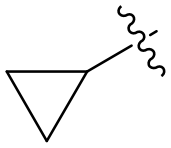
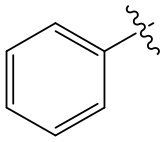
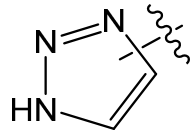
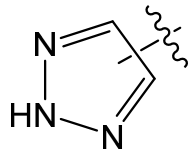
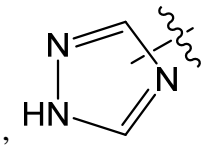
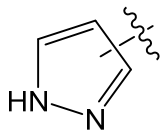
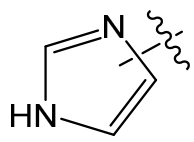
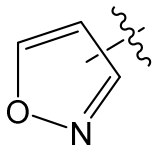
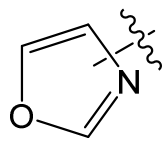
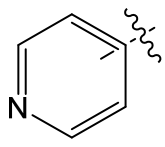
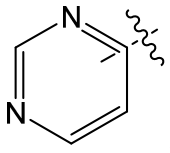
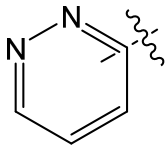
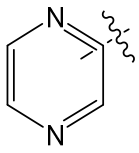
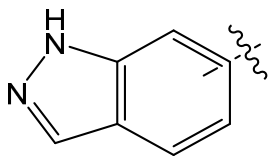
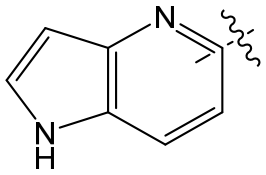
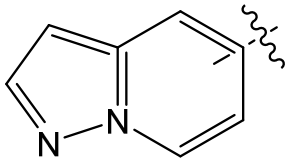
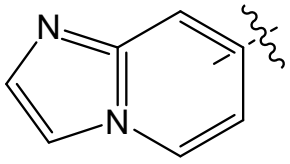
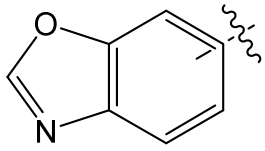
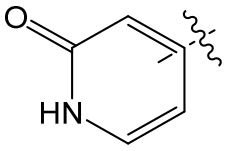
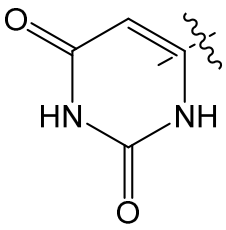
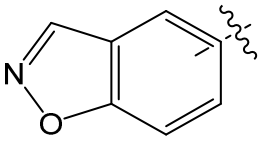
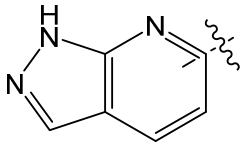
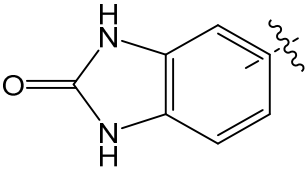
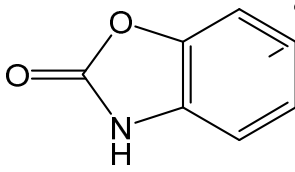
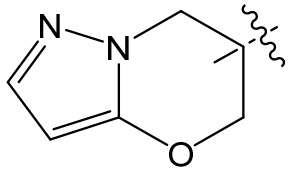
Ring A, for each occurrence, is selected from C_3-C_6 cycloalkyl, 5- to 10-membered heterocyclyl, phenyl, and 5- to 10-membered heteroaryl; each of which is optionally substituted with 1, 2, 3, 4, or 5 $\mathbf{R^a}$ groups.

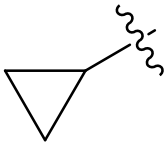
7. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4 and 6, wherein **Ring A** is selected from cyclopropyl, 5- to 10-membered heterocyclyl, phenyl, and 5- to 9-membered heteroaryl; each of which is optionally substituted with 1, 2, 3, 4, or 5 $\mathbf{R^a}$ groups.

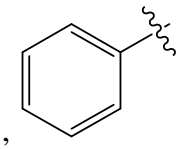
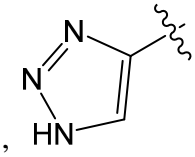
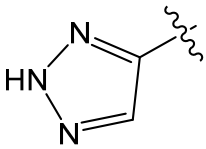
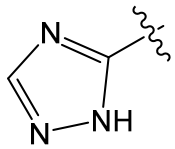
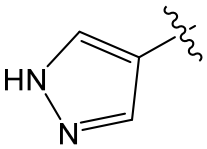
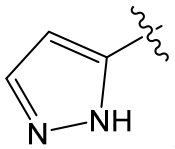
8. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4, 6, and 7, wherein **Ring A** is selected from cyclopropyl, 5- to 10-membered heterocyclyl containing 1 to 3 heteroatoms selected from N and O, phenyl, and 5- to 9-membered heteroaryl containing 1 to 3 heteroatoms selected from N and O; each of which is optionally substituted with 1, 2, 3, 4, or 5 $\mathbf{R^a}$ groups.

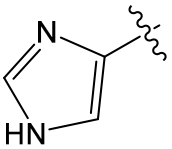
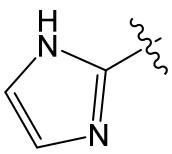
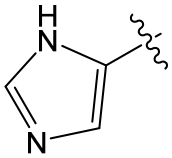
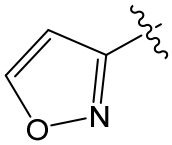
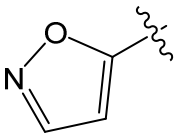
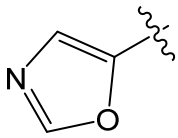
9. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4 and 6 to 8, wherein **Ring A** is selected from cyclopropyl, 5-membered heterocyclyl containing 1 to 3 heteroatoms selected from N and O, 6-membered heterocyclyl containing 1 to 3 heteroatoms selected from N and O, 9-membered heterocyclyl containing 1 to 3 heteroatoms selected from N and O, 10-membered heterocyclyl containing 1 to 3 heteroatoms selected from N and O, phenyl, 5-membered heteroaryl containing 1 to 3

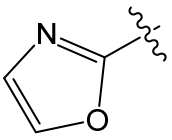
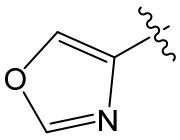
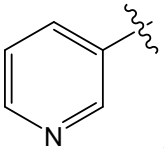
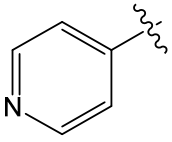
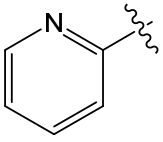
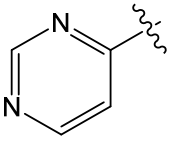
heteroatoms selected from N and O, 6-membered heteroaryl containing 1 to 3 heteroatoms selected from N and O, and 9-membered heteroaryl containing 1 to 3 heteroatoms selected from N and O; each of which is optionally substituted with 1, 2, 3, 4, or 5 **R**[a] groups.

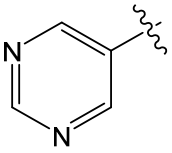
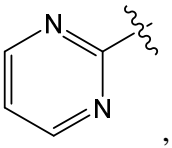
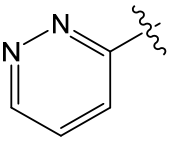
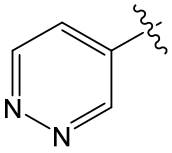
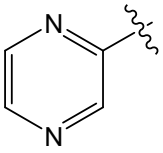
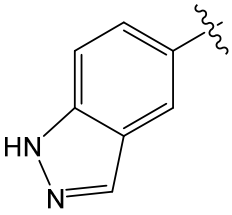
10. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4 and 6 to 9, wherein **Ring A** is selected from  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  , , and  ; each of which is optionally substituted with 1, 2, 3, 4, or 5 **R**[a] groups.

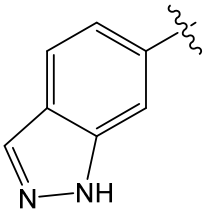
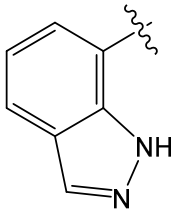
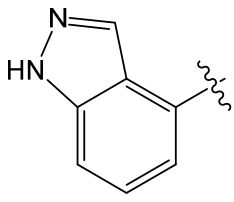
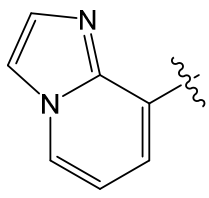
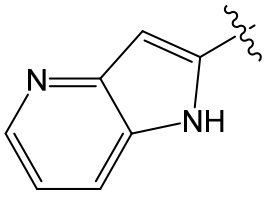
11. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4 and 6 to 10, wherein **Ring A** is selected from 

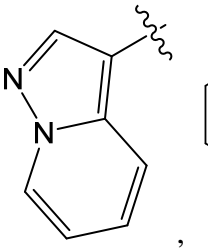
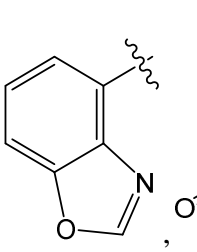
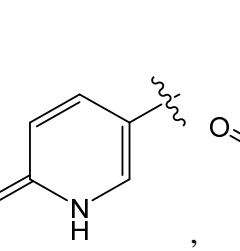
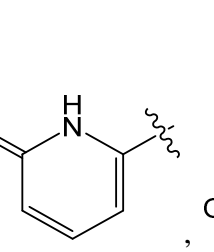
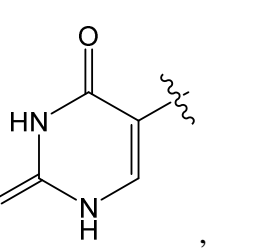
 ,  ,  ,  ,  ,  ,

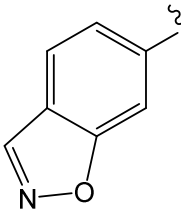
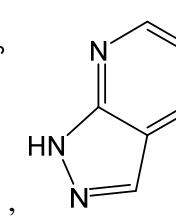
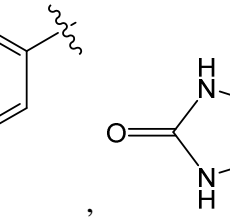
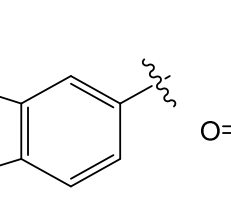
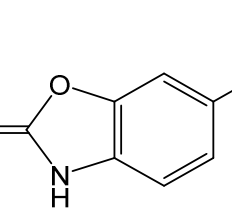
 ,  ,  ,  ,  ,  ,

 ,  ,  ,  ,  ,  ,

 ,  ,  ,  ,  ,  ,

 ,  ,  ,  ,  ,

 ,  ,  ,  ,  ,

 ,  ,  ,  ,  ,

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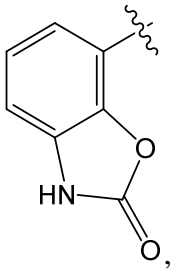
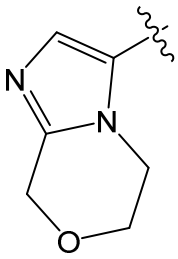
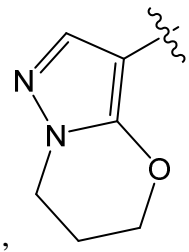
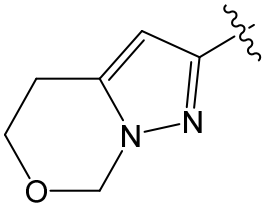
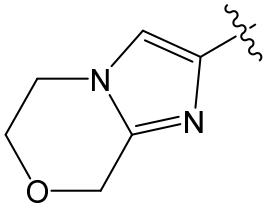
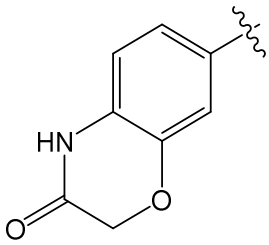
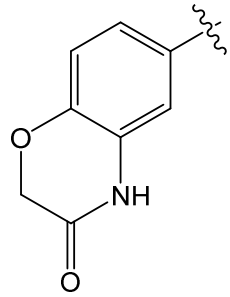
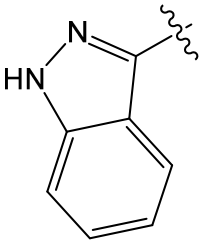
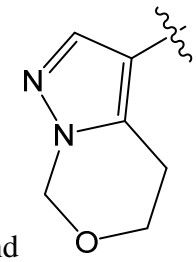
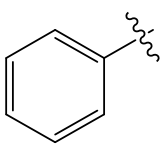
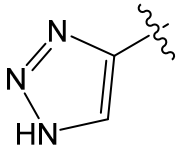
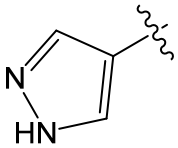
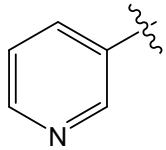
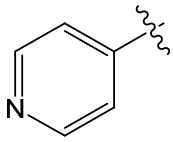
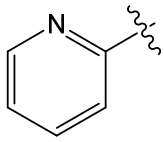
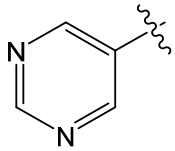
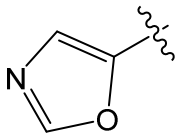
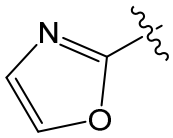
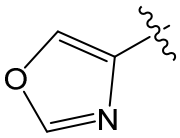
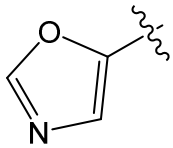
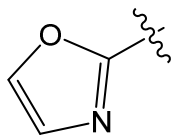
 ,  ,  ,  ,  ,

 ,  ,  , and  ; each of which is optionally substituted with 1, 2, 3, 4, or 5 $\mathbf{R^a}$ groups.

12. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4 and 6 to 11, wherein $\mathbf{R^4}$ is selected from $-CH_3$ and **Ring A**; wherein **Ring A** is selected from  ,  ,  ,  ,

 ,  ,  ,  ,  ,  ,

 , and  ; each of which is optionally substituted with 1, 2, 3, 4, or 5 $\mathbf{R^a}$ groups.

13. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 12, wherein $\mathbf{R^5}$ is selected from C_1-C_4 alkyl, -C(=O)O(C_1-C_2 alkyl), C_3-C_6 cycloalkyl, and 5- to 10-membered heterocyclyl; wherein:

the C_1-C_4 alkyl of $\mathbf{R^5}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, and C_1-C_2 alkoxy; and

the C_3-C_6 cycloalkyl and the 5 to 10-membered heterocyclyl of $\mathbf{R^5}$ are each optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, C_1-C_2 alkyl, and C_1-C_2 alkoxy.

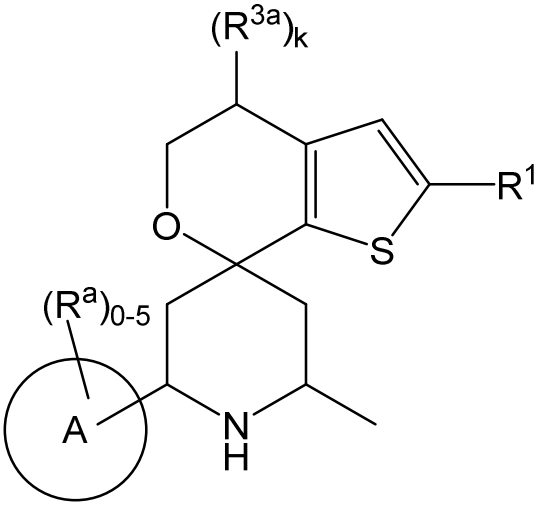
14. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 13, wherein $\mathbf{R^5}$ is selected from C_1-C_2 alkyl, C(=O)O(C_1-C_2 alkyl), cyclopropyl, cyclobutyl, and 5- to 6-membered heterocyclyl; wherein:

the C_1-C_2 alkyl of $\mathbf{R^5}$ is optionally substituted with 1 to 3 groups independently selected from F, Cl, Br, cyano, -OH, and C_1-C_2 alkoxy; and

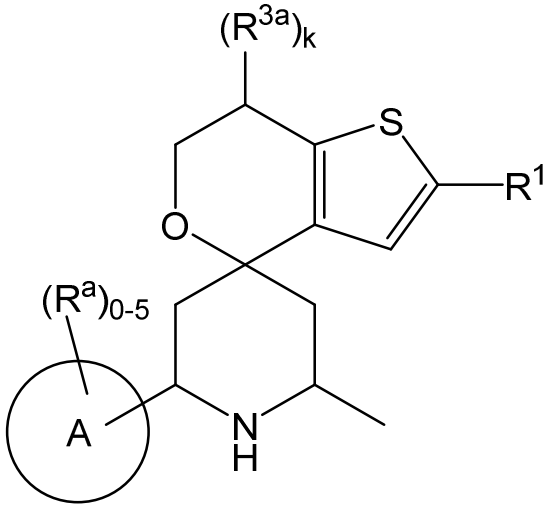
the cyclopropyl, the cyclobutyl, and the 5- to 6-membered heterocyclyl of $\mathbf{R^5}$ are each optionally substituted with 1 to 3 groups independently selected from F, Cl, Br, cyano, -OH, C_1-C_2 alkyl, and C_1-C_2 alkoxy.

15. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 14, wherein $\mathbf{R^5}$ is selected from $-CH_3$, $-CH_2CH_3$, $-CH_2OH$, $-C(=O)OCH_3$, $-CH_2OCH_3$, $-CH(CH_3)_2$, cyclopropyl, difluorocyclopropyl, and tetrahydro-2H-pyranyl.

16. The compound according to any one of claims 1 to 15, wherein the compound is represented by one of the following structural formulae:



Formula **IVa**



Formula **IVb**

or is a tautomer thereof, a deuterated derivative of that compound or tautomer, or a pharmaceutically acceptable salt of any of the foregoing.

17. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 16, wherein $\mathbf{R^1}$ is selected from hydrogen, halogen, cyano, -OH, C_1-C_4 alkyl, C_1-C_4 alkoxy, and C_3-C_6 cycloalkyl; wherein:

the C_1-C_4 alkyl of $\mathbf{R^1}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, and C_1-C_2 alkoxy;

the C_1-C_4 alkoxy of $\mathbf{R^1}$ is optionally substituted with 1 to 3 independently selected halogen groups; and

the C_3-C_6 cycloalkyl of $\mathbf{R^1}$ is optionally substituted with 1 to 3 groups independently selected from halogen, cyano, -OH, and C_1-C_2 alkoxy.

18. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 17, wherein $\mathbf{R^1}$ is selected from F, Cl, Br, C_1-C_4 alkyl, and C_3-C_6 cycloalkyl; wherein:

the C_1-C_4 alkyl of $\mathbf{R^1}$ is optionally substituted with 1 to 3 groups independently selected from halogen and -OH; and

the C_3-C_6 cycloalkyl of $\mathbf{R^1}$ is optionally substituted with 1 to 3 groups independently selected from halogen, and -OH.

19. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 18, wherein $\mathbf{R^1}$ is selected from F, Cl, Br, C_1-C_4 alkyl, and C_3-C_6 cycloalkyl; wherein:

the C_1-C_4 alkyl of $\mathbf{R^1}$ is optionally substituted with 1 to 3 groups independently selected from halogen and -OH; and

the C_3-C_6 cycloalkyl of $\mathbf{R^1}$ is optionally substituted with 1 to 3 groups independently selected from halogen, and -OH.

20. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 16, wherein $\mathbf{R^1}$ is selected from Cl, Br, $-CH_3$, $-CF_3$, $-CH_2CH_3$, $-CH(CH_3)_2$, $-CH_2CHF_2$, $-CH_2CH(CH_3)_2$, difluorocyclobutyl, and cyclohexyl.

21. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 20, wherein $\mathbf{R^1}$ is Cl.

22. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 21, wherein $\mathbf{R^{3a}}$ is selected from halogen, -OH, and C_1-C_4 alkyl; wherein:

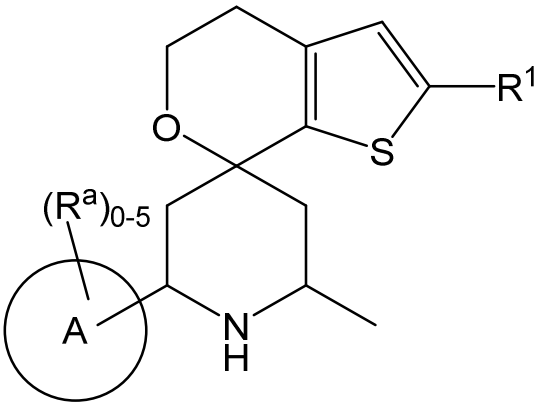
the C_1-C_4 alkyl of $\mathbf{R^{3a}}$ is optionally substituted with 1 to 3 groups independently selected from halogen and -OH.

23. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 22, wherein $\mathbf{R^{3a}}$ is selected from F, Cl, Br, -OH, and C_1-C_2 alkyl; wherein:

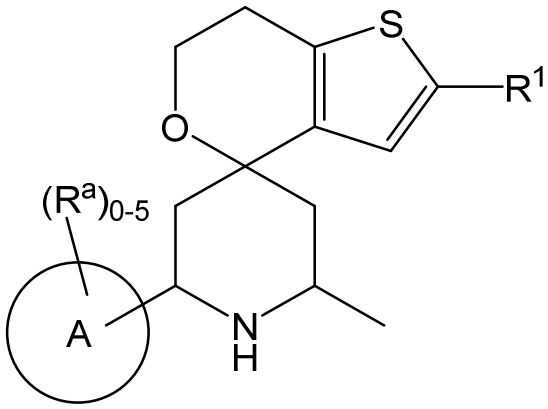
the C_1-C_2 alkyl of $\mathbf{R^{3a}}$ is optionally substituted with 1 to 3 groups independently selected from F, Cl, and -OH.

24. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 23, wherein $\mathbf{R^{3a}}$ is selected from F, -OH, $-CH_3$, $-CHF_2$, and CH_2OH.

25. The compound according to any one of claims 1 to 4 and 6 to 24, wherein the compound is represented by one of the following structural formulae:



Formula **Va**



Formula **Vb**

or is a tautomer thereof, a deuterated derivative of that compound or tautomer, or a pharmaceutically acceptable salt of any of the foregoing.

26. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4 and 6 to 25, wherein $\mathbf{R^a}$, for each occurrence, is independently selected from halogen, cyano, C_1-C_6 alkyl, C_1-C_4 alkoxy, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, $-C(=O)N\mathbf{R^h}\mathbf{R^i}$, $-N\mathbf{R^h}\mathbf{R^i}$, $-N\mathbf{R^h}C(=O)\mathbf{R^k}$, $-O\mathbf{R^k}$, $-[O(CH_2)_\mathbf{q}]_rO(C_1$-$C_6$ alkyl),

-S(=O)$_2$**R^k**, -S(=O)$_2$N**R^{h}R^i**, C_3-C_6 cycloalkyl, 5- to 10-membered heterocyclyl, phenyl, and 5- to 8-membered heteroaryl; wherein:

the C_1-C_6 alkyl of **R^a** is optionally substituted with 1 to 3 groups independently selected from cyano, -C(=O)N**R^{h}R^i**, -N**R^{h}R^i**, -N**R^h**C(=O)**R^k**, -N**R^h**C(=O)O**R^k**, -N**R^h**C(=O)N**R^{i}R^j**, -N**R^h**S(=O)$_p$**R^k**, -O**R^k**, -S(=O)$_2$**R^k**, -S(=O)$_p$N**R^{h}R^i**, and C_3-C_6 cycloalkyl;

the C_3-C_6 cycloalkyl, the 5 to 10-membered heterocyclyl, the phenyl, and the 5- to 8-membered heteroaryl of **R^a** are each optionally substituted with 1 to 3 groups independently selected from halogen, C_1-C_2 alkyl, and -O**R^k**; wherein:

R^h, **R^i**, and **R^j**, for each occurrence, are each independently selected from hydrogen, C_1-C_2 alkyl, cyclopropyl, and cyclobutyl; wherein:

the C_1-C_2 alkyl of any one of **R^h**, **R^i**, and **R^j** is optionally substituted with 1 to 3 groups independently selected from halogen and -OH;

R^k, for each occurrence, are each independently selected from hydrogen and C_1-C_4 alkyl; wherein:

the C_1-C_4 alkyl of **R^k** is optionally substituted with 1 to 3 groups independently selected from halogen and -OH; and

q and **r** are each an integer selected from 1, 2, and 3.

27. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4 and 6 to 26, wherein **R^a**, for each occurrence, is independently selected from halogen, cyano, C_1-C_6 alkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkyl, C_1-C_4 haloalkoxy, -C(=O)N**R^{h}R^i**, -N**R^{h}R^i**, -N**R^h**C(=O)**R^k**, -O**R^k**, -[O(CH$_2$)$_q$]$_r$O(C_1-C_4 alkyl), -S(=O)$_2$**R^k**, -S(=O)$_2$N**R^{h}R^i**, cyclopropyl, cyclobutyl, 5 to 6-membered heterocyclyl, phenyl, and 5 to 6-membered heteroaryl; wherein:

the C_1-C_6 alkyl of **R^a** is optionally substituted with 1 to 3 groups independently selected from cyano, -C(=O)N**R^{h}R^i**, -N**R^{h}R^i**, -O**R^k**, cyclopropyl, and cyclobutyl;

the cyclopropyl, the cyclobutyl, the 5 to 6-membered heterocyclyl, the phenyl, and the 5 to 6-membered heteroaryl of **R^a** are each optionally substituted with 1 to 3 groups independently selected from halogen, -CH_3, -OH, and -OCH_3; wherein:

R^h and **R^i**, for each occurrence, are each independently selected from hydrogen, -CH_3, cyclopropyl, and cyclobutyl; wherein:

the -CH_3 of any one of **R^h** and **R^i** is optionally substituted with 1 to 3 groups independently selected from F, Cl, and -OH;

$\mathbf{R^k}$, for each occurrence, is each independently selected from hydrogen and -CH_3; wherein:

the -CH_3 of $\mathbf{R^k}$ is optionally substituted with 1 to 3 groups independently selected from halogen and -OH.

28. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4 and 6 to 27, wherein $\mathbf{R^a}$, for each occurrence, is independently selected from F, Cl, Br, cyano, C_1-C_6 alkyl, C_1-C_2 alkoxy, C_1-C_2 haloalkyl, -C(=O)N$\mathbf{R^h R^i}$, -N$\mathbf{R^h R^i}$, -N$\mathbf{R^h}$C(=O)$\mathbf{R^k}$, -O$\mathbf{R^k}$, -[O(CH_2)$_\mathbf{q}$]$_\mathbf{r}$O(C_1-C_2 alkyl), -S(=O)$_2\mathbf{R^k}$, -S(=O)$_2$N$\mathbf{R^h R^i}$, cyclopropyl, cyclobutyl, 5-membered heterocyclyl, phenyl, and 6-membered heteroaryl; wherein:

the C_1-C_6 alkyl of $\mathbf{R^a}$ is optionally substituted with 1 to 3 groups independently selected from cyano, -C(=O)N$\mathbf{R^h R^i}$, -O$\mathbf{R^k}$, and cyclopropyl;

the cyclopropyl, the cyclobutyl, the 5 to 6-membered heterocyclyl, the phenyl, and the 5 to 6-membered heteroaryl of $\mathbf{R^a}$ are each optionally substituted with 1 to 3 groups independently selected from halogen, -CH_3, -OH, and -OCH_3; wherein:

$\mathbf{R^h}$ and $\mathbf{R^i}$, for each occurrence, are each independently selected from hydrogen, -CH_3, and cyclopropyl; wherein:

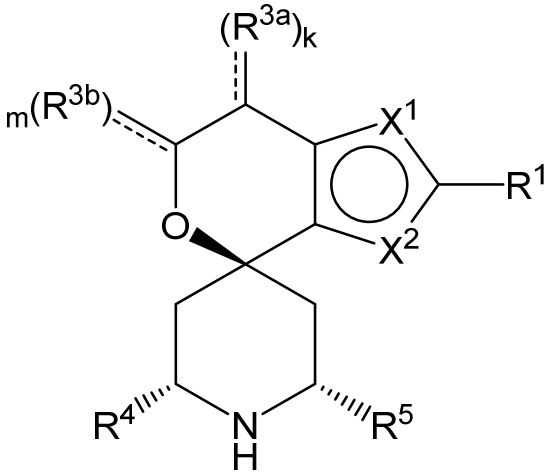
the -CH_3 of any one of $\mathbf{R^h}$ and $\mathbf{R^i}$ is optionally substituted with 1 to 3 groups independently selected from F, Cl, and -OH;

$\mathbf{R^k}$, for each occurrence, is each independently selected from hydrogen and -CH_3; and

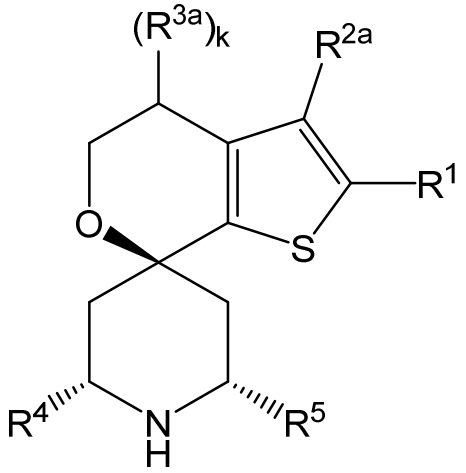
q and **r** are each an integer selected from 1 and 2.

29. The compound, tautomer, deuterated derivative, or pharmaceutically acceptable salt according to any one of claims 1 to 4 and 6 to 28, wherein $\mathbf{R^a}$, for each occurrence, is independently selected from F, cyano, -OH, -CH_3, -CF_3, -$CH(CH_3)_2$, -$(CH_2)_2$OH , -$(CH_2)_2OCH_3$, -$CH_2CH(OH)C_2H_5$, -$CH_2C(CH_3)(CH_2OH)_2$, -OCH_3, -OCH_2CH_3, -$[O(CH_2)_2]_2OCH_3$, -$CH_2C(=O)NHCH_3$, -$(CH_2)_2SO_2CH_3$, -$CH_2C(=O)N(CH_3)_2$, -CH_2(cyclopropyl), -$C(=O)NH_2$, -C(=O)NH(cyclopropyl), -NH_2, -$NHCH_3$, -$N(CH_3)_2$, -$NHC(CH_3)_2CH_2OH$, -$NHC(=O)CH_3$, -SO_2CH_3, -SO_2NH_2, cyclopropyl, 2-methoxyphenyl, N-methylpiperazinyl, tetrahydro-2H-pyranyl, methylpyrazolyl, pyridinyl, and tetrahydrothiophenyl 1,1-dioxide.

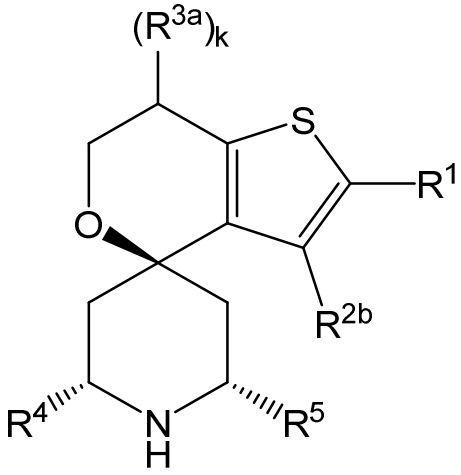
30. The compound according to claim 1, wherein the compound is represented by one of the following structural formulae:



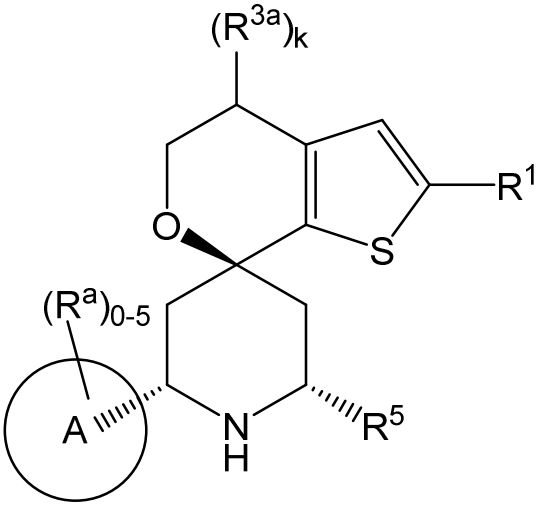
Formula **I'**



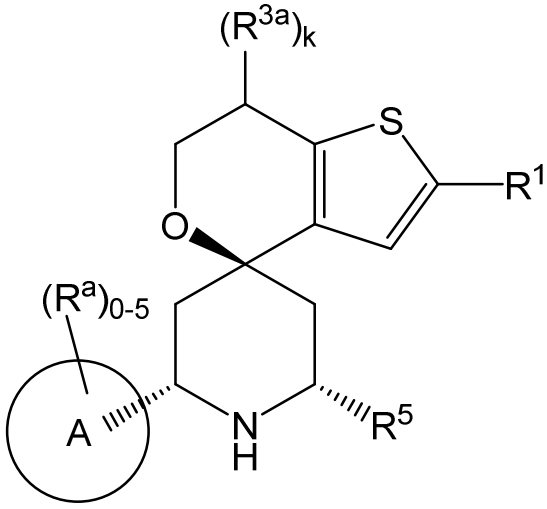
Formula **IIa'**



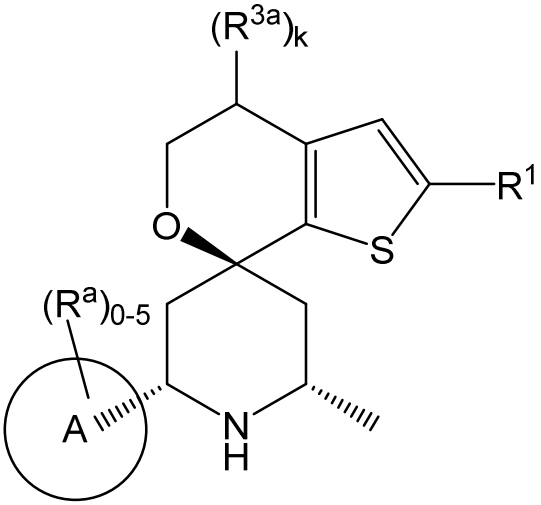
Formula **IIb'**



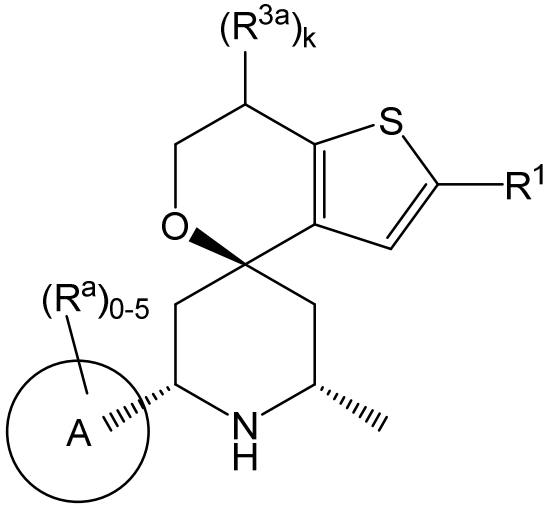
Formula **IIIa'**



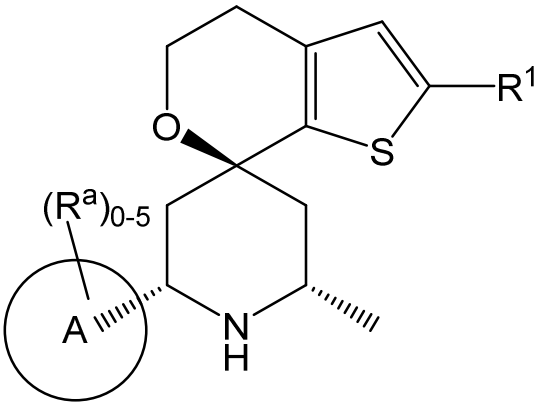
Formula **IIIb'**



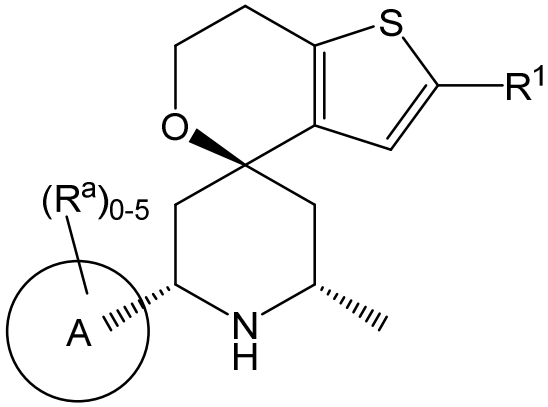
Formula **IVa'**



Formula **IVb'**



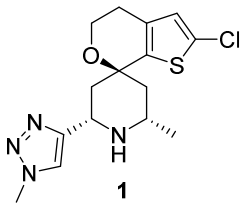
Formula **Va'**



Formula **Vb'**

or is a tautomer thereof, a deuterated derivative of that compound or tautomer, or a pharmaceutically acceptable salt of any of the foregoing.

31. A compound selected from: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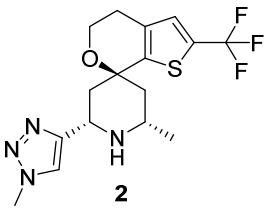
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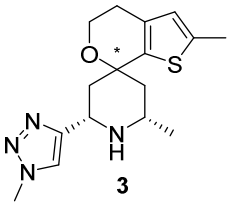
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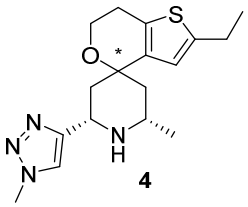
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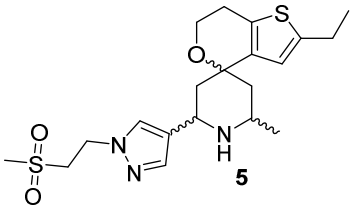
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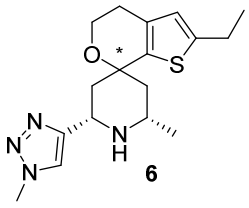
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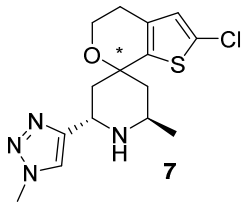
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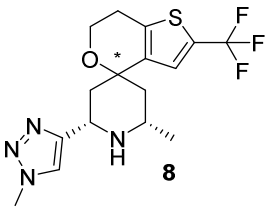
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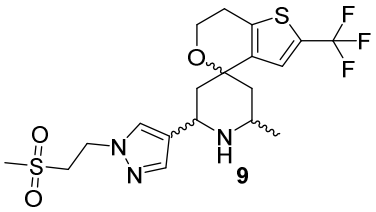
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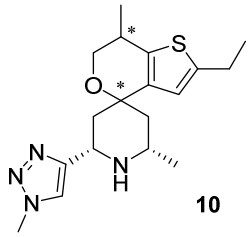
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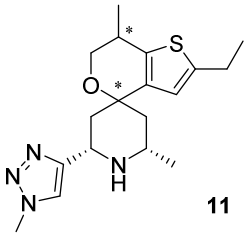
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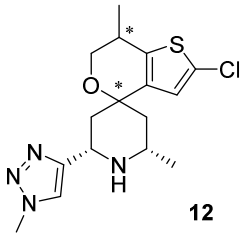
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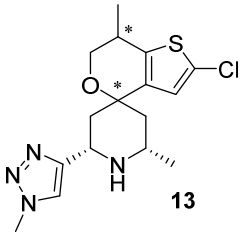
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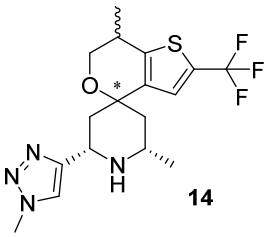
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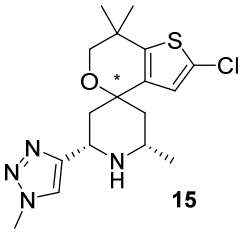
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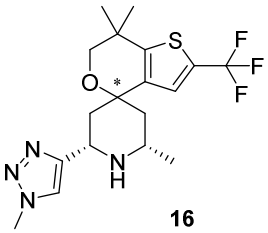
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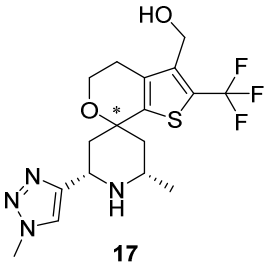
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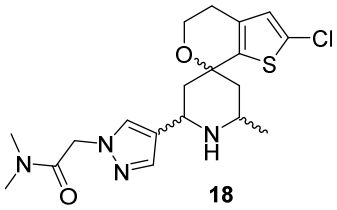
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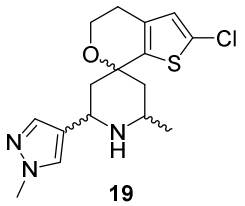

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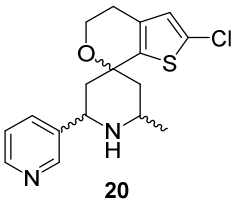

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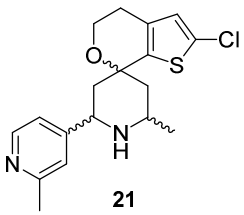

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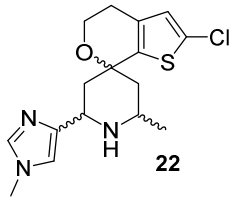

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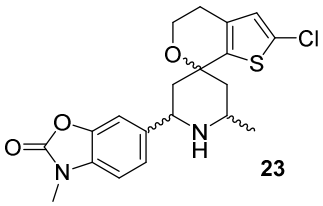

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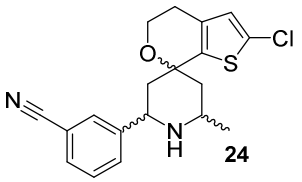

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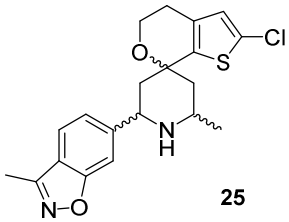

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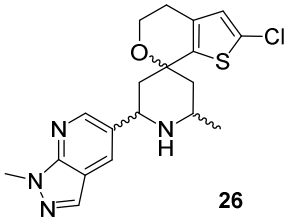

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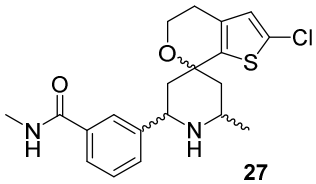

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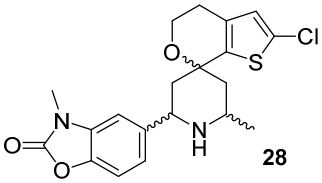

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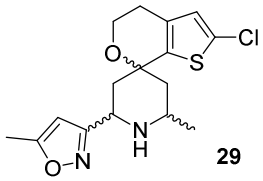

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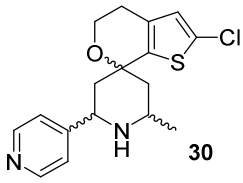

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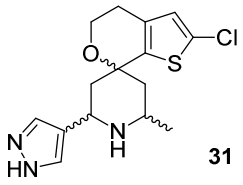

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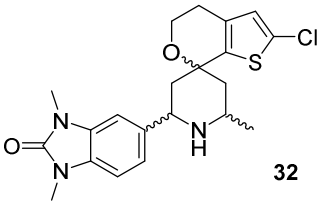

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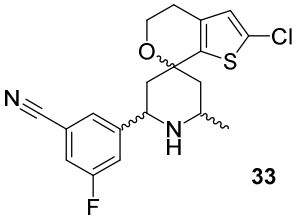

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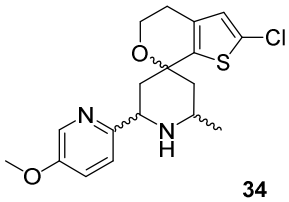

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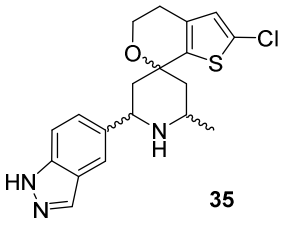

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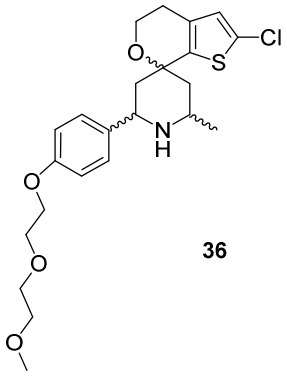

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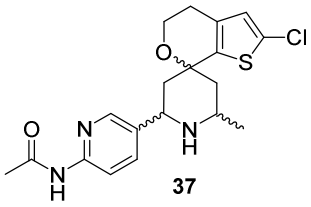

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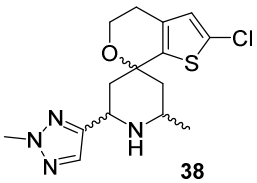

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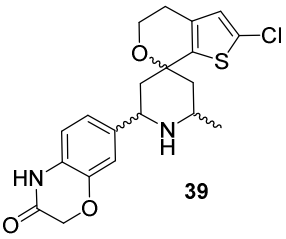

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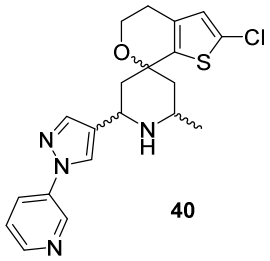

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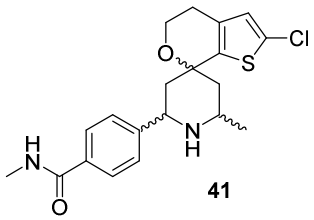

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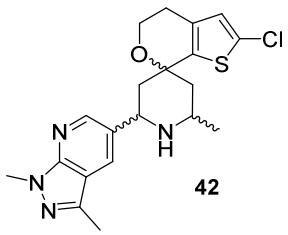

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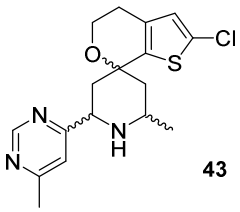

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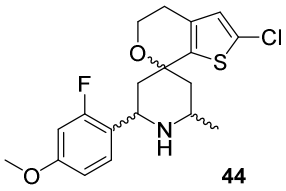

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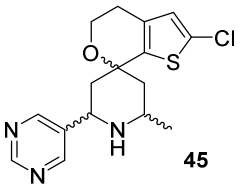

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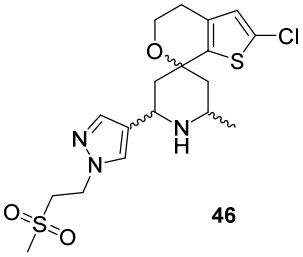

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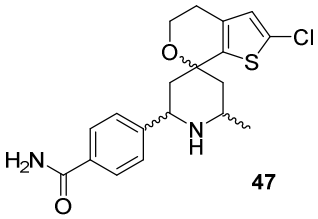

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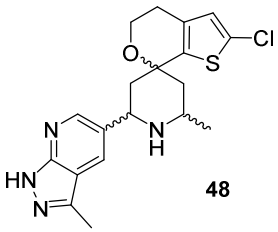

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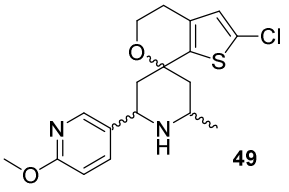

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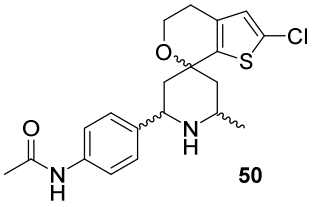

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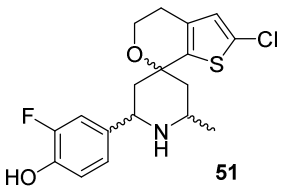

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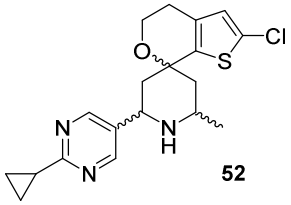

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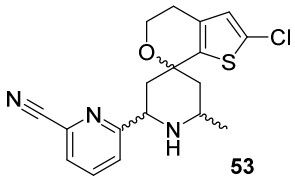

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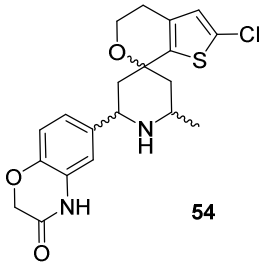

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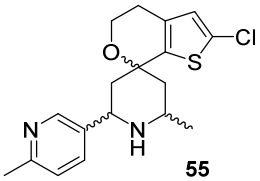

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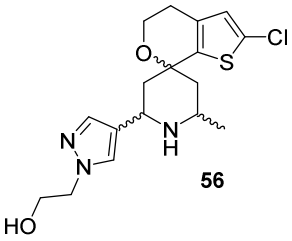

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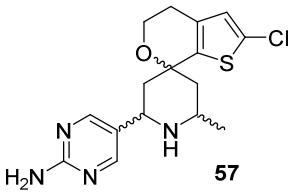

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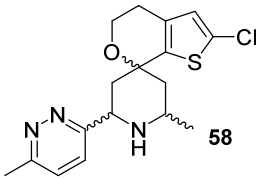

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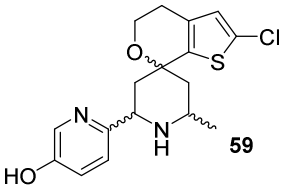

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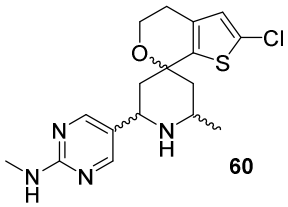

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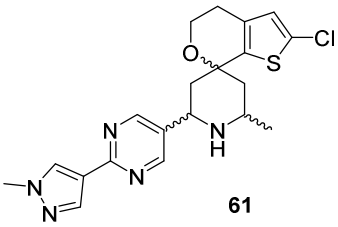

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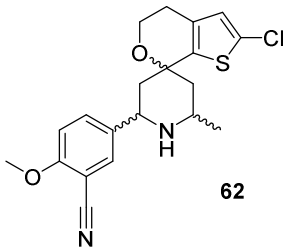

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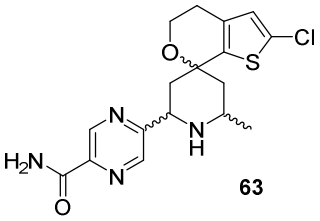

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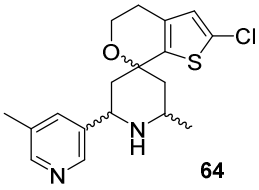

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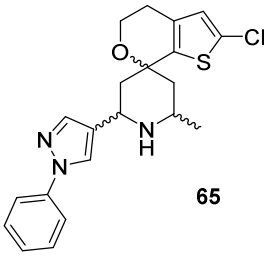

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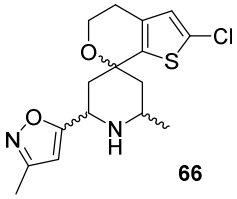

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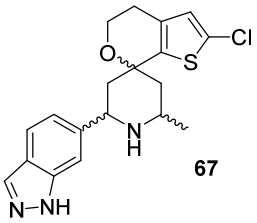

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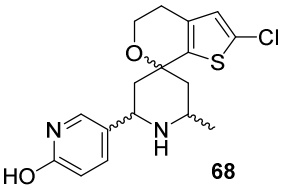

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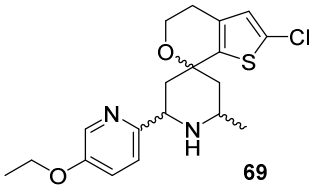

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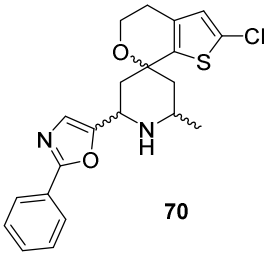

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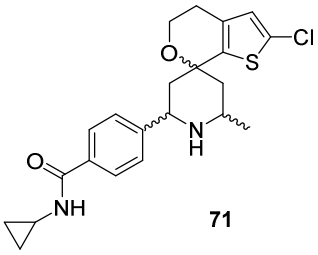

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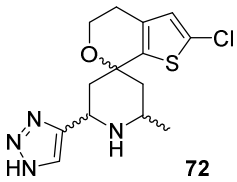

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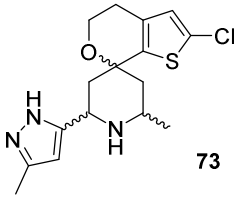

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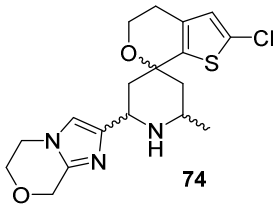

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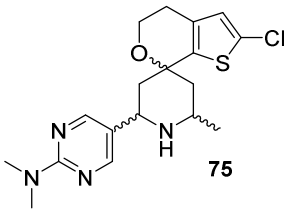

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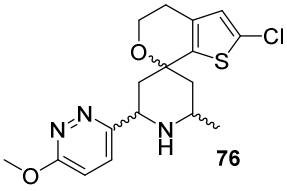

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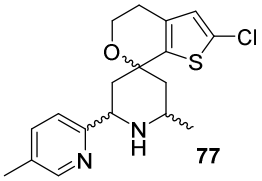

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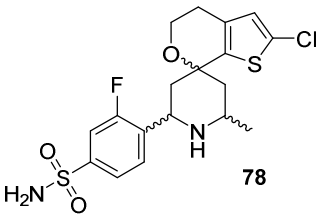

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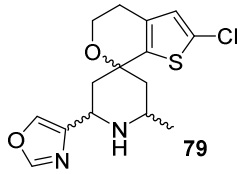

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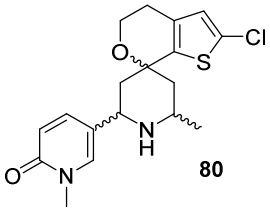

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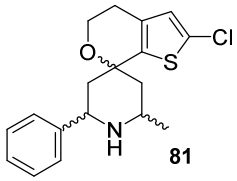

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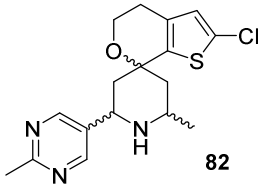

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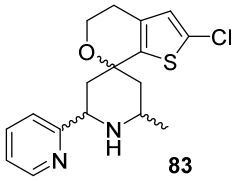

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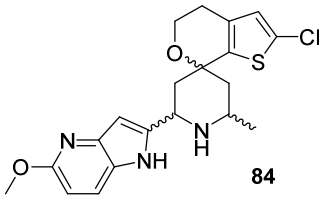

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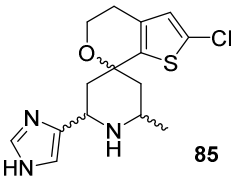

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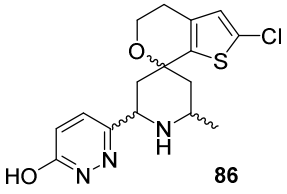

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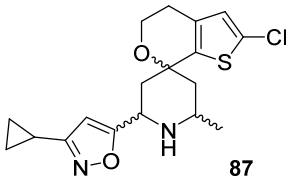

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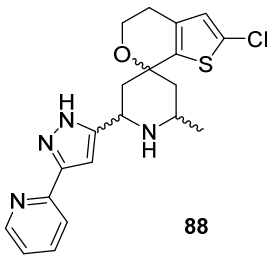

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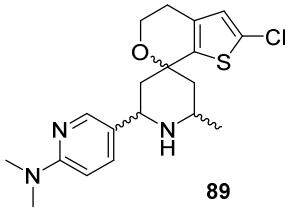

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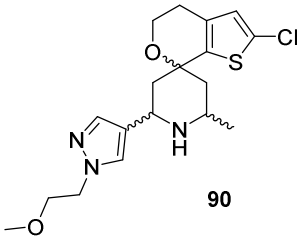

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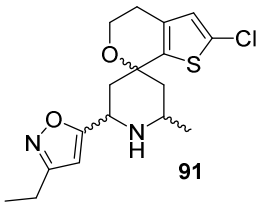

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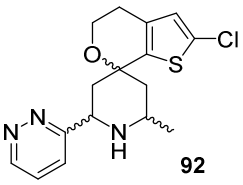

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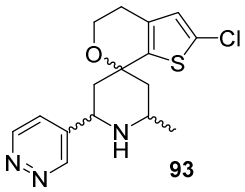

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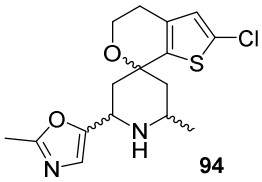

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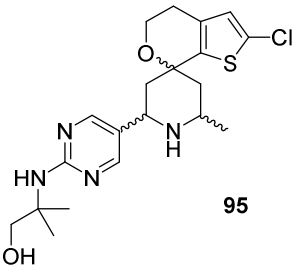

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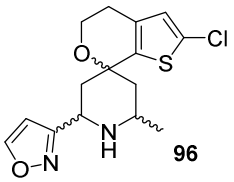

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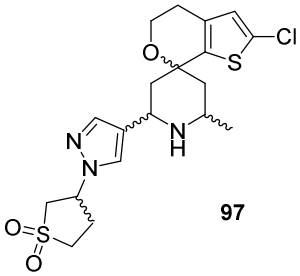

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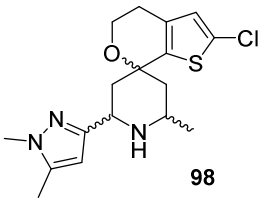

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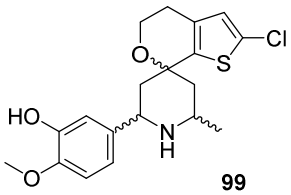

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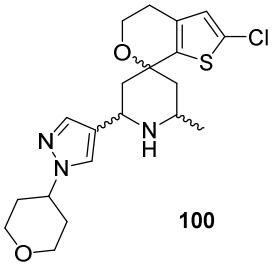

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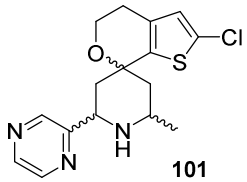

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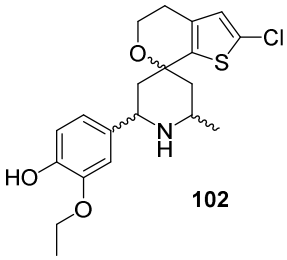

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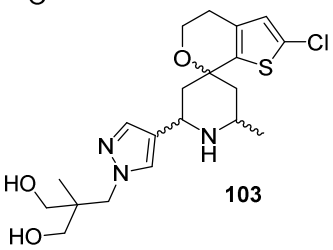

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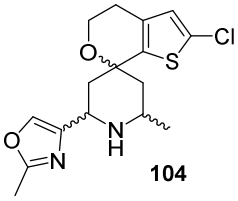

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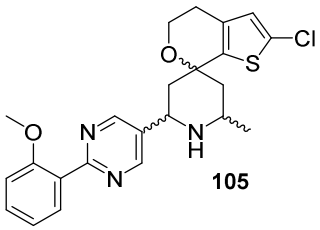

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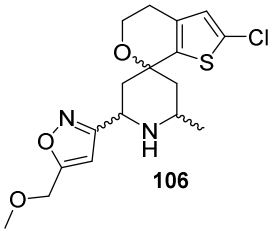

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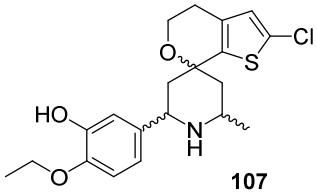

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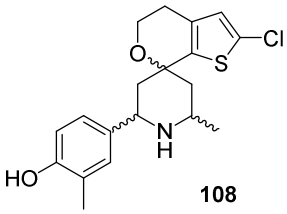

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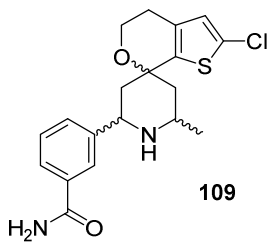
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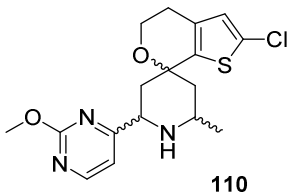
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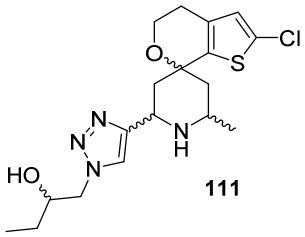
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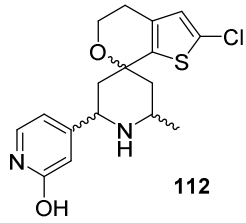
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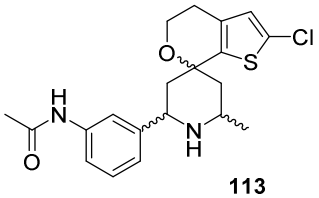
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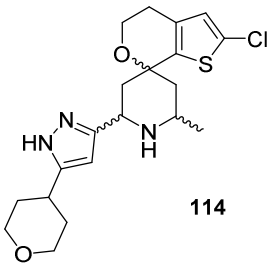
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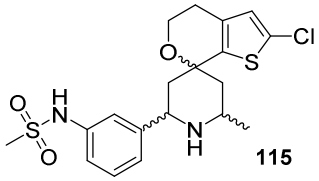
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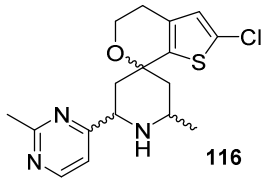
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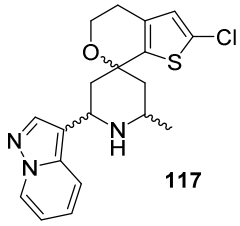
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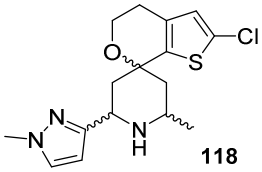
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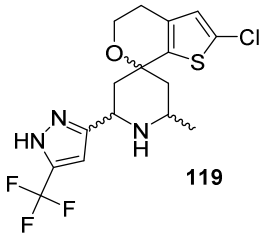
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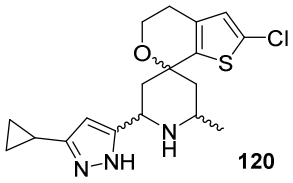
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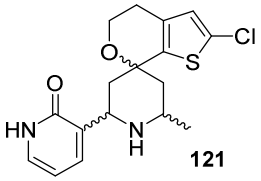
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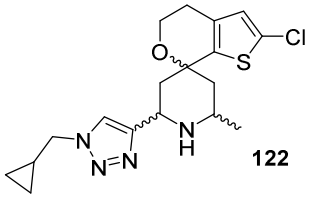
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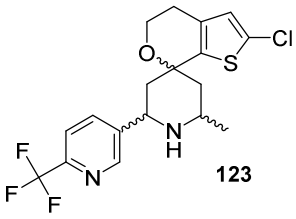
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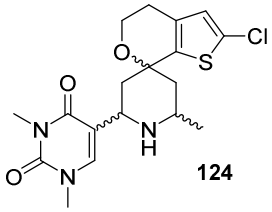
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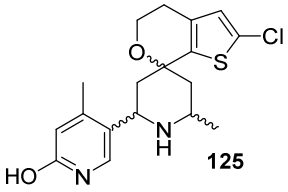
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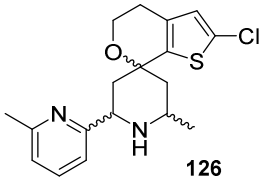
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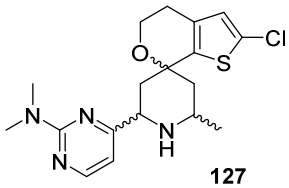

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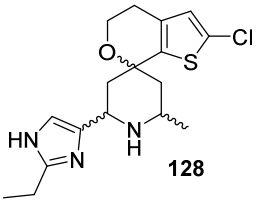

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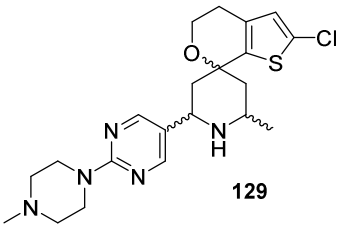

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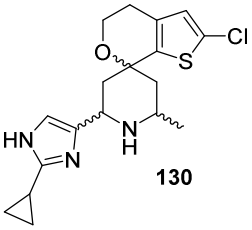

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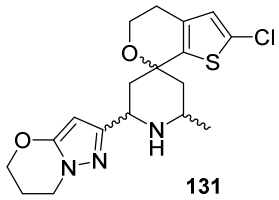

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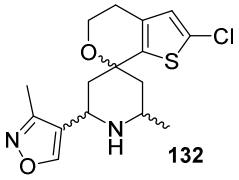

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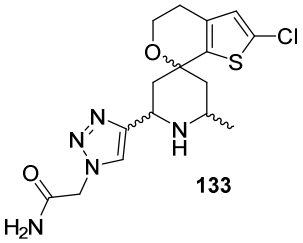

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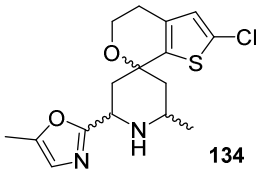

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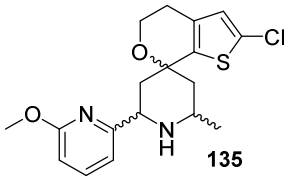

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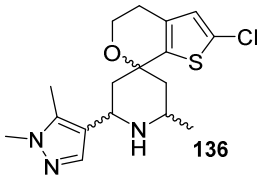

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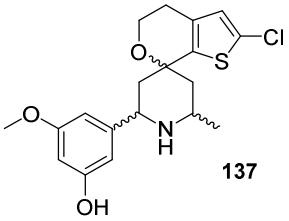

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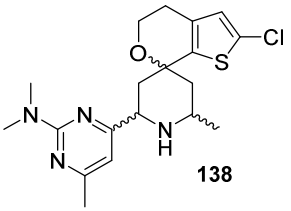

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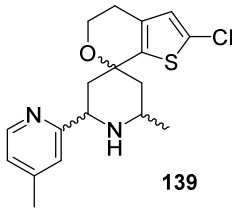

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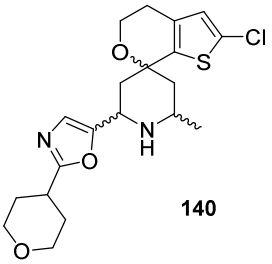

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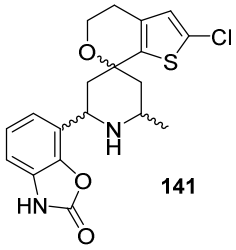

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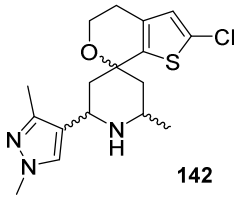

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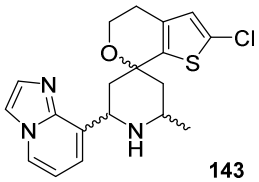

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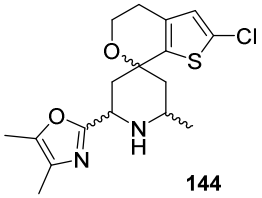

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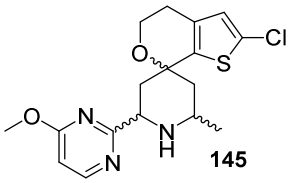

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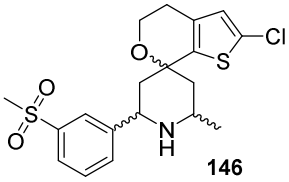

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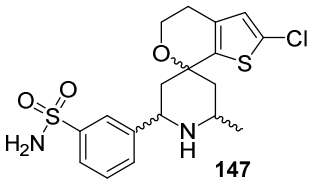

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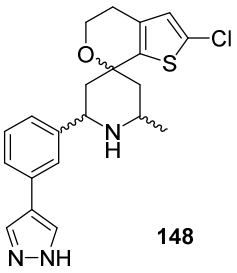

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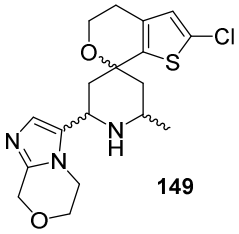

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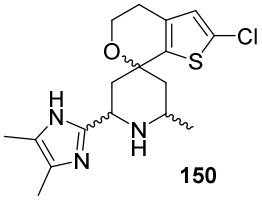

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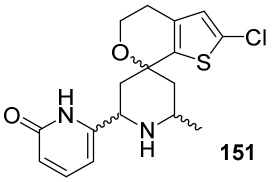

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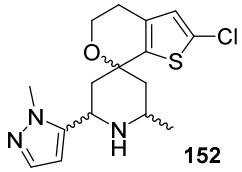

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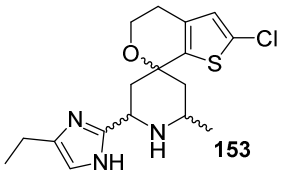

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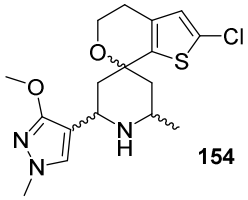

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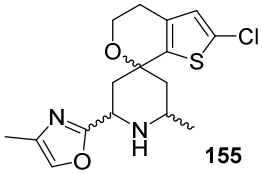

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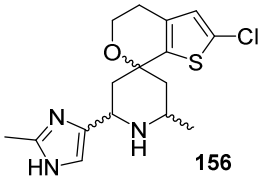

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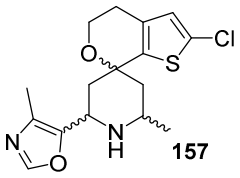

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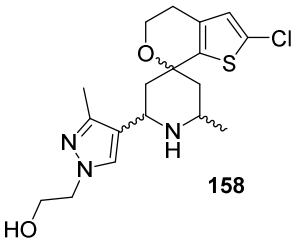

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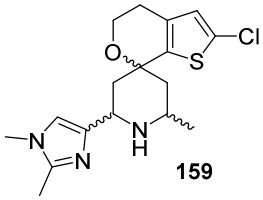

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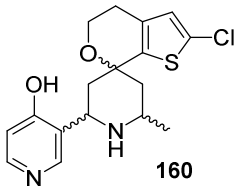

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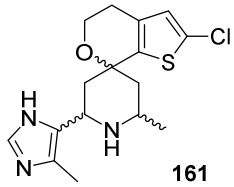

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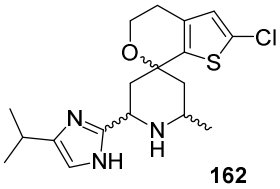

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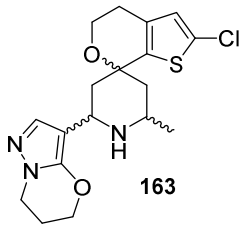

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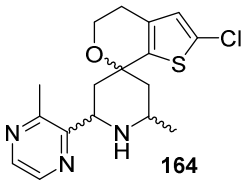

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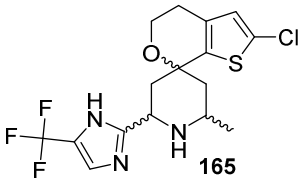

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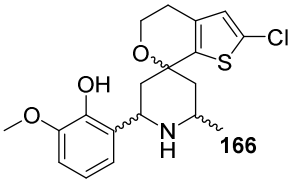

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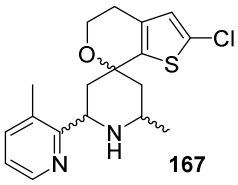

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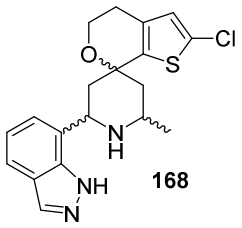

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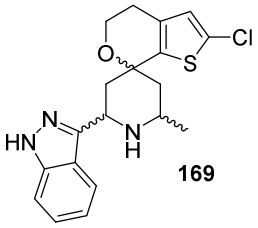

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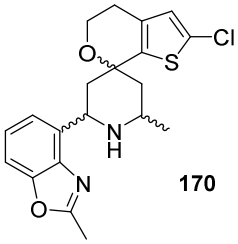

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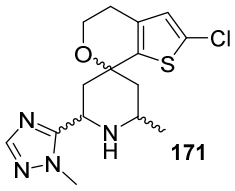

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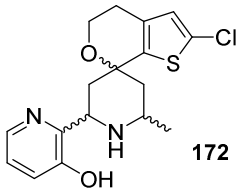

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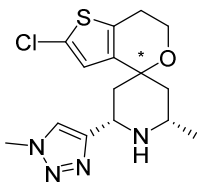

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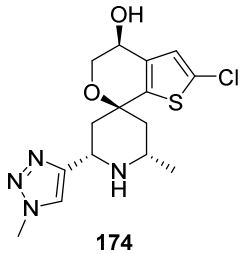

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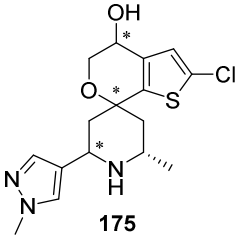

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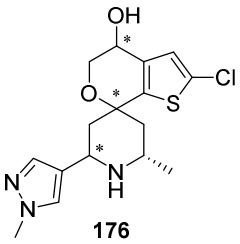

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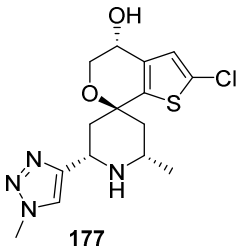

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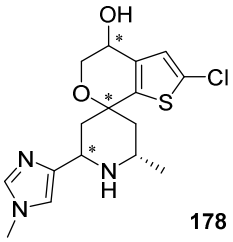

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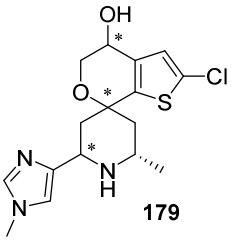

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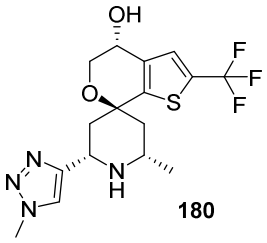

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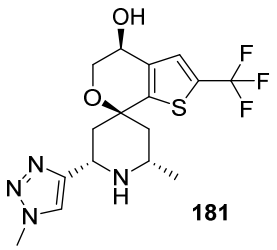

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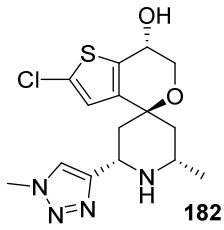

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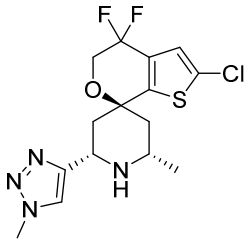

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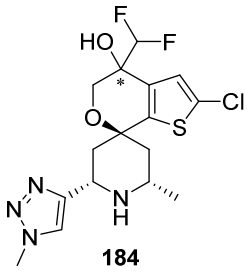

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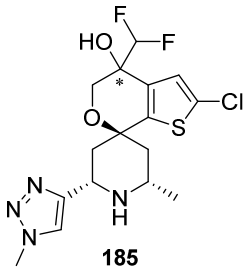

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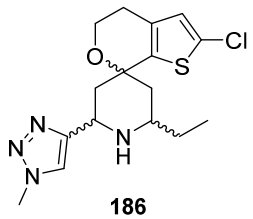

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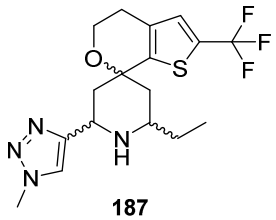

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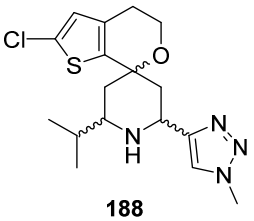

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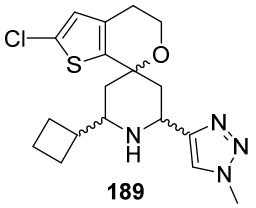

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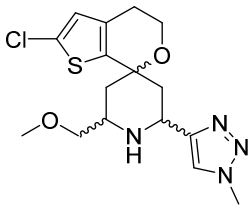

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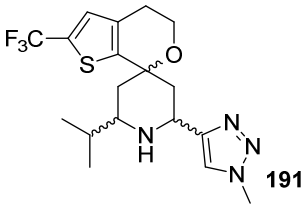

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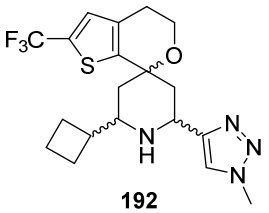

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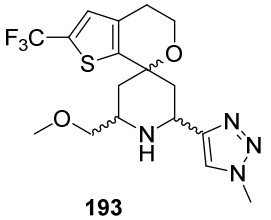

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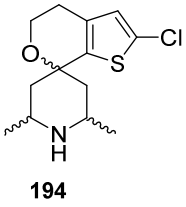

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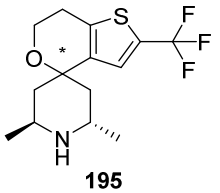

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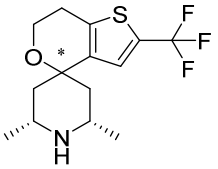

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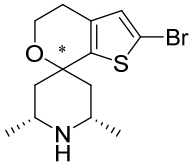

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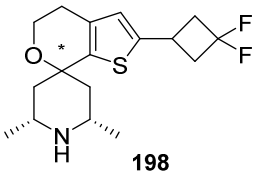

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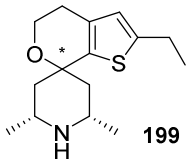

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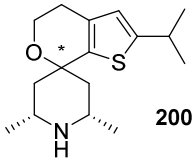

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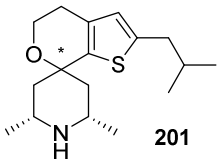

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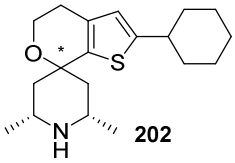

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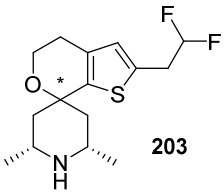

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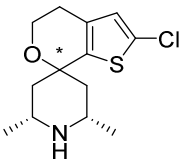

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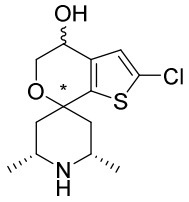

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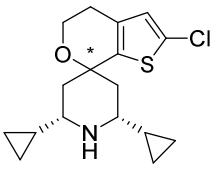

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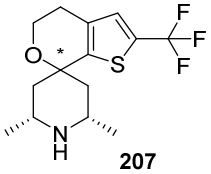

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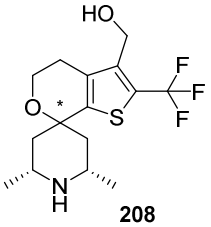

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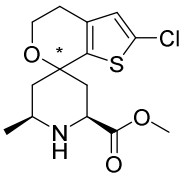

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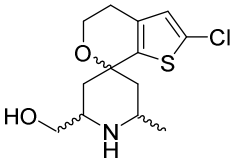

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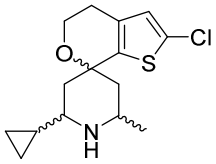

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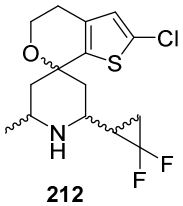

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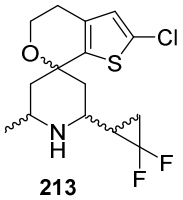

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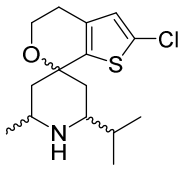

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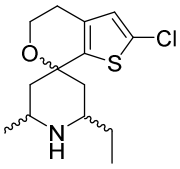

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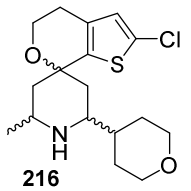

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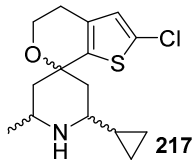

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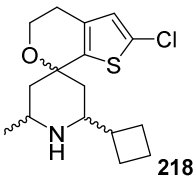

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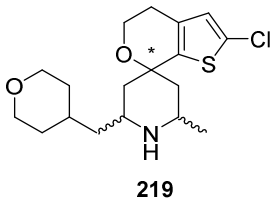

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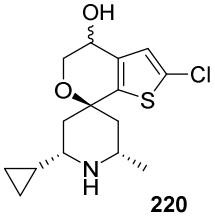

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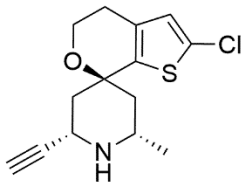

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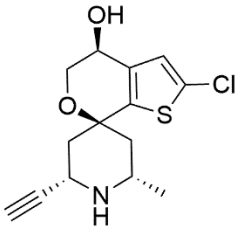

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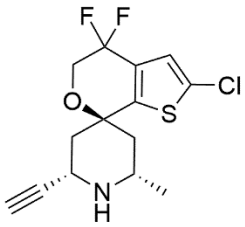

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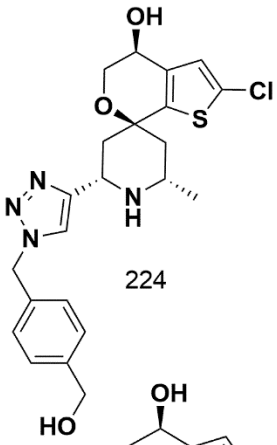

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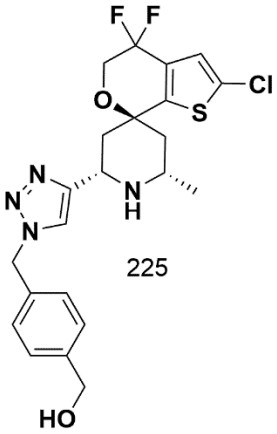

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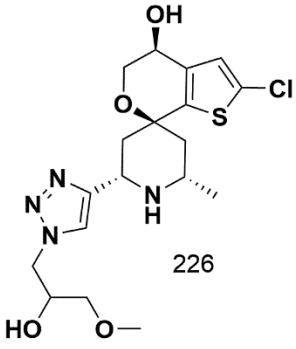

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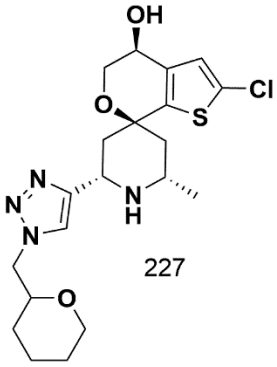

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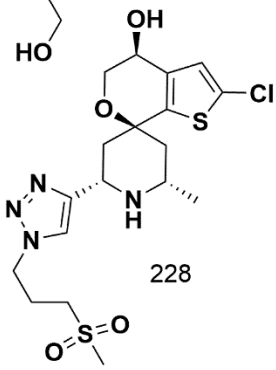

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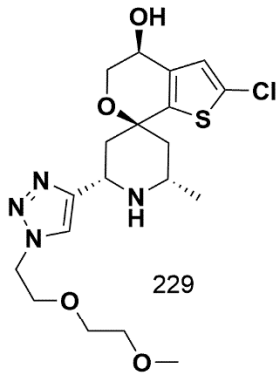

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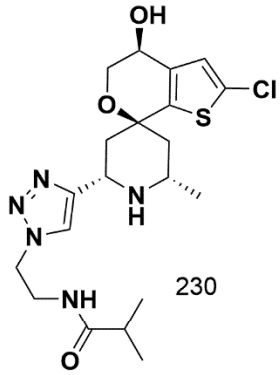

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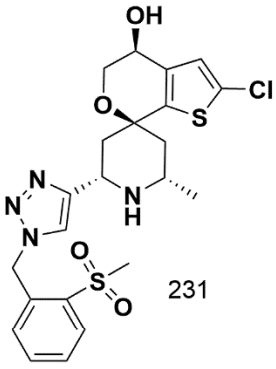

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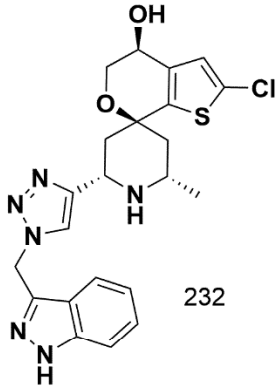

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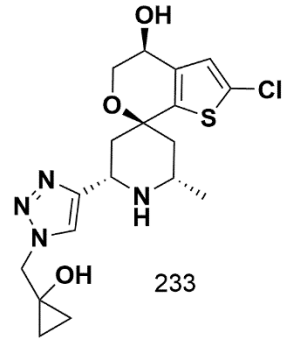

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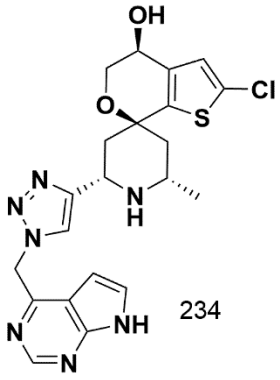

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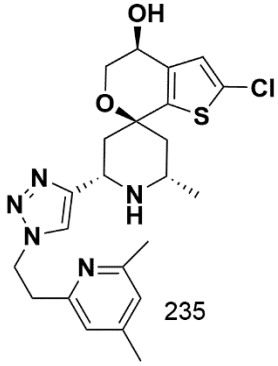

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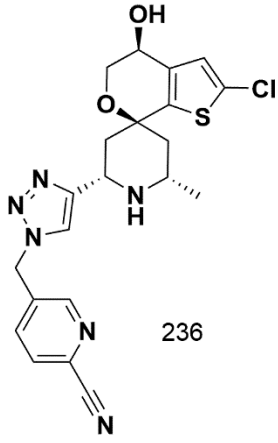

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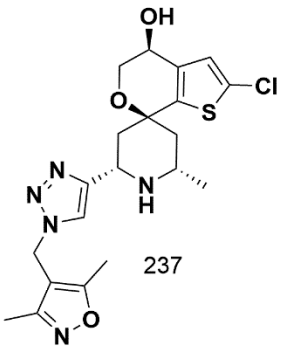

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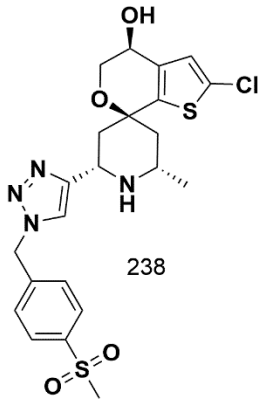

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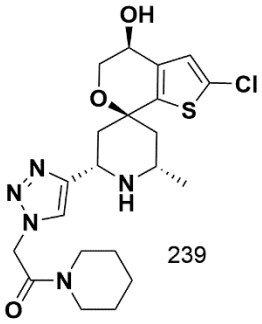

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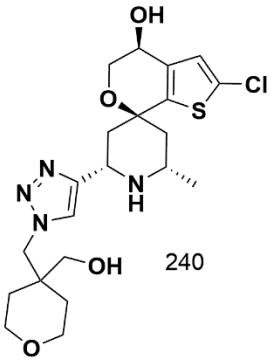

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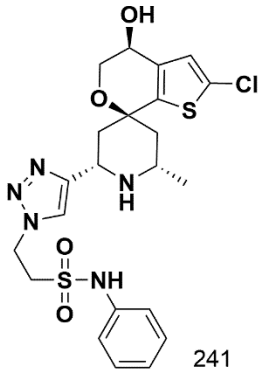

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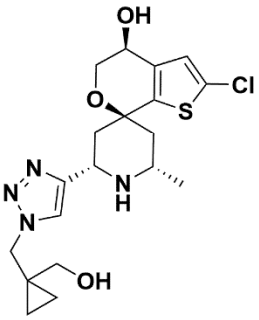

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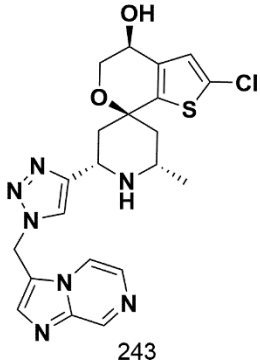

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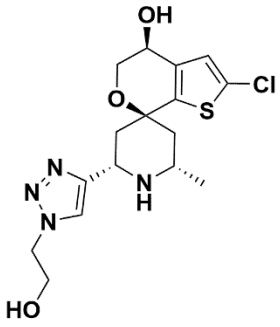

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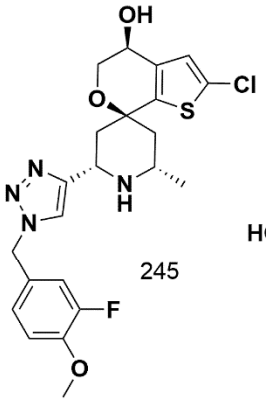

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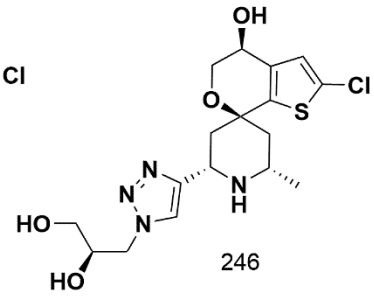

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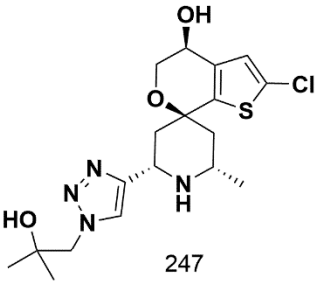

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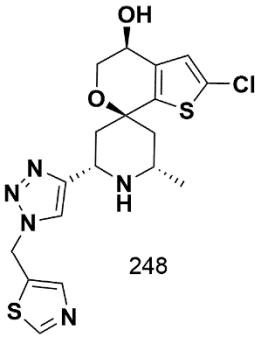

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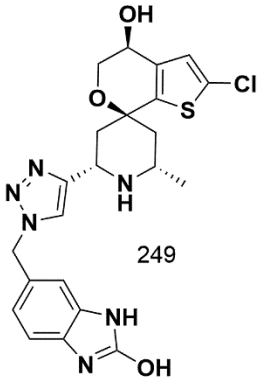

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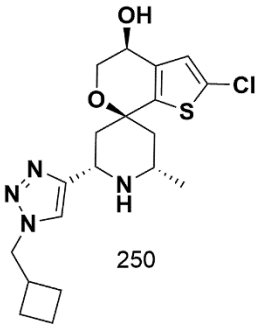

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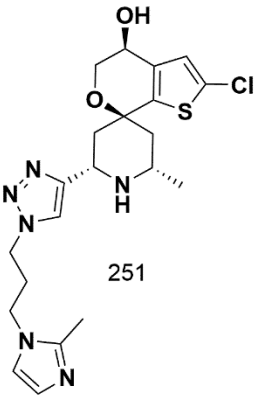

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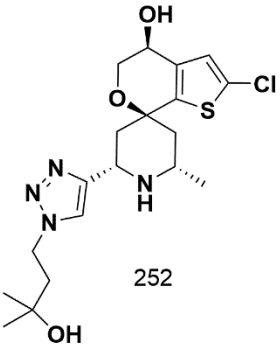

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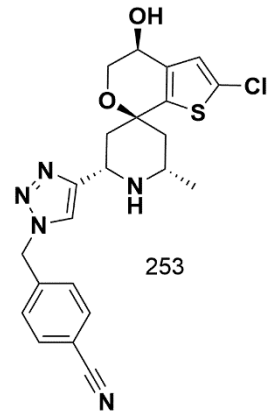
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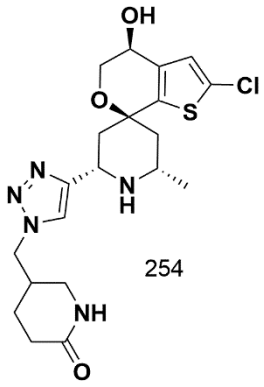
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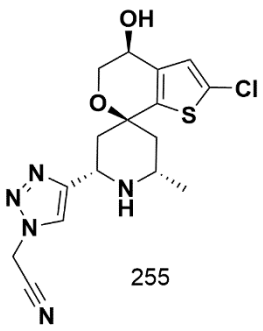
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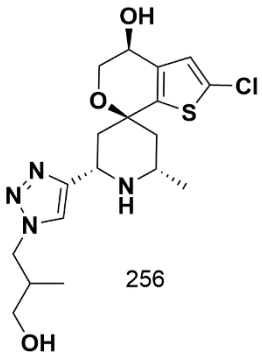
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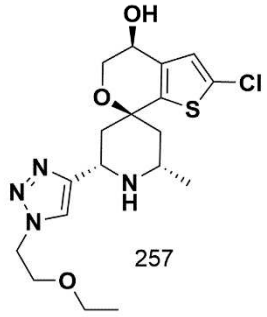
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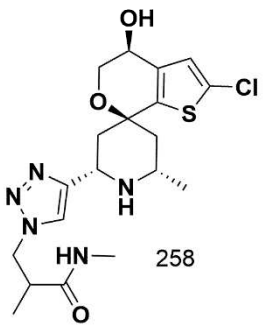
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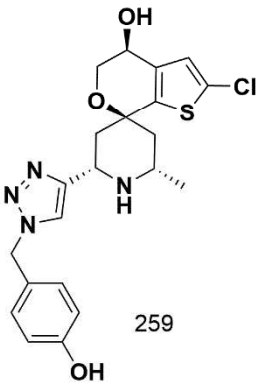
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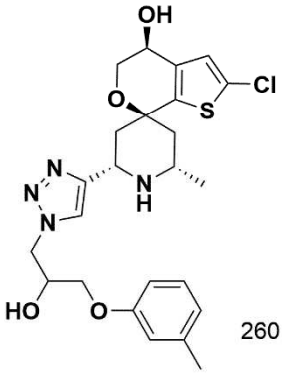
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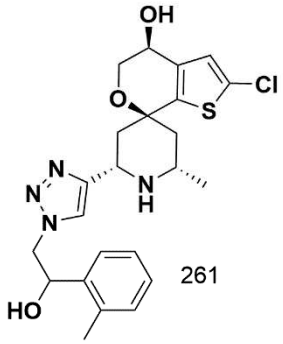
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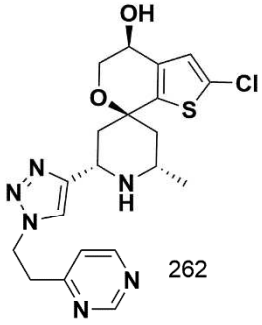
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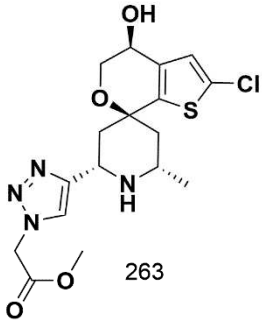
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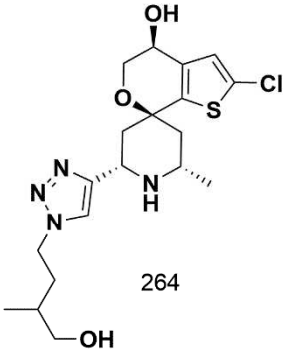
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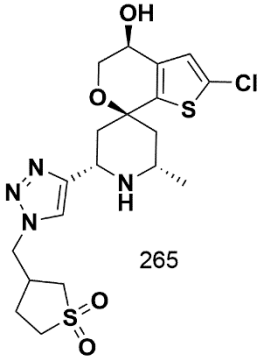
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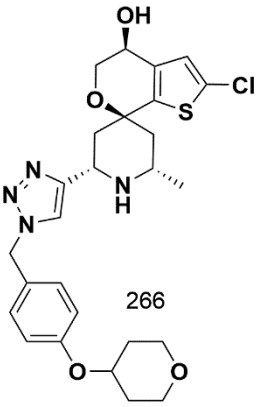
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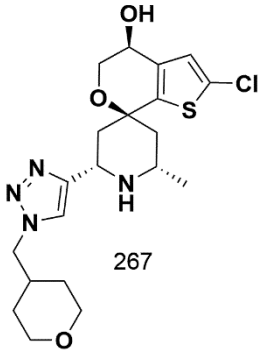
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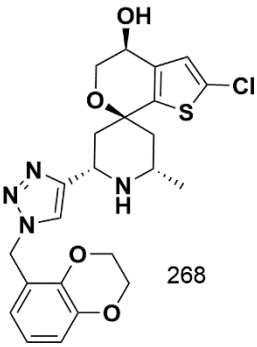
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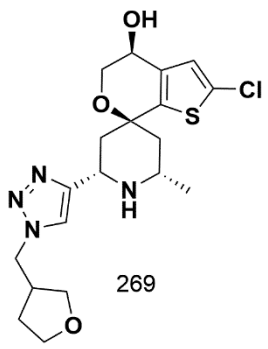

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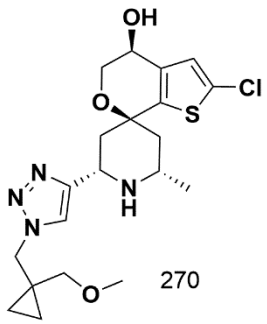

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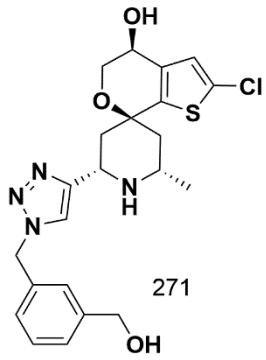

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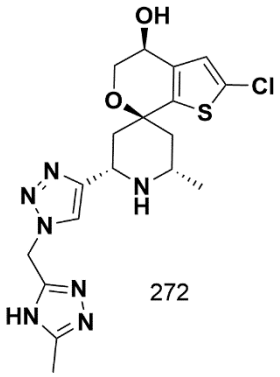

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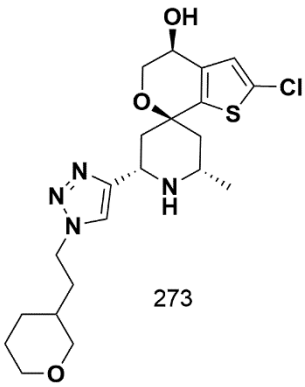

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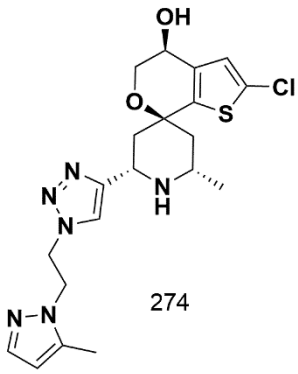

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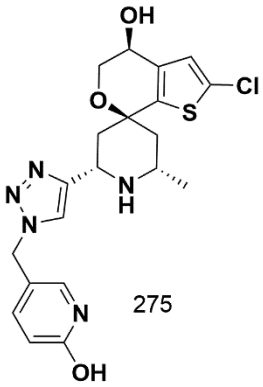

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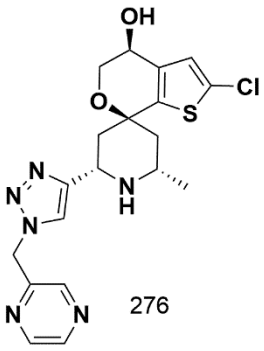

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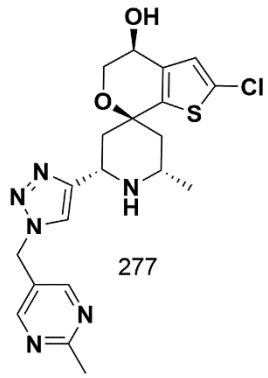

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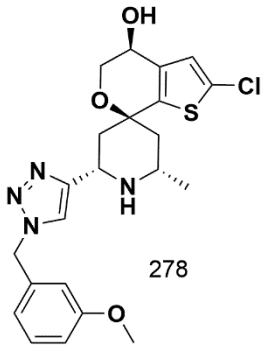

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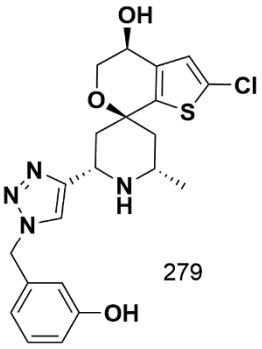

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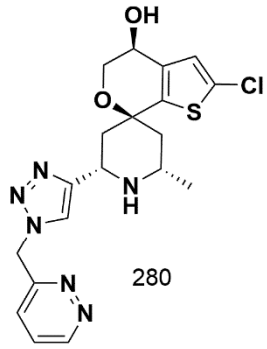

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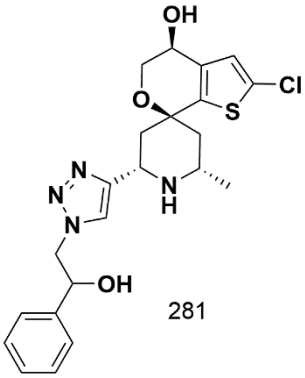

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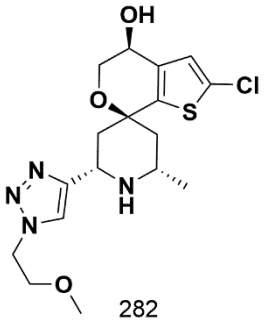

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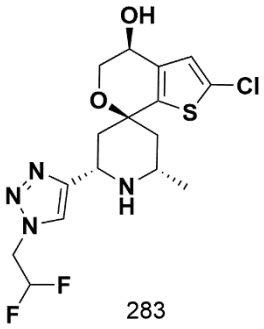

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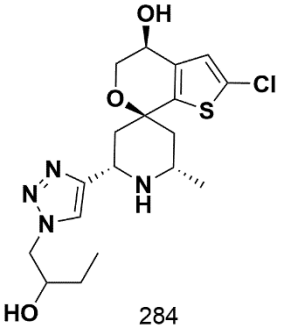

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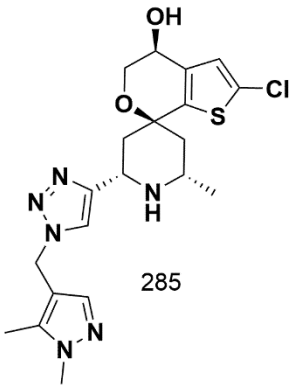

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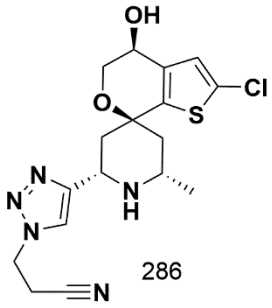

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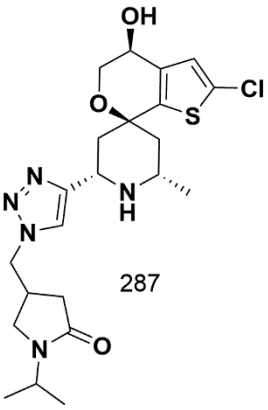

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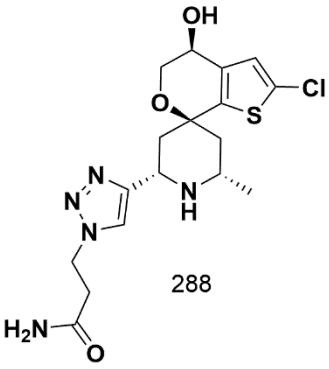

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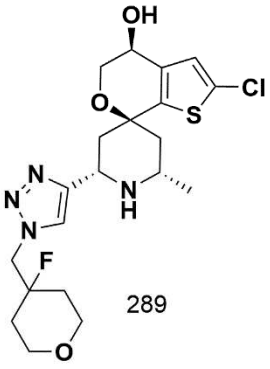

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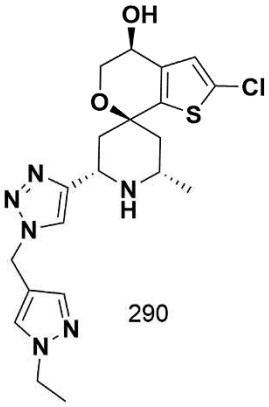

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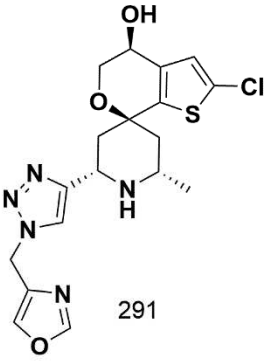

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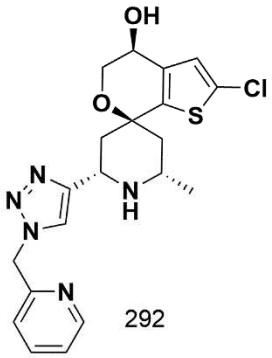

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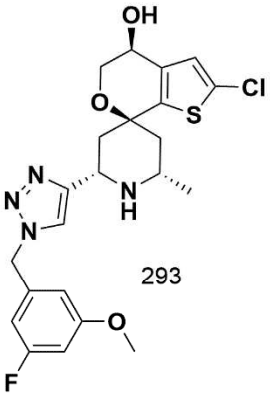

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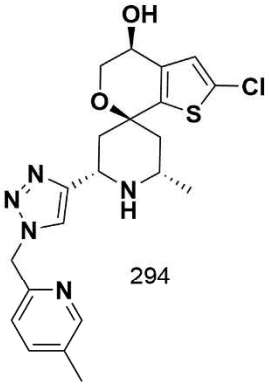

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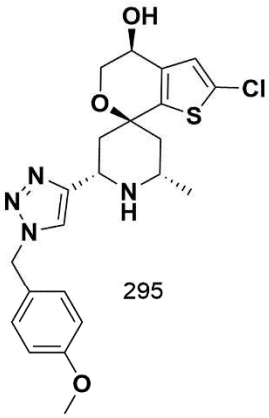

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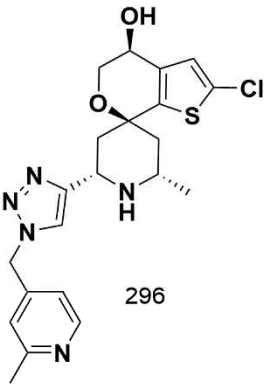

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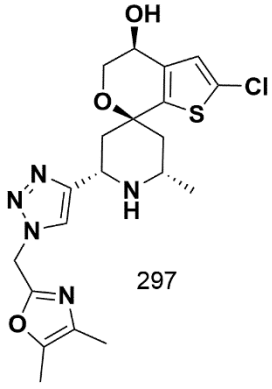

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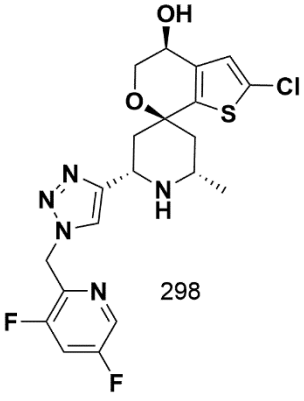

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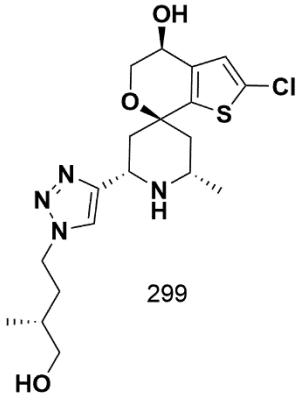

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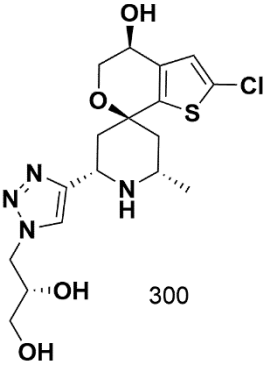

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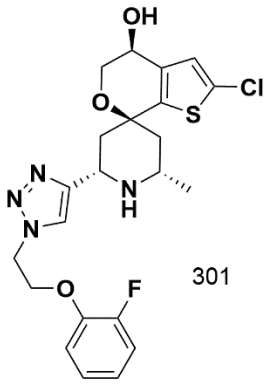
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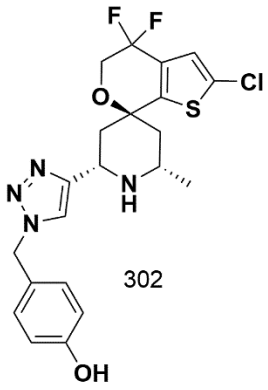
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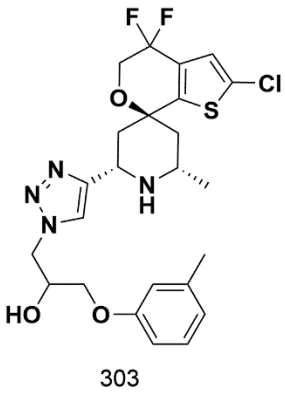
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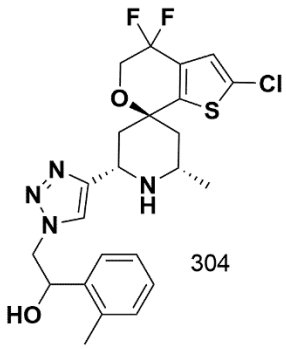
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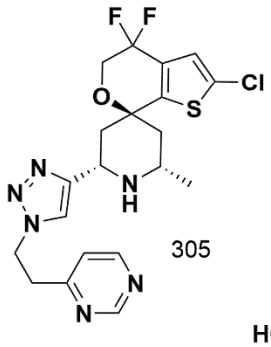
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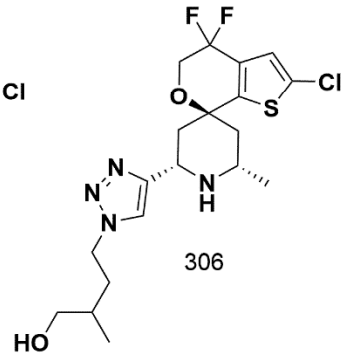
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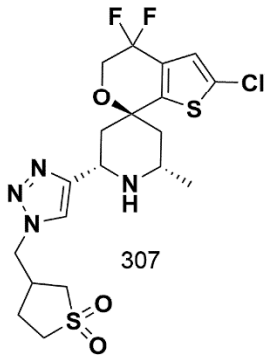
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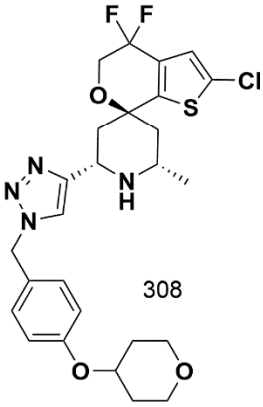
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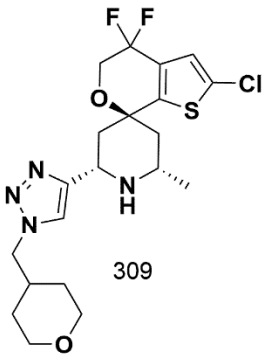
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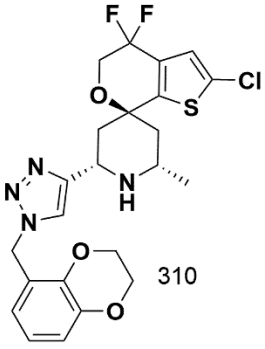
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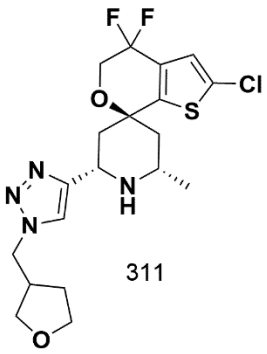
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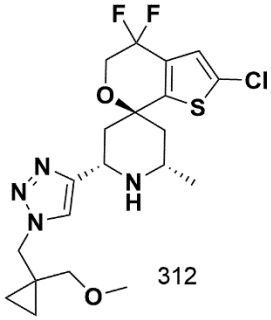
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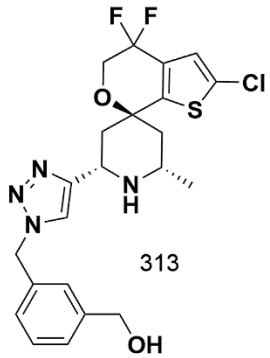
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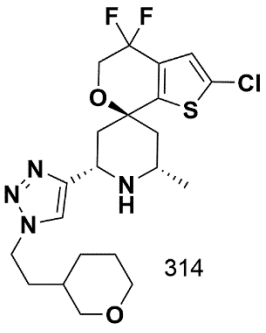
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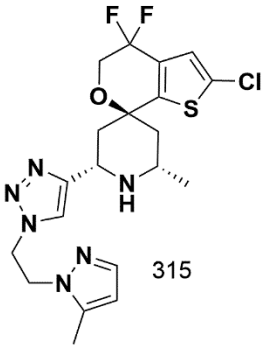
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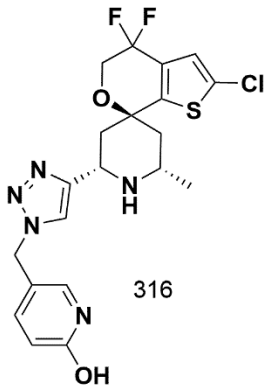
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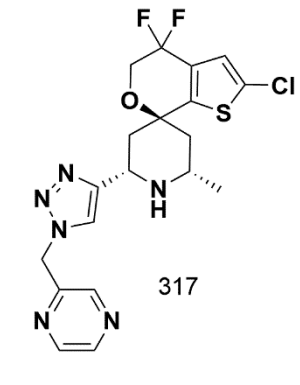
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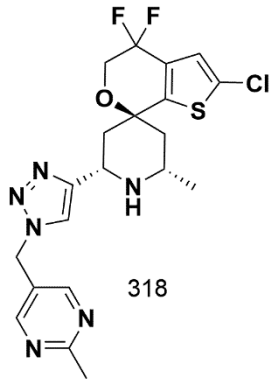
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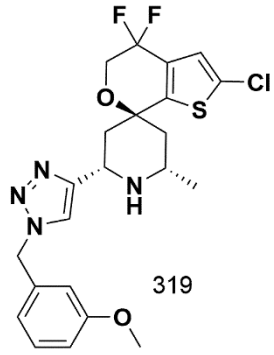
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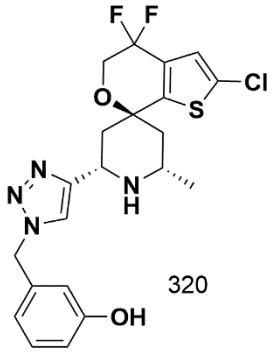
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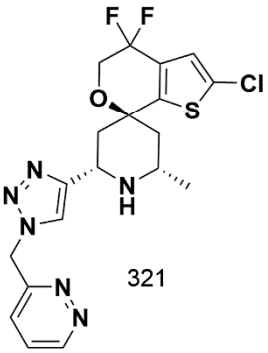
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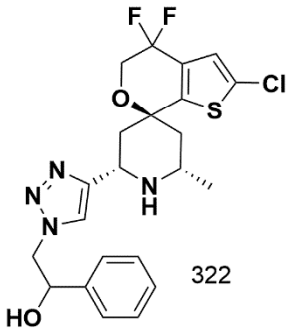
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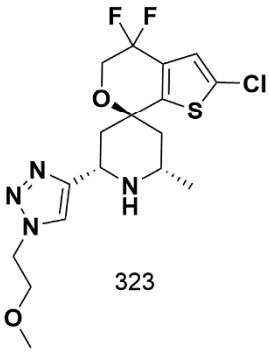
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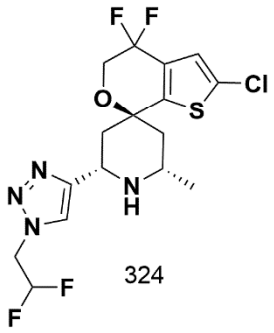
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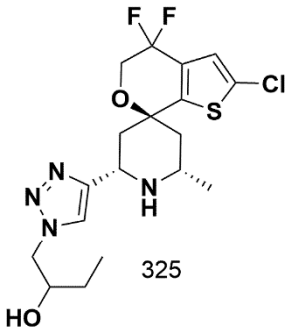
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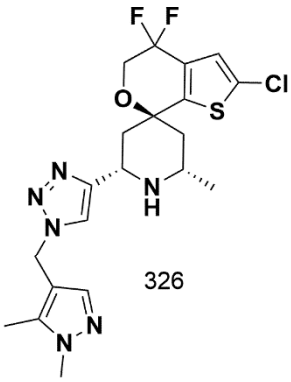
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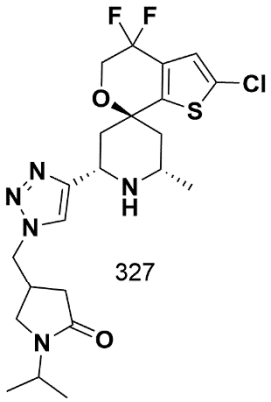
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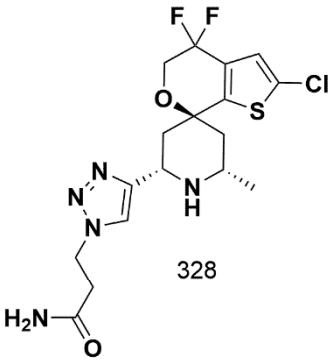
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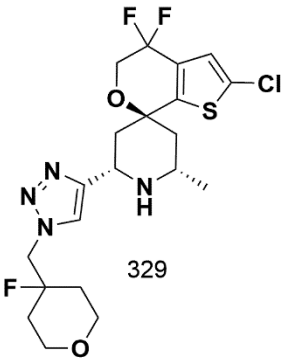
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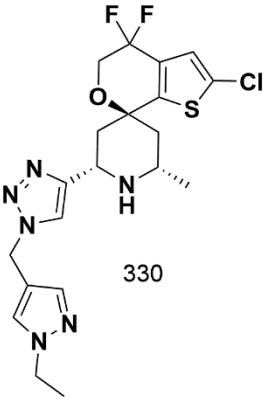
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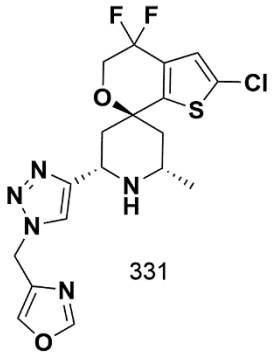
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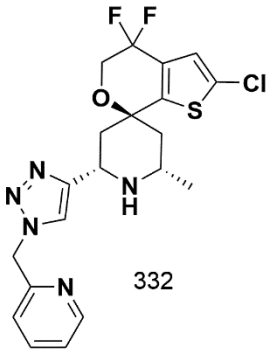
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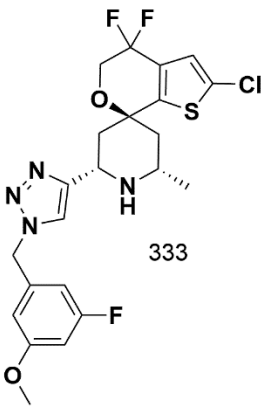

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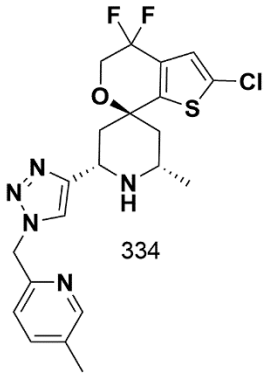

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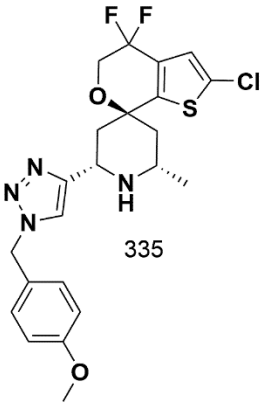

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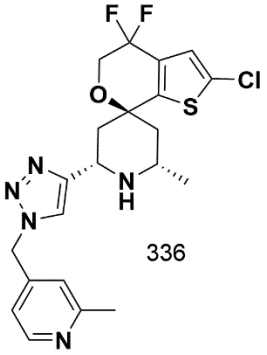

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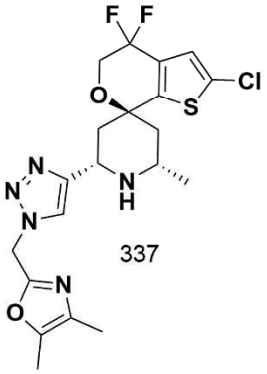

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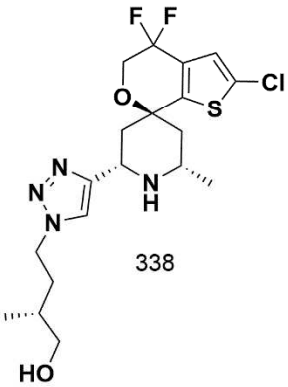

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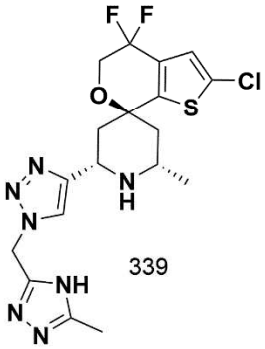

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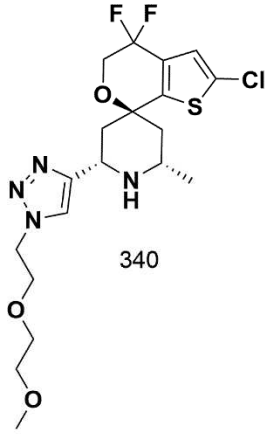

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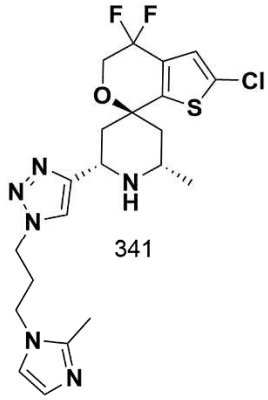

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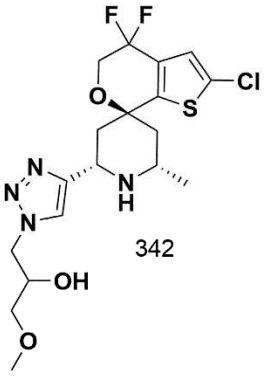

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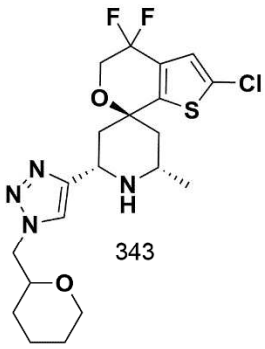

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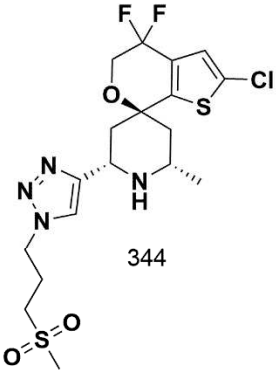

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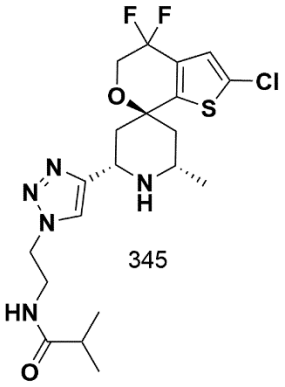

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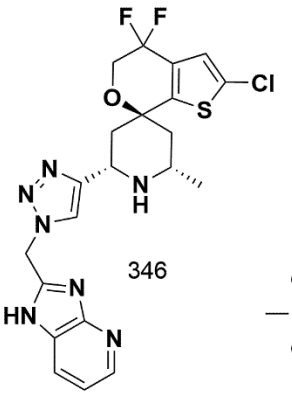

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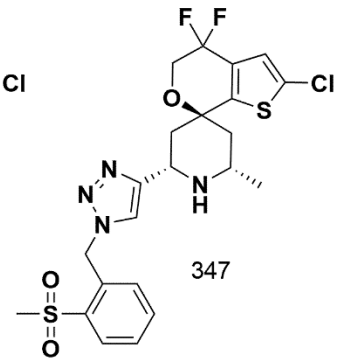

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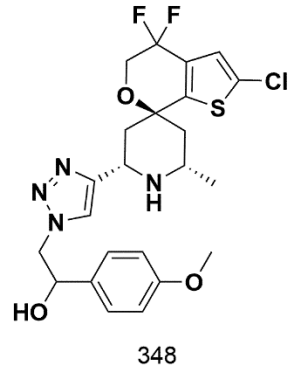

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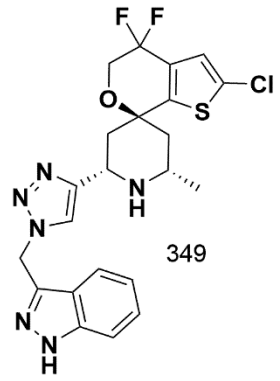
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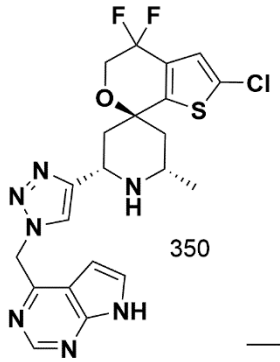
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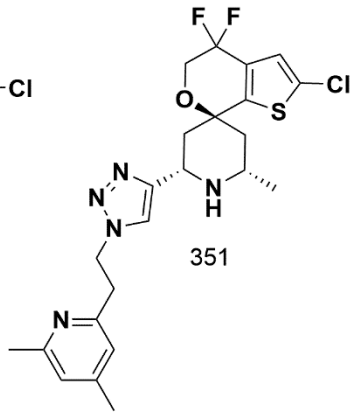
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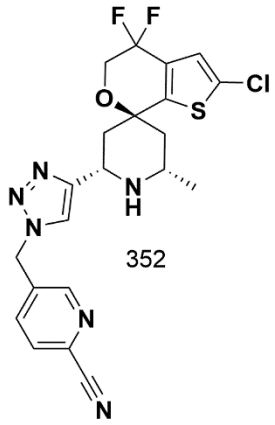
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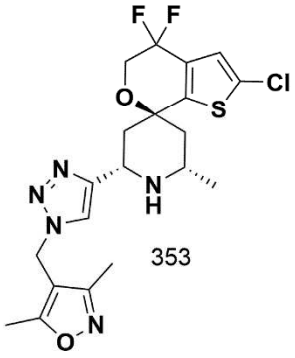
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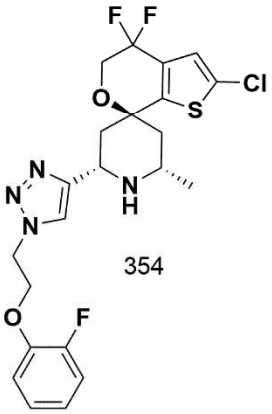
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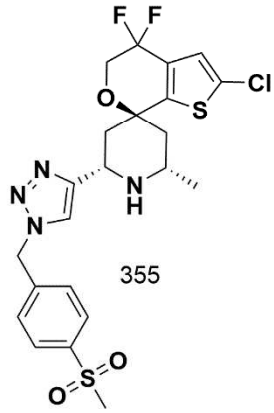
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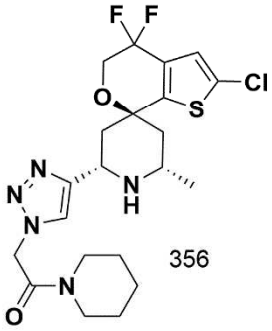
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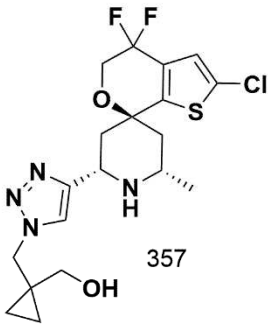
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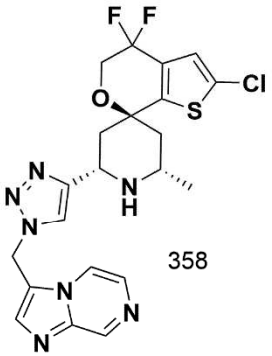
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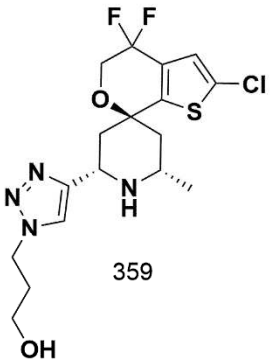
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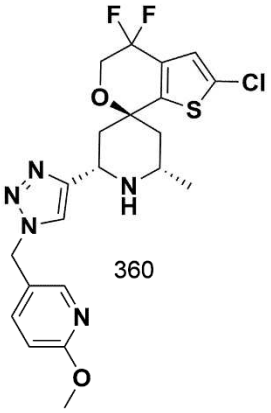
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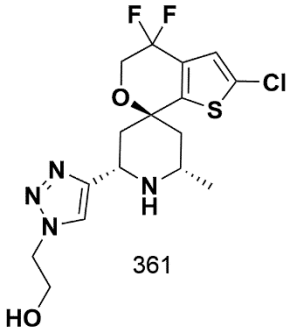
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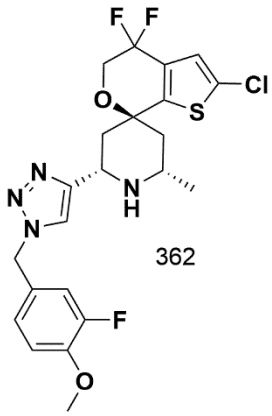
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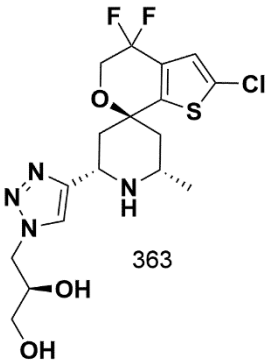
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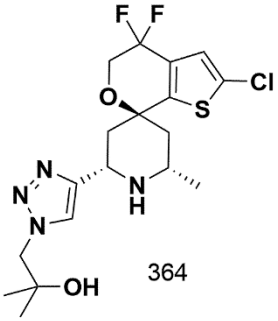
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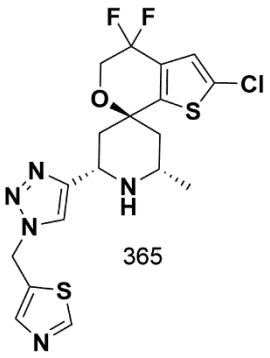

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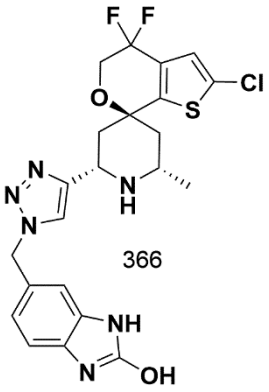

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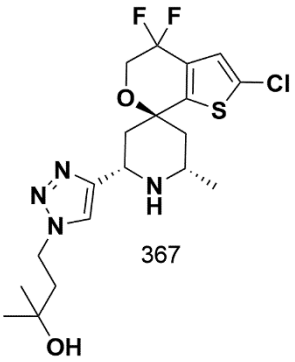

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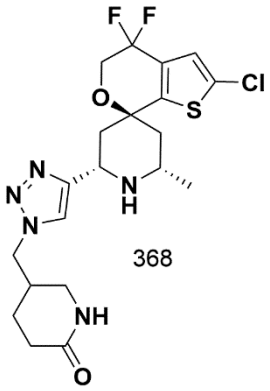

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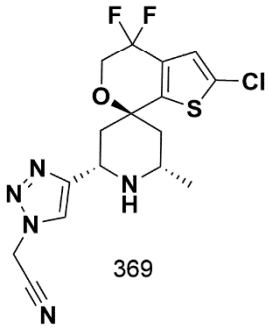

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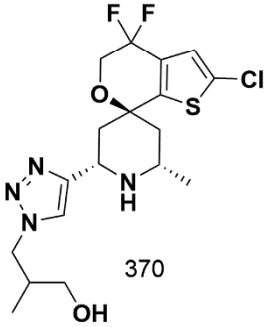

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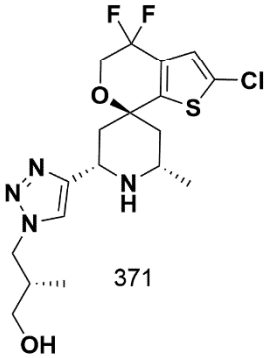

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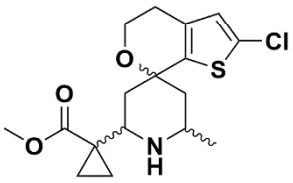

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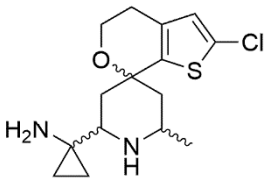

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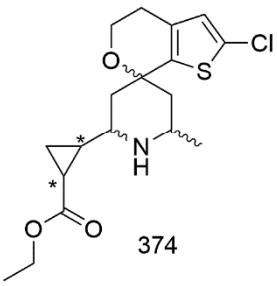

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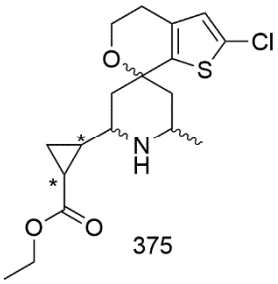

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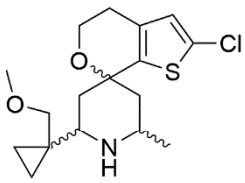

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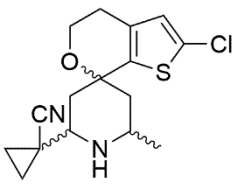

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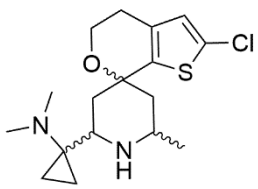

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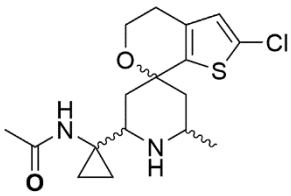

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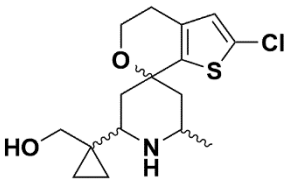

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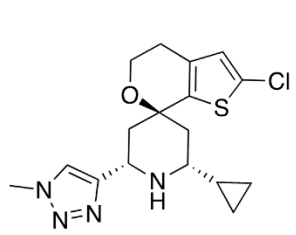

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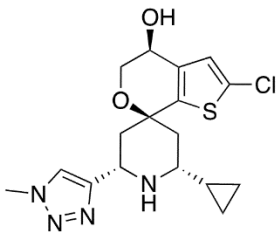

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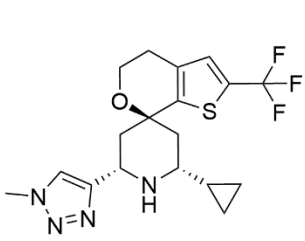

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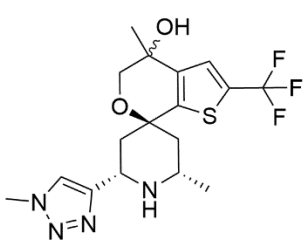

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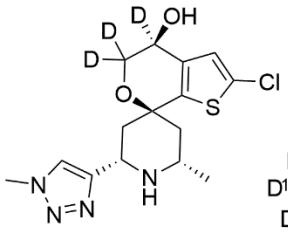

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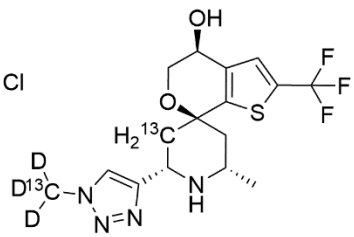

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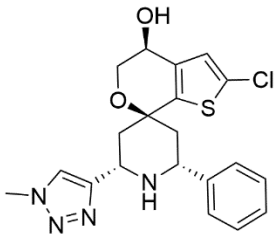

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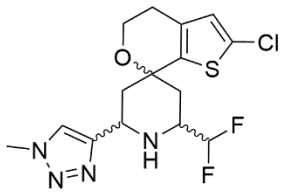

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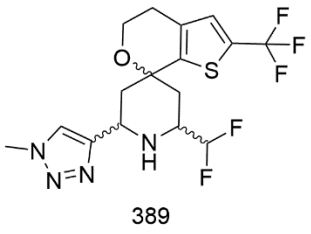

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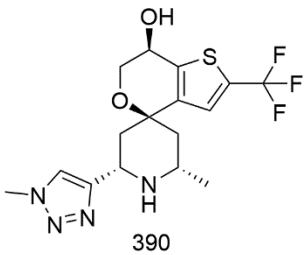

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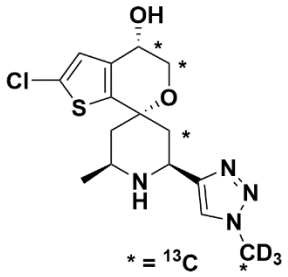

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tautomers thereof, deuterated derivatives of those compounds and tautomers, and pharmaceutically acceptable salts of any of the foregoing.

32. A pharmaceutical composition comprising at least one entity according to any one of claims 1 to 31 and a pharmaceutically acceptable carrier.

33. Use of at least one entity according to any one of claims 1 to 31 or a pharmaceutical composition according to claim 32, in the manufacture of a medicament for treating focal segmental glomerulosclerosis and/or non-diabetic kidney disease.

34. Use of at least one entity according to any one of claims 1 to 31 or a pharmaceutical composition according to claim 32, in the manufacture of a medicament for inhibiting APOL1 activity.

35. Use of at least one entity according to any one of claims 1 to 31 or a pharmaceutical composition according to claim 32, in the manufacture of a medicament for treating an APOL1-mediated disease.

36. The use according to claim 35, wherein the APOL1-mediated disease is cancer.

37. The use according to claim 35 or claim 36, wherein the APOL1-mediated disease is pancreatic cancer.

38. The use according to claim 35, wherein the APOL1-mediated disease is an APOL1-mediated kidney disease.

39. At least one entity according to any one of claims 1 to 31 or a pharmaceutical composition according to claim 32, for use in the treatment of focal segmental glomerulosclerosis and/or non-diabetic kidney disease.

40. At least one entity according to any one of claims 1 to 31 or a pharmaceutical composition according to claim 32, for use in inhibiting APOL1 activity.

41. At least one entity according to any one of claims 1 to 31 or a pharmaceutical composition according to claim 32, for use in the treatment of an APOL1-mediated disease.