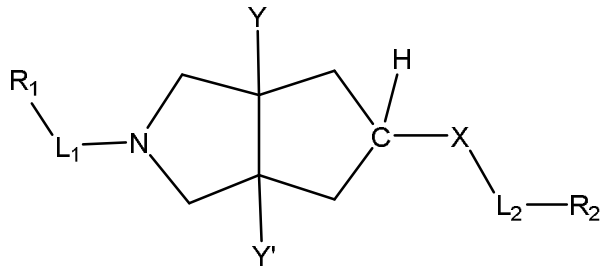
CLAIMS

1. A compound of formula I:



(I)

or a pharmaceutically acceptable salt, prodrug, solvate, hydrate, tautomer, or stereoisomer thereof

wherein:

L_1 is straight or branched C_1-C_5 alkyl optionally substituted with one or more substituents selected from the group consisting of OH, OR_{10}, NH_2, NHR_{10}, and $N(R_{10})(R_{10}$ô) provided that no more than one oxygen or nitrogen is attached to any carbon; or

L_1 is selected from the group consisting of ï C(O)-, -C(O)-C_1-C_3alkylenyl-, -C(O)O-C_1-C_3alkylenyl-, -$S(O)_2$-, -$S(O)_2$NH-, -C(O)NH-, -C(O)NR_{10}-, and a bond;

Each R_{10} and R_{10}ô is independently selected from the group consisting of H; C_1-C_6 alkyl optionally substituted with one or more substituents selected from the group consisting of OH, O-C_1-C_5 alkyl, $OPO_3^{-2}M_2$, $OP(O)(OH)_2$, OC(O)alkyl, and OC(O)O-alkyl where M is a monovalent metal cation; and cycloalkyl optionally substituted with one or more substituents selected from the group consisting of OH and O-C_1-C_5 alkyl provided that no more than one oxygen is attached to any carbon; or R_{10} and R_{10}ô, together with the nitrogen to which they are attached, may form a heterocycle;

R_1 is cycloalkyl, aryl, or heteroaryl, any of which optionally substituted with one or more substituents selected from the group consisting of OH, CN, halogen, -C_1-C_6alkylaryl, -O-C_1-C_6alkylaryl, O-R_{10}, $OPO_3^{-2}M_2$,, $OP(O)(OH)_2$, SH, S-R_{10}, C_1-C_5 alkyl, branched alkyl, NH_2, NHR_{10}, $NHS(O)_2R_{10}$, $N(R_{10})(NR_{10}$ô), and $NHCOR_{10}$ where M is a monovalent metal cation;

X is selected from O, S,-S(O)-, and -$S(O)_2$-;

Y and Yôare independently H, halogen, or C_1-C_5 alkyl;

L_2 is a bond, -$(CH_2)_n$- or -$(CHR_{11})_n$-;

Each R_{11} is independently selected from the group consisting of H, -C_1-C_5 alkylenyl-, -CO-C_1-C_5alkylenyl-, and ï alkylenyl-CO-alkylenyl-;

R_2 is phenyl, naphthyl, heteroaryl or bicyclic heteroaryl, each of which is optionally substituted with one or more substituents selected from the group consisting of halogen, OH, C_1-C_6alkyl, OR_{10}, CN, NH_2, NHR_{10}, $N(R_{10})(R_{10}$ô, -nitro, SH, SR_{10}, SOR_{10}, SO_2R_{10}, SO_2NHR_{10}, $SO_2N(R_{10})(R_{10}$ô, $CONH_2$, $CONR_{10}$, and $CON(R_{10})(R_{10}$ô; and

n is 1, 2, or 3.

2. The compound of claim 1, wherein L_2 is a bond and R_2 is phenyl optionally substituted with one or more halogen, OH, OR_{10}, CN, NH_2, NHR_{10}, $N(R_{10})(R_{10}$ô, SH, SR_{10}, SOR_{10}, SO_2R_{10}, SO_2NHR_{10}, $SO_2N(R_{10})(R_{10}$ô, $CONH_2$, $CONR_{10}$, $CON(R_{10})(R_{10}$ô.

3. The compound of claim 2, wherein X is O.

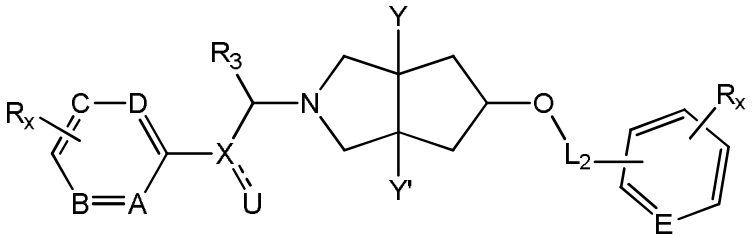
4. The compound of claim 2, wherein R_1 is aryl or heteroaryl each of which is substituted with one or more substituents selected from the group consisting of OH, halogen, OR_{10}, SH, SR_{10}, NH_2, NHR_{10} and $NHCOR_{10}$.

5. The compound of claim 2, wherein Y and Yôare hydrogen.

6. The compound of claim 2, wherein L_1 is branched C_1-C_5 alkyl substituted with one or more substituents selected from the group consisting of OH, OR_{10}, NH_2, NHR_{10}, and $N(R_{10})(R_{10}$ô.

7. The compound of claim 2, wherein wherein L_1 is straight or branched C_1-C_5 alkyl substituted with OH.

8. A compound of formula Ia:



(Ia)

or a pharmaceutically acceptable salt, prodrug, solvate, hydrate, tautomer, or stereoisomer thereof

wherein:

A, B, C, D, and E are independently N or CR_x;

------- is an optional double bond;

X is CH or C;

U is OH or O;

Y and Yôare independently H, halogen, or C_1-C_6 alkyl;

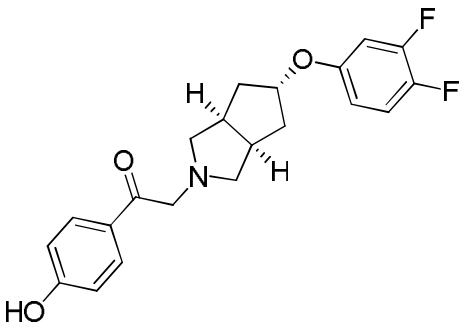
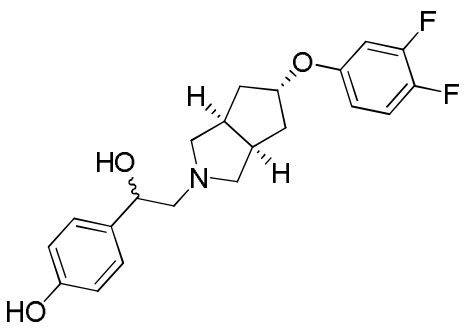
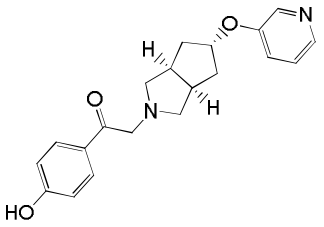
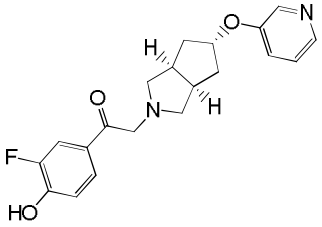
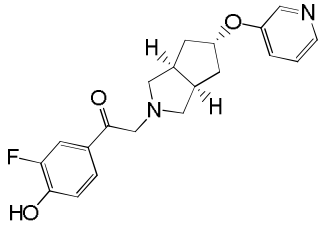
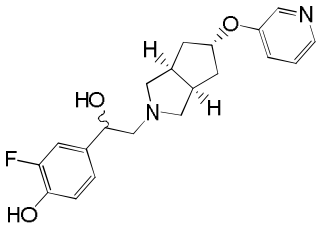
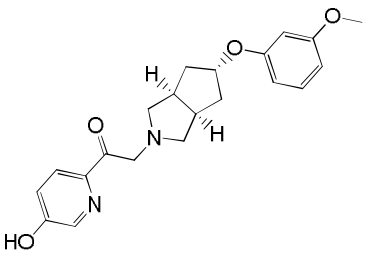
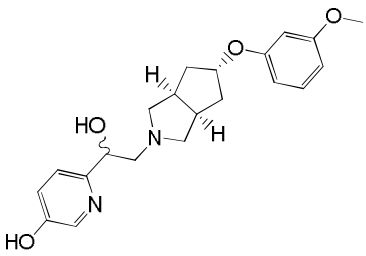
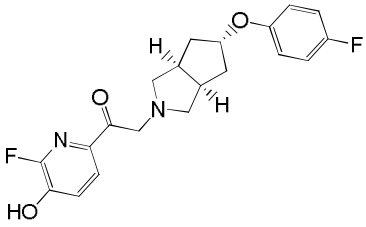
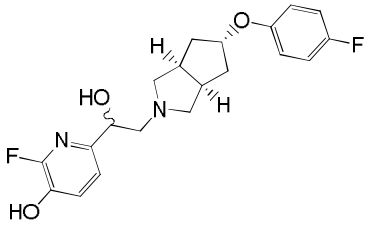
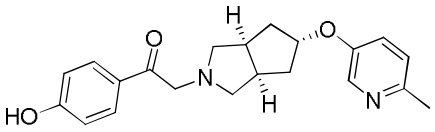
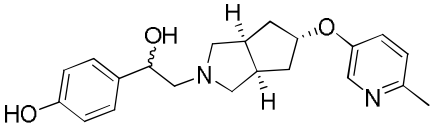
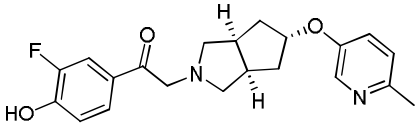
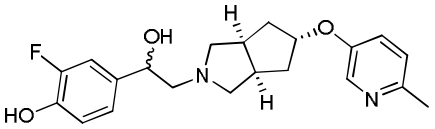
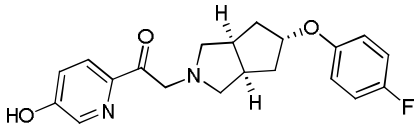
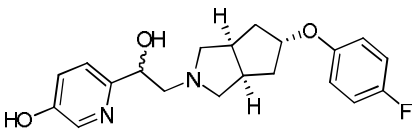
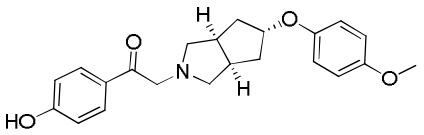
R_3 is H;

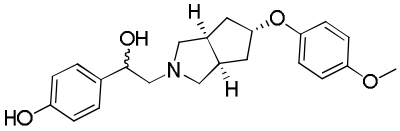
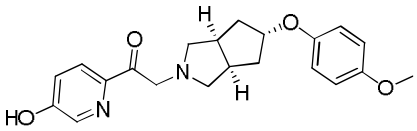
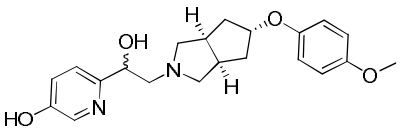
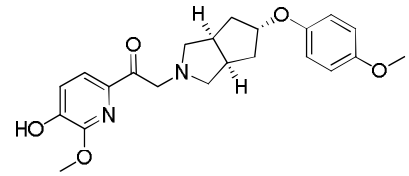
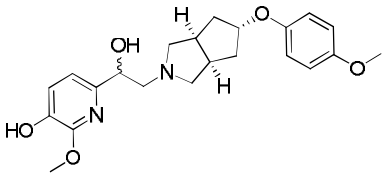
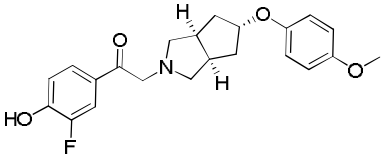
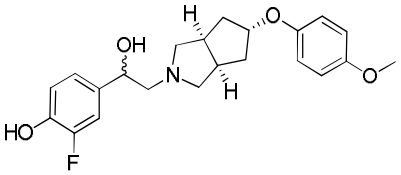
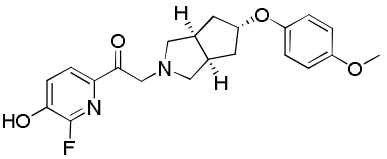
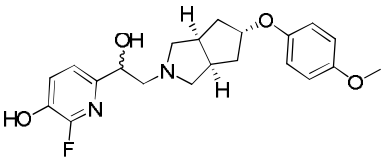
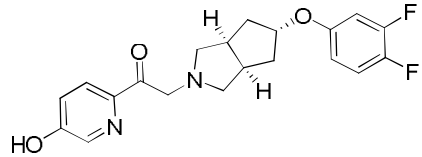
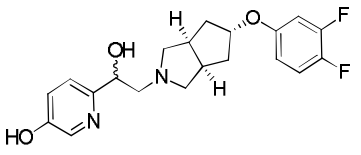
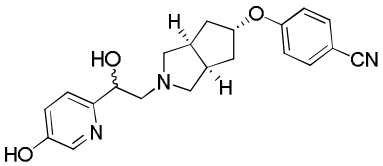
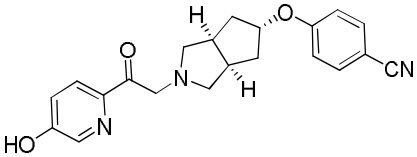
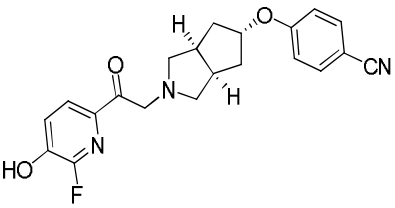
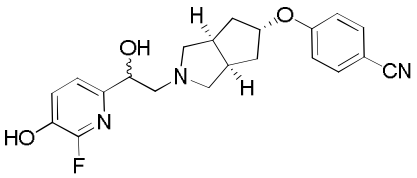
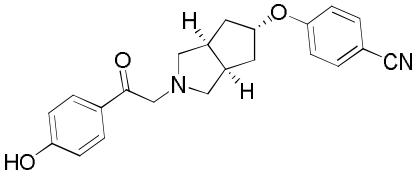
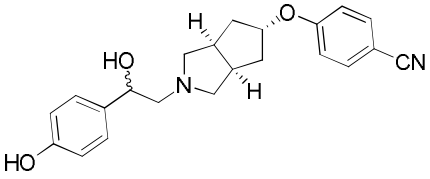
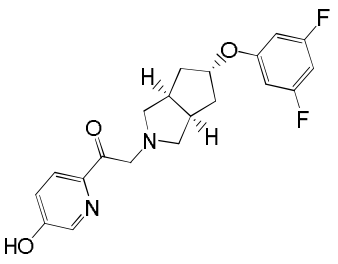
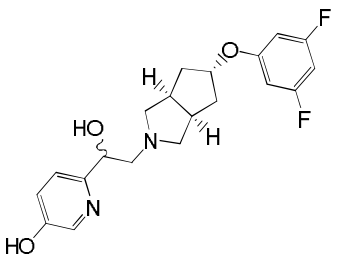
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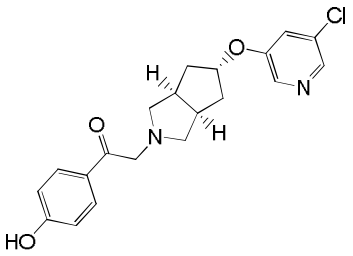
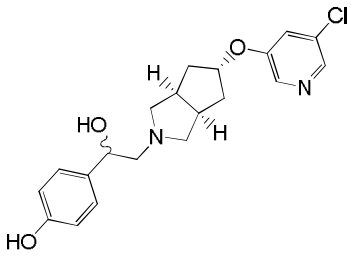
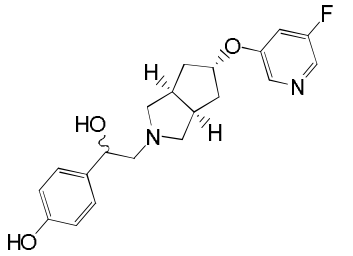
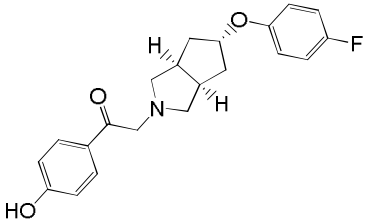
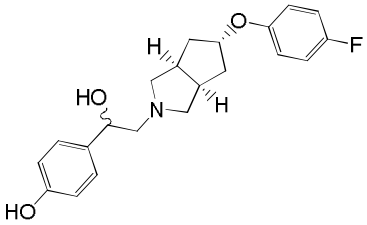
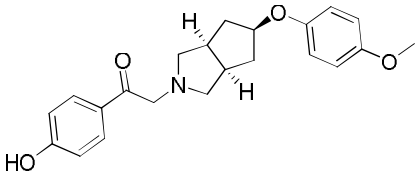
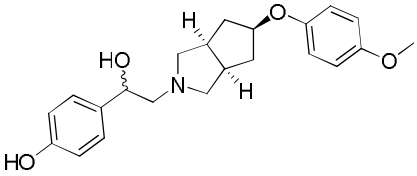
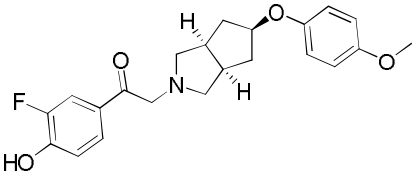
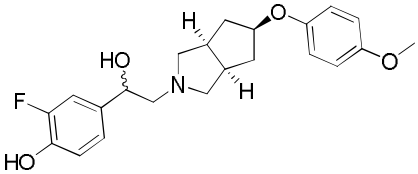
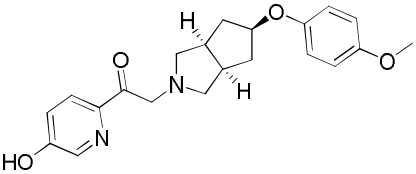
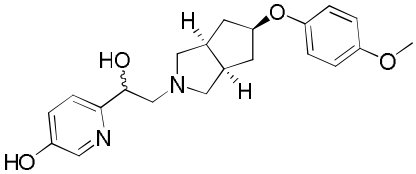
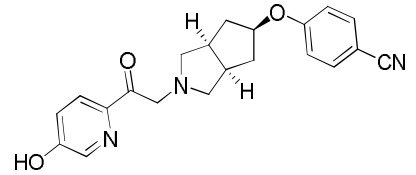
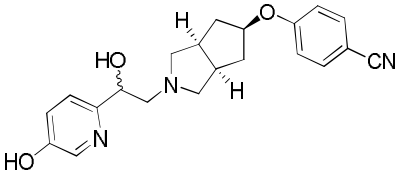
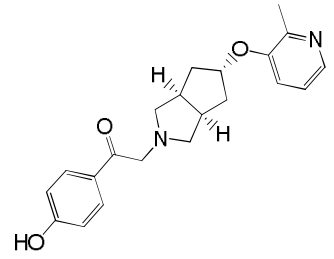
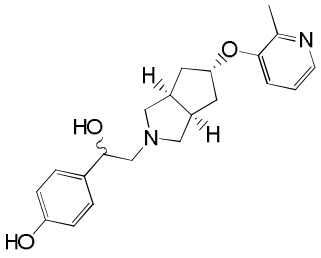
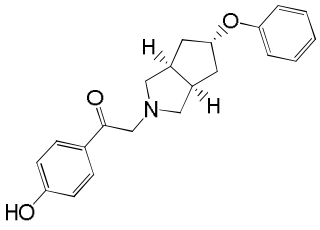
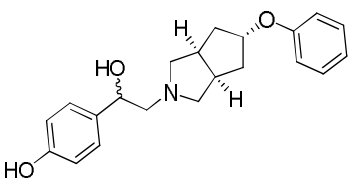
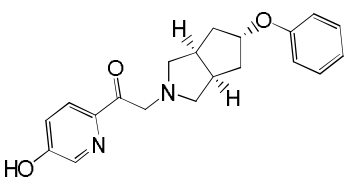
R_{10} is independently selected from the group consisting of H; C_1-C_6 alkyl optionally substituted with one or more substituents selected from the group consisting of OH, O-C_1-C_5 alkyl, $OPO_3^{-2}M_2$, $OP(O)(OH)_2$, OC(O)alkyl, and OC(O)O-alkyl where M is a monovalent metal cation; and cycloalkyl optionally substituted with one or more substituents selected from the group consisting of OH and O-C_1-C_5 alkyl provided that no more than one oxygen is attached to any carbon; and

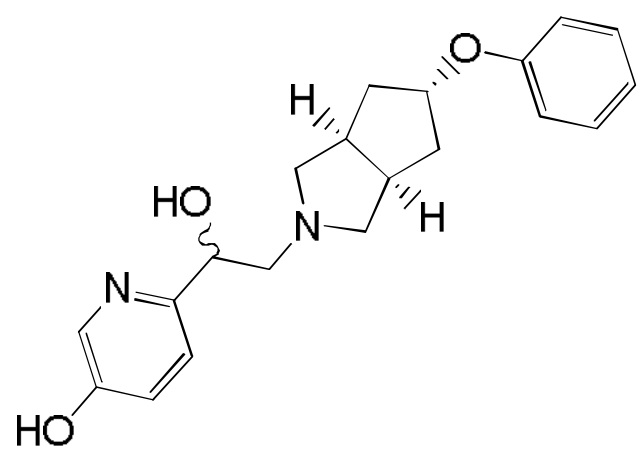
L_2 is a bond or $(CH_2)_n$, wherein n is 1 or 2.

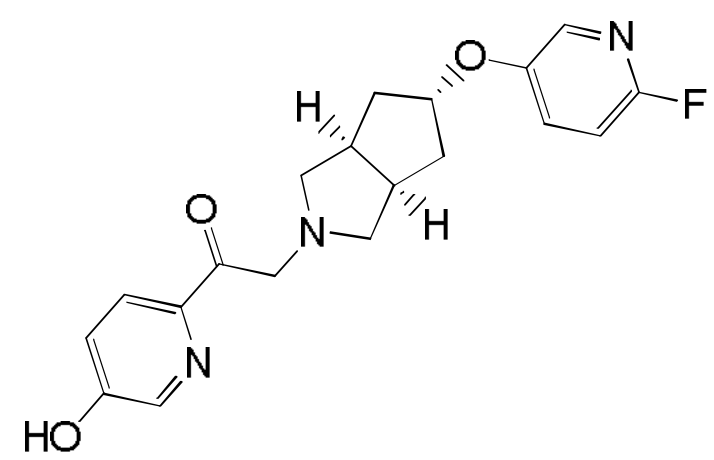
9. A compound selected from the group consisting of:

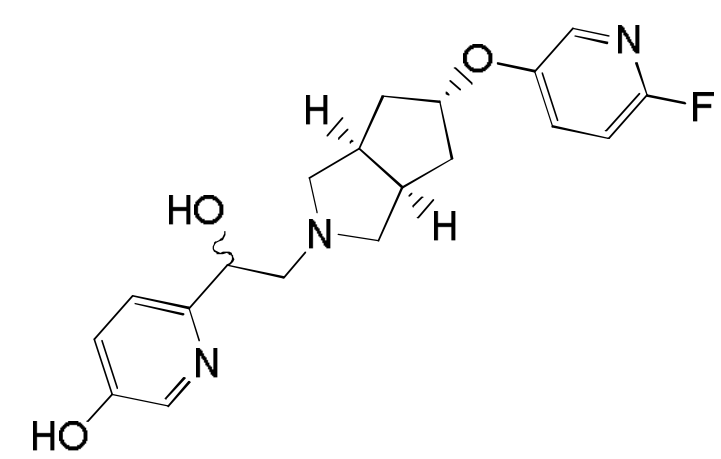

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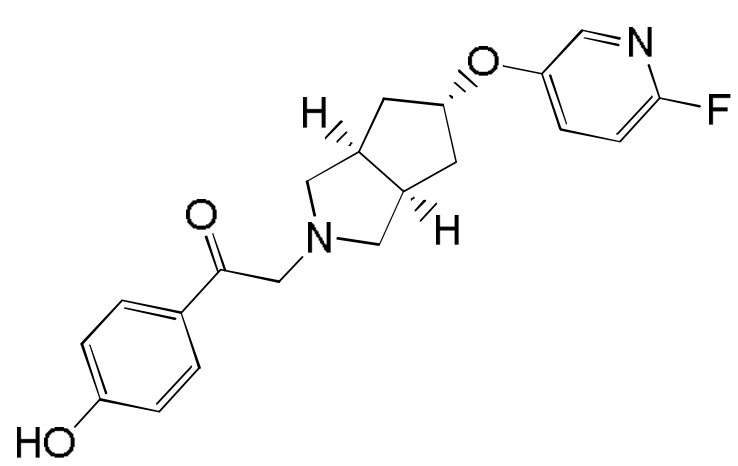

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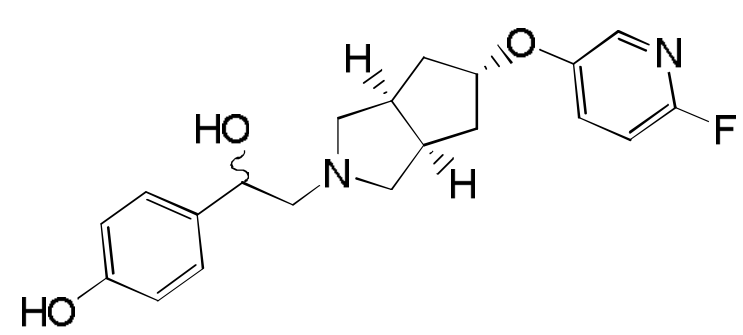



















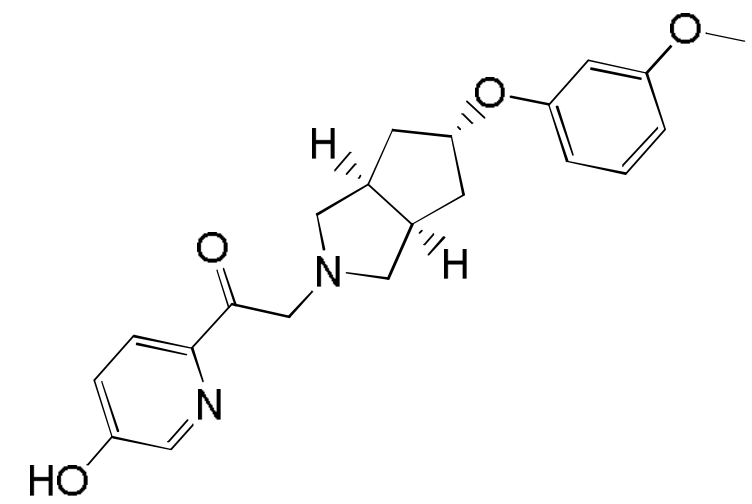
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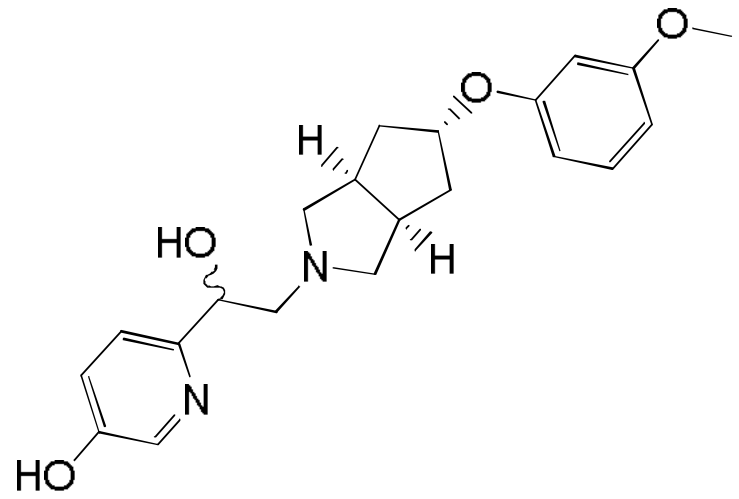
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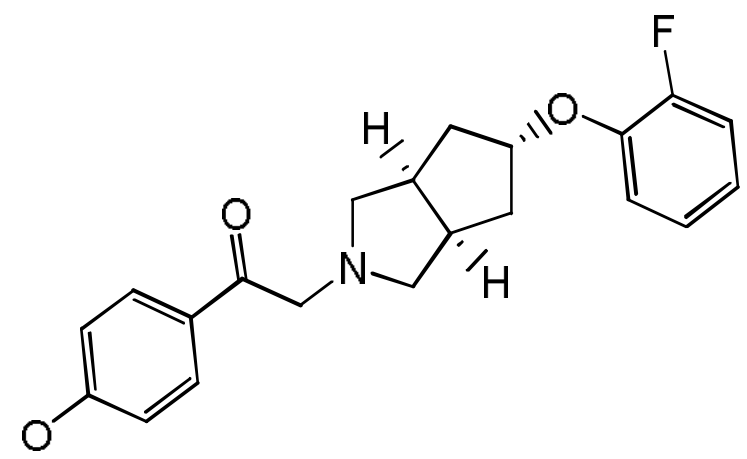
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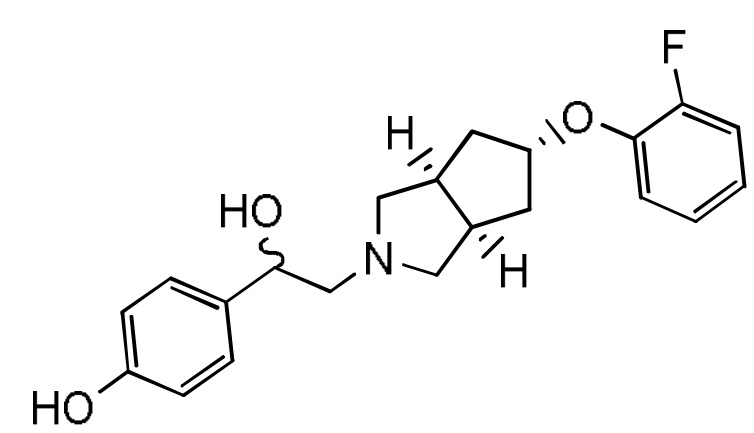
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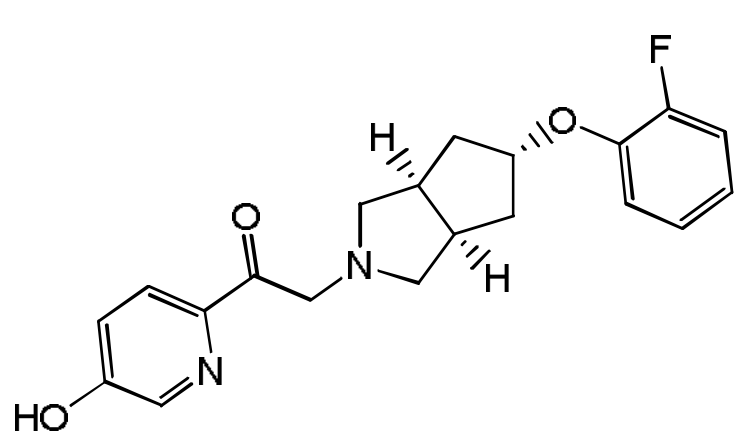
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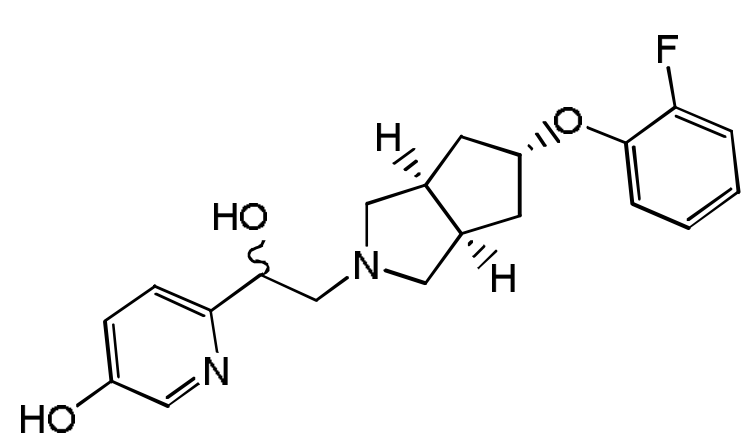
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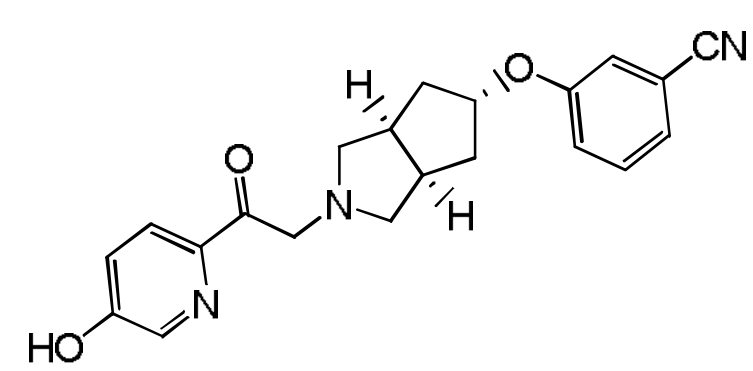
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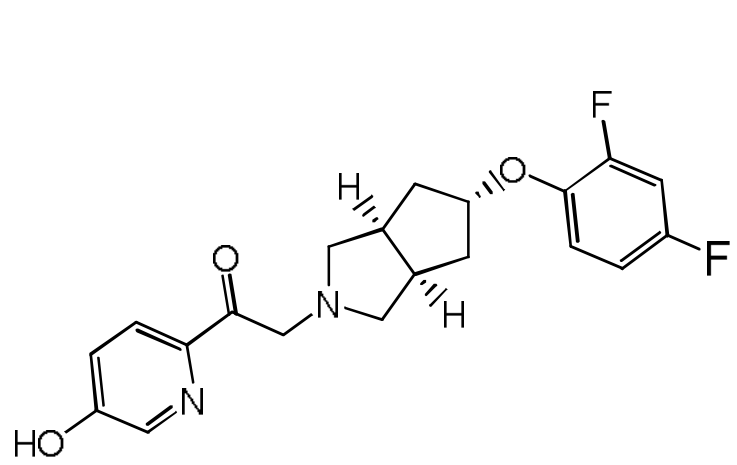
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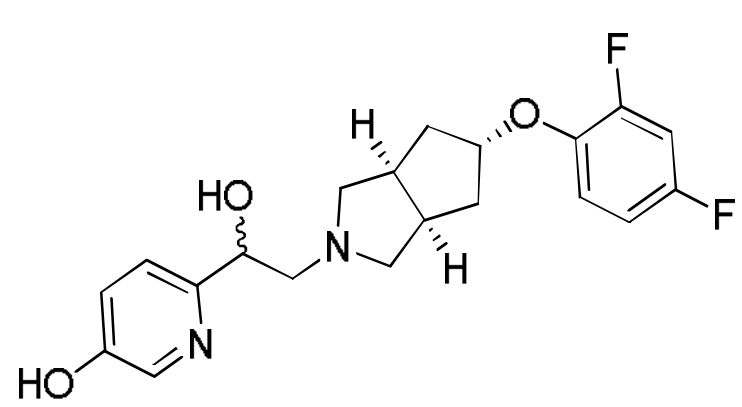
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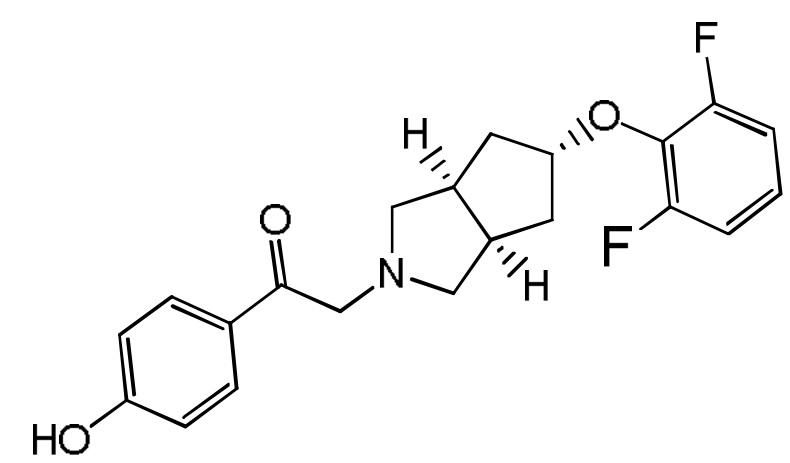
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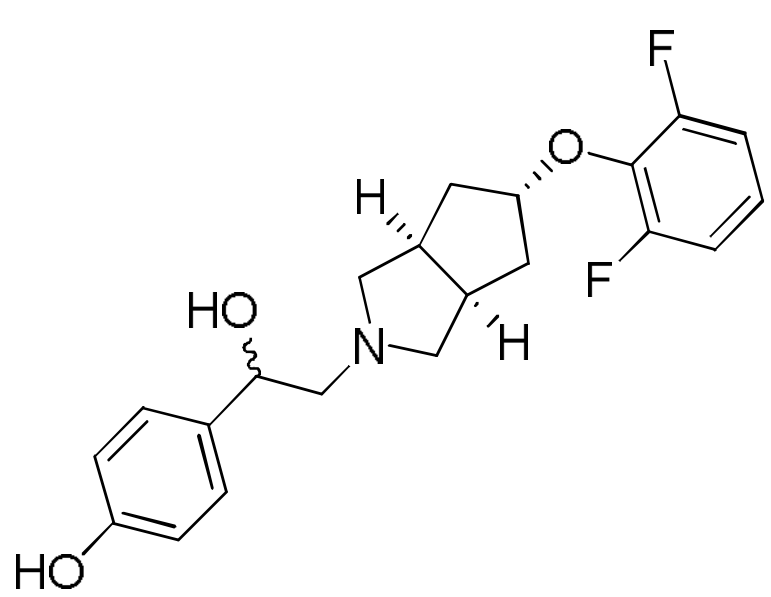
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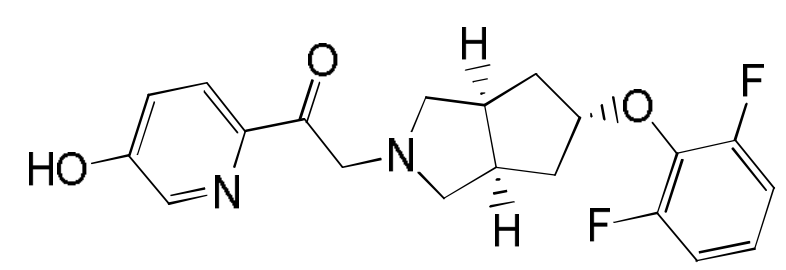
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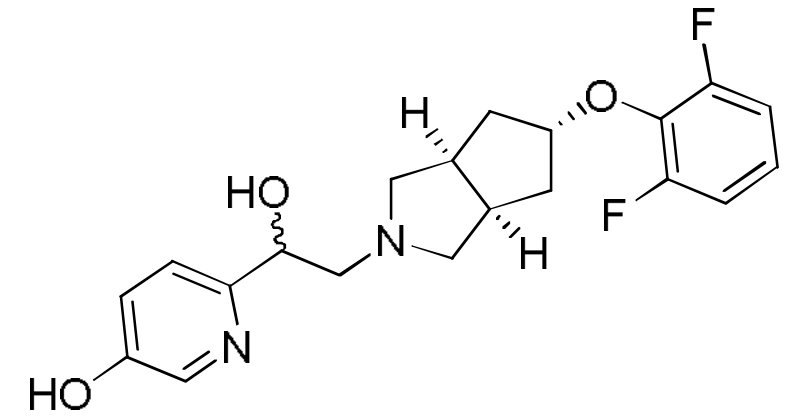
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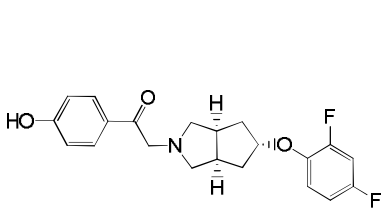
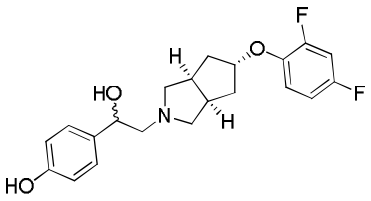
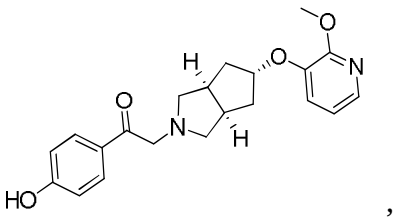
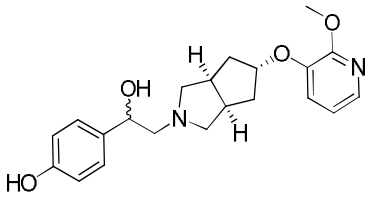
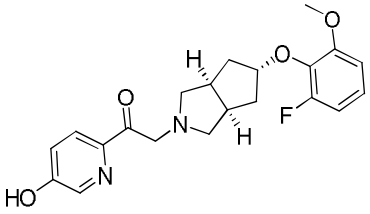
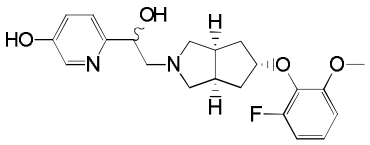
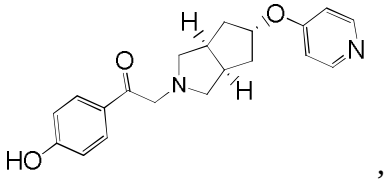
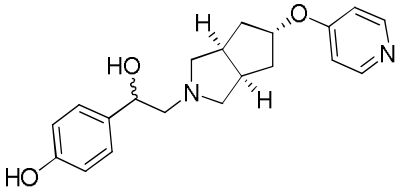
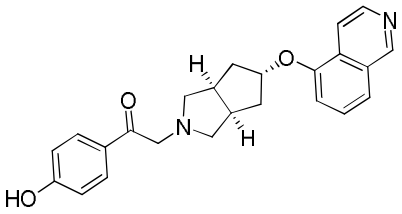
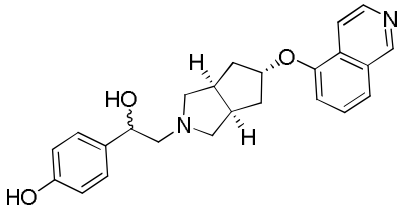
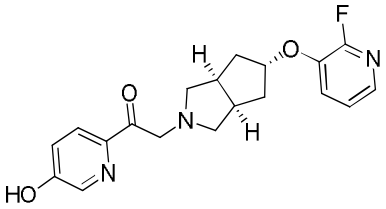
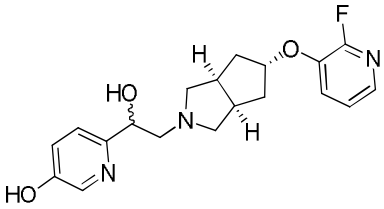
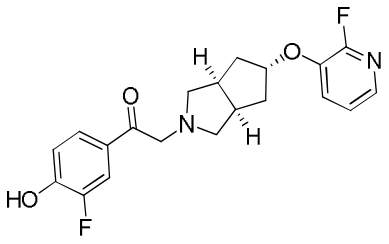
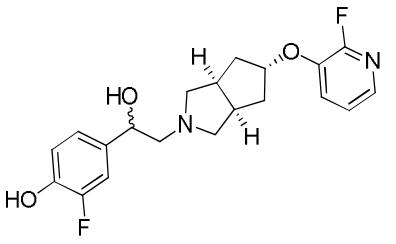
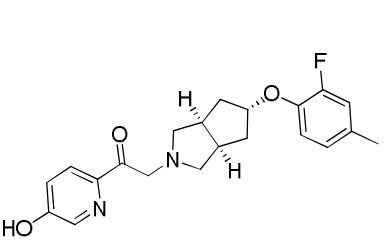
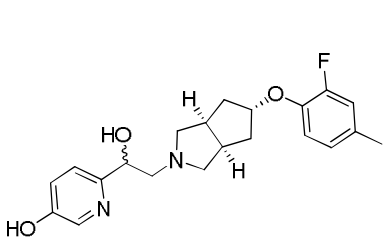
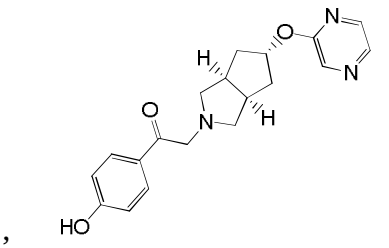
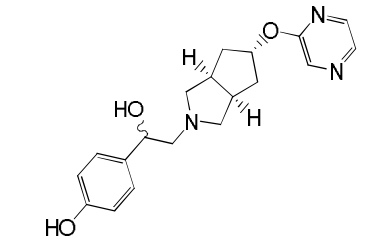
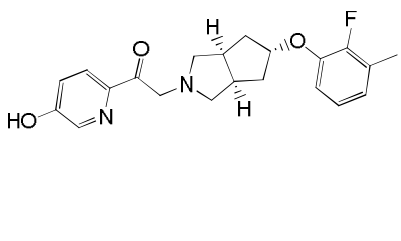
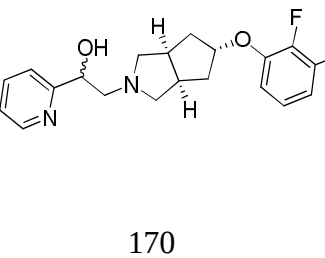
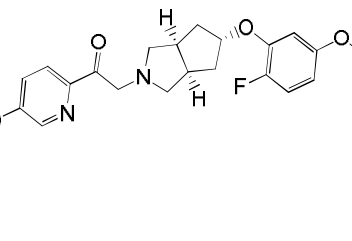
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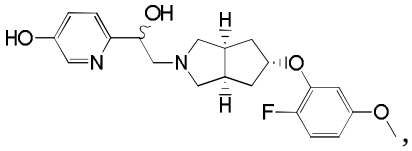
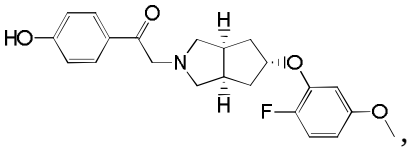
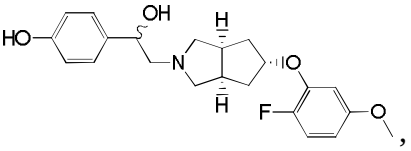
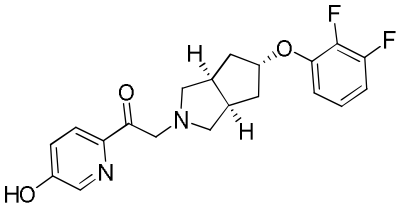
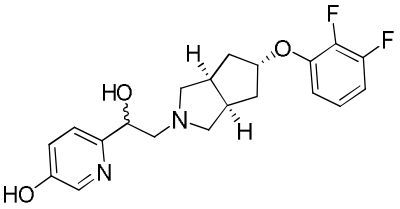
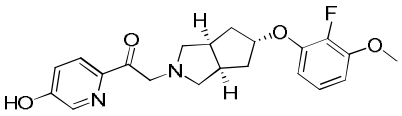
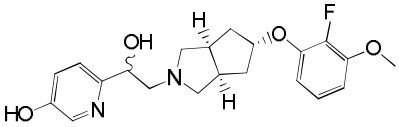
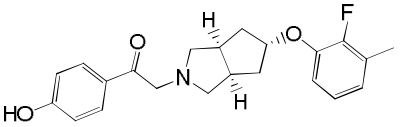
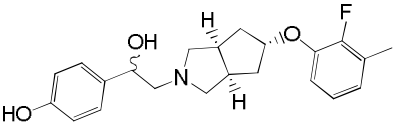
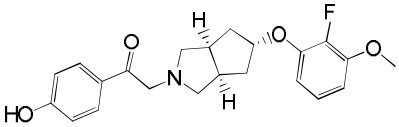
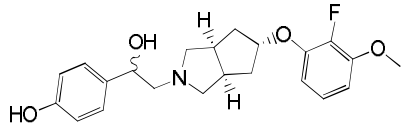
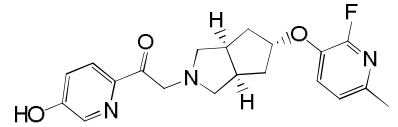
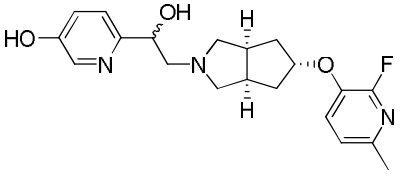
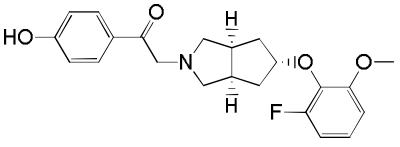
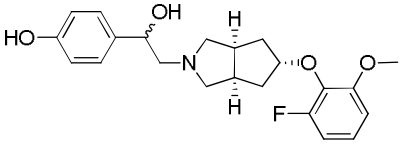
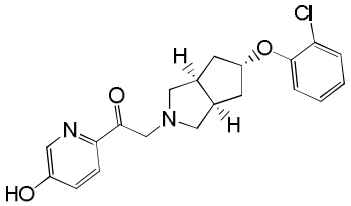
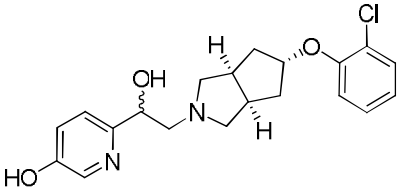
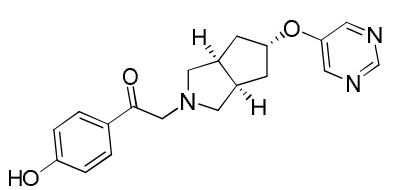
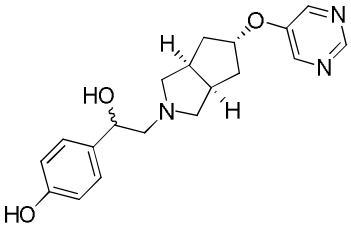
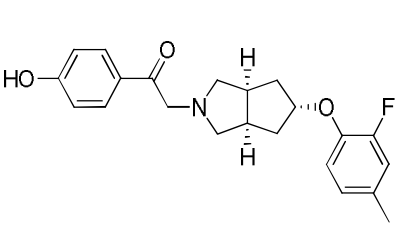
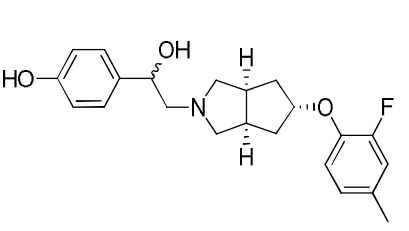
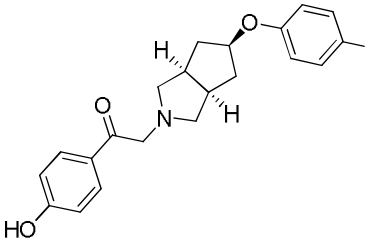
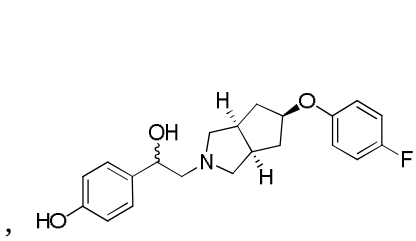
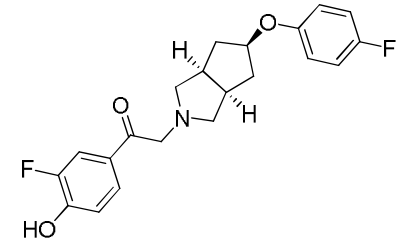
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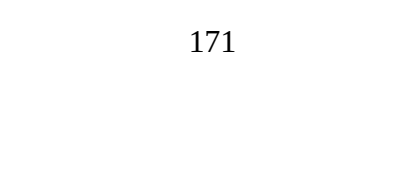

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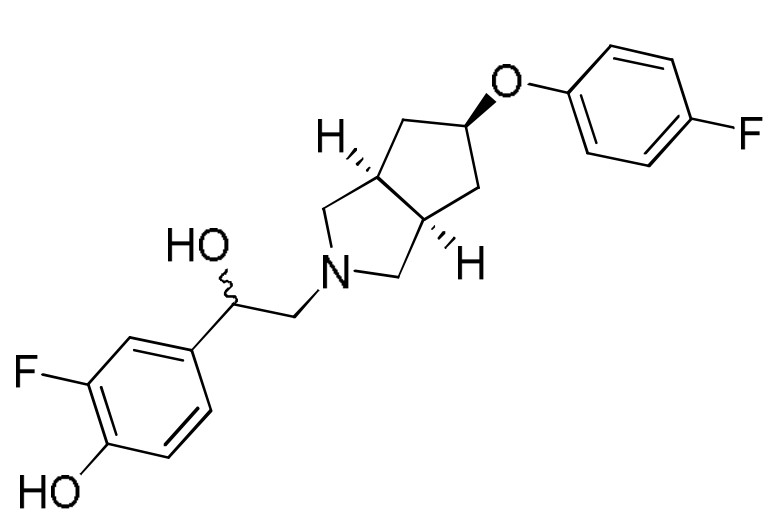
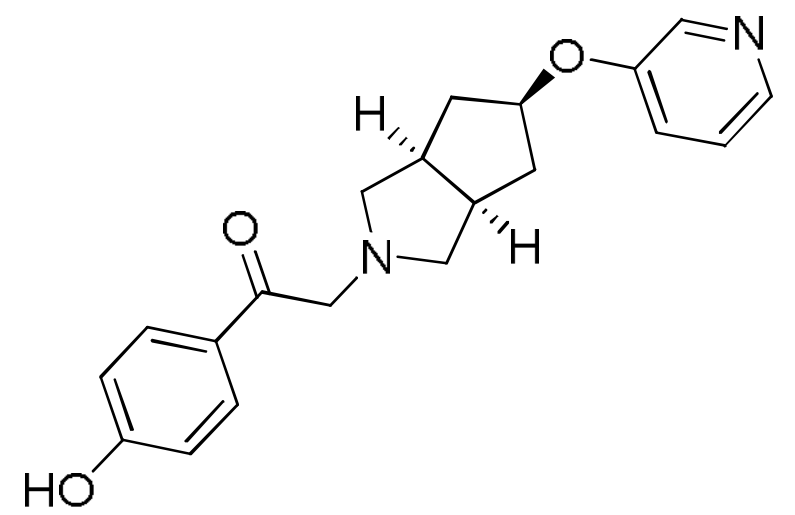
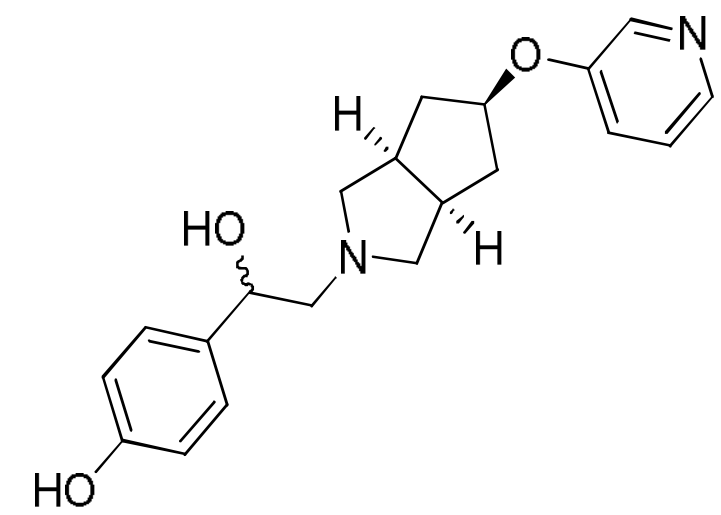
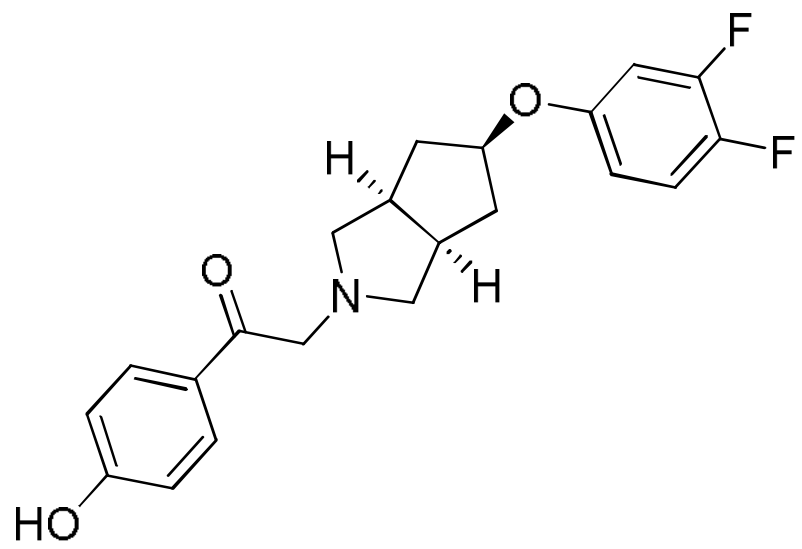
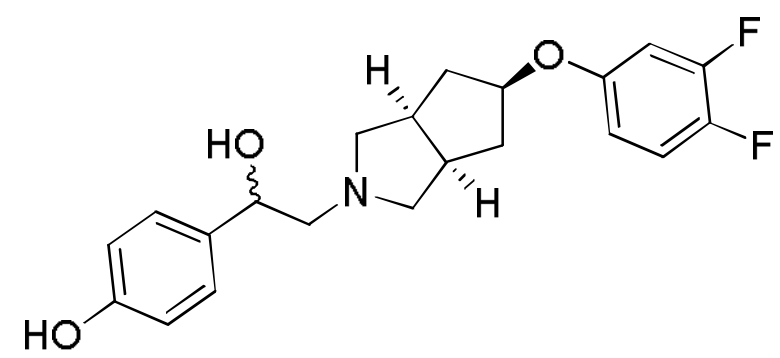
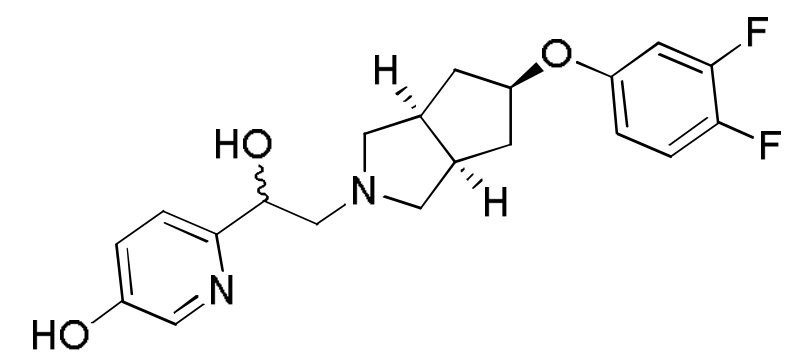
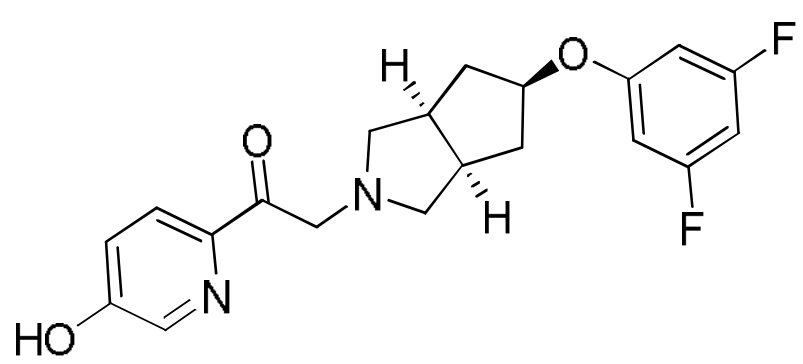
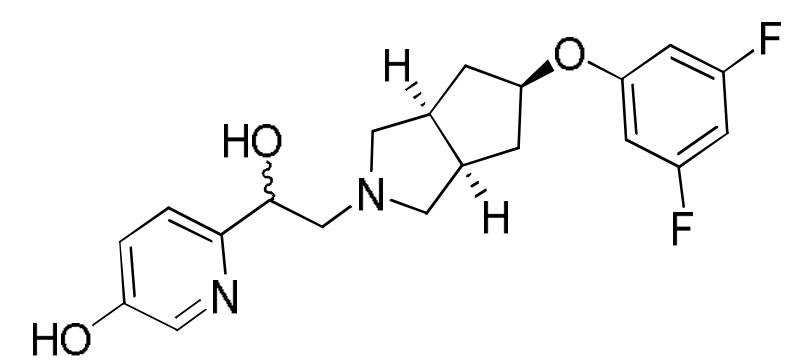
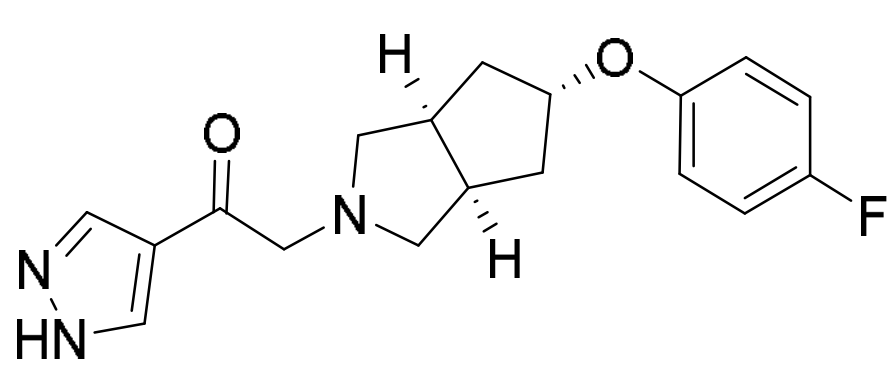
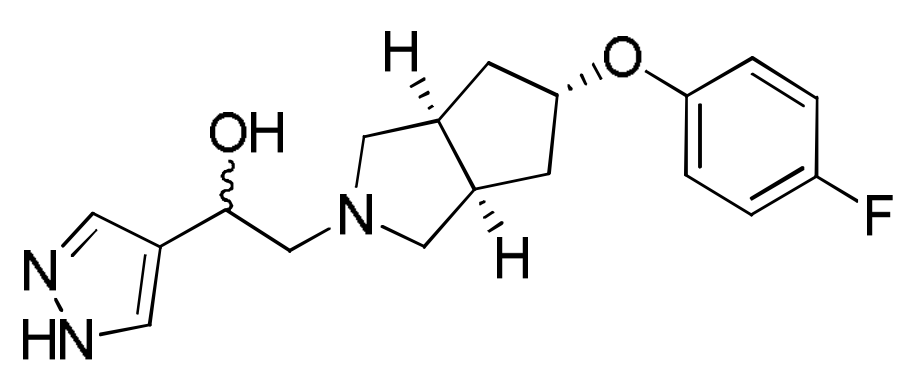
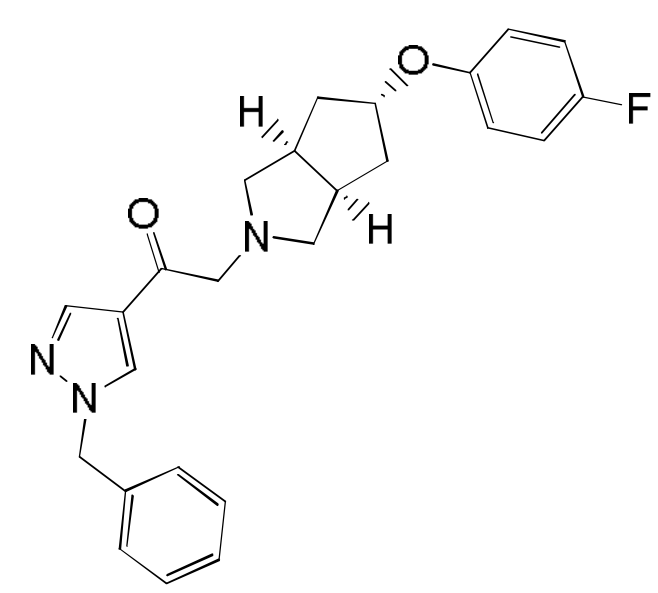
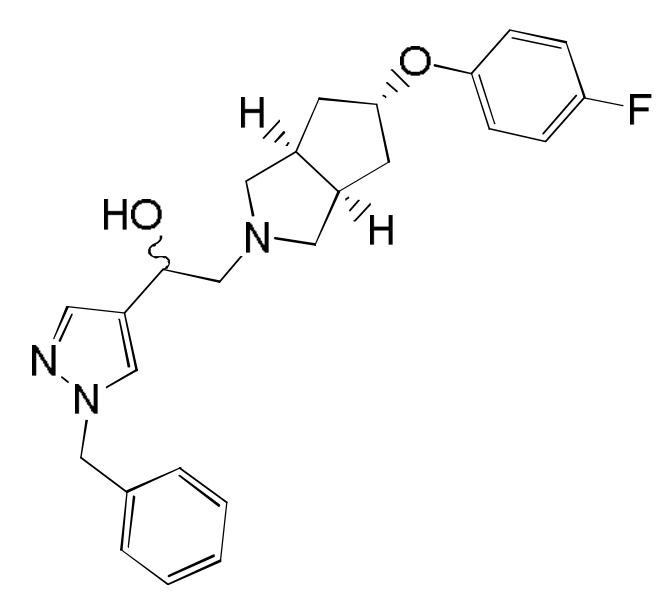
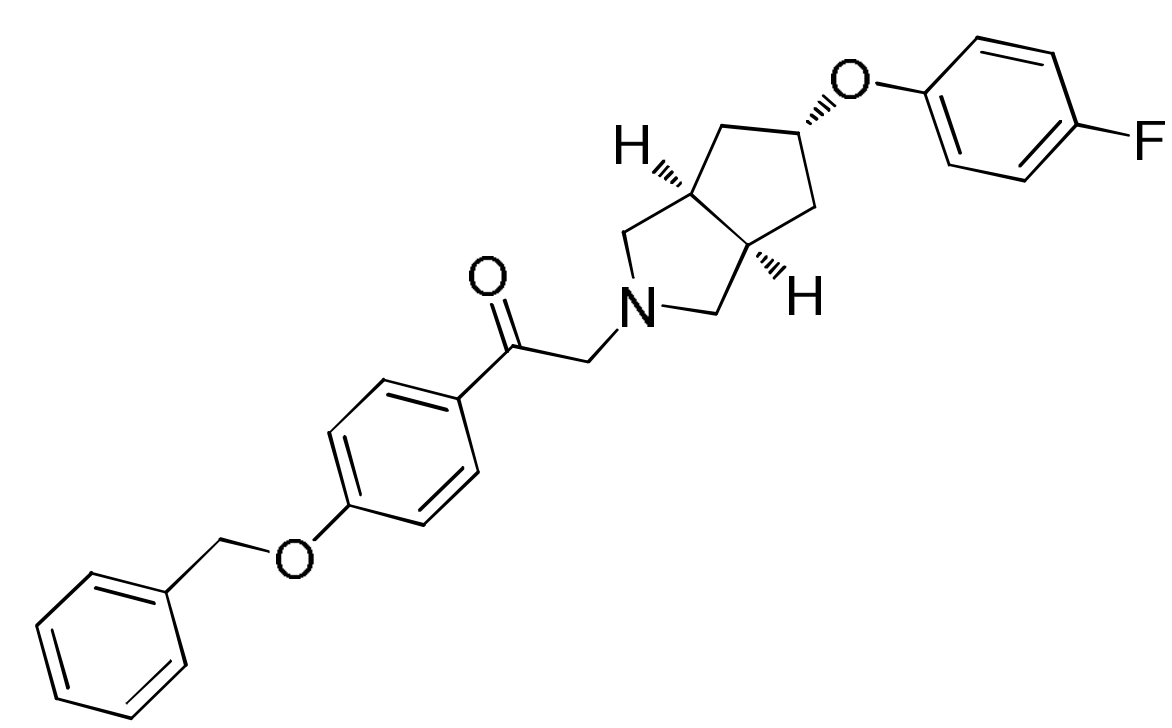
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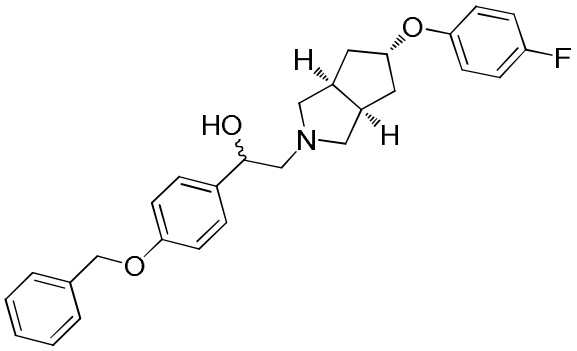
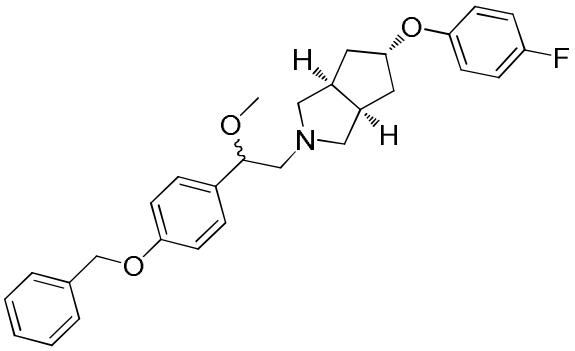
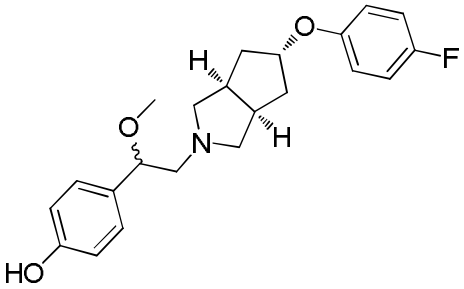
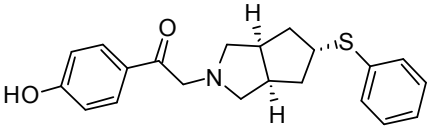
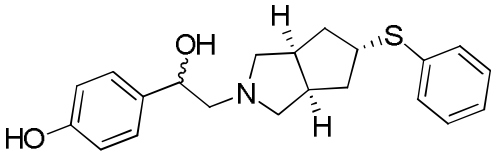
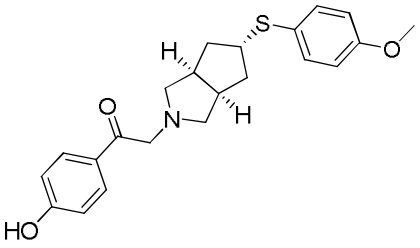
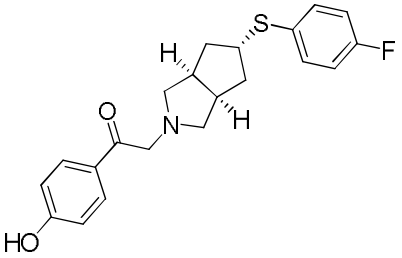
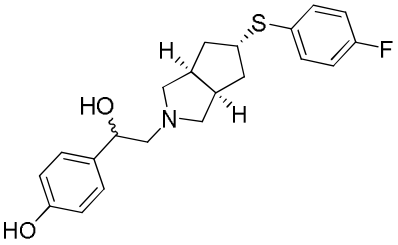
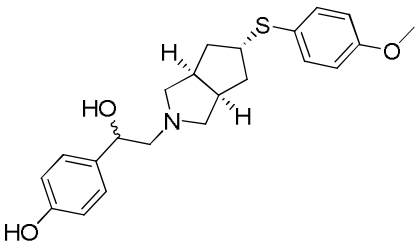
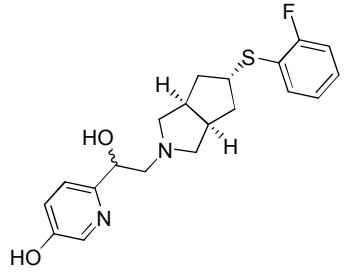
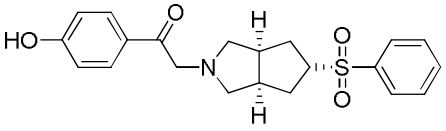
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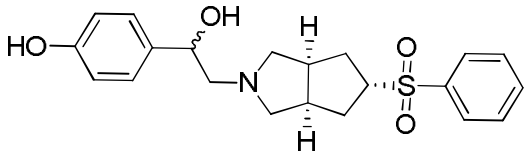

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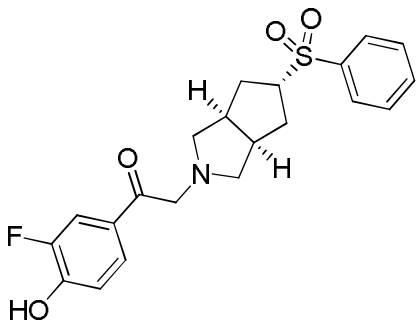
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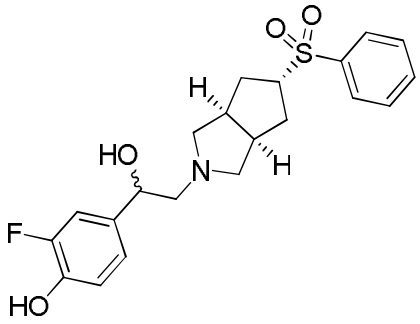
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10. A pharmaceutical composition comprising a compound of claim 1 and a pharmaceutically acceptable carrier.

11. An effective amount of a compound of claim 1 for use in the treatment of a neurological disease, an abnormal brain function, and/or an emotional disorder.

12. The use of an effective amount of a compound of claim 1 in the manufacture of a medicament for the treatment of a neurological disease, an abnormal brain function, and/or an emotional disorder.

13. The compound of claim 11 or the use of claim 12, wherein the neurological disease is Parkinsonôs disease.

14. The compound of claim 11 or the use of claim 12, wherein the emotional disorder is selected from bipolar disorder, obsessive-compulsive disorder, post-traumatic stress syndrome, or anxiety.

15. The compound of claim 11 or the use of claim 12, wherein the emotional disorder is major depressive disorder or depression.

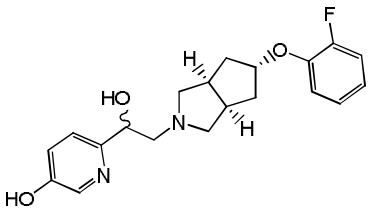
16. The compound of claim 11 or the use of claim 12, wherein the emotional disorder is refractory or treatment resistant depression.

17. An effective amount of a compound of claim 1 for use in modulating NR2B receptors.

18. The use of an effective amount of a compound of claim 1 in the manufacture of a medicament for modulating NR2B receptors.

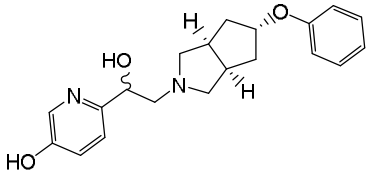
19. The compound or the use according to claim 14, wherein the bipolar disorder is bipolar depression.

20. The compound of claim 9, which is



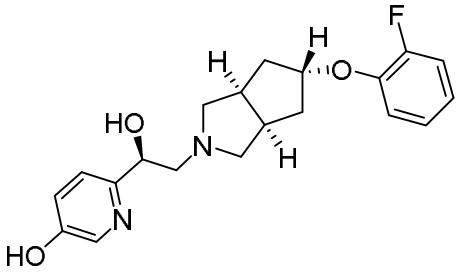
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21. The compound of claim 9, which is



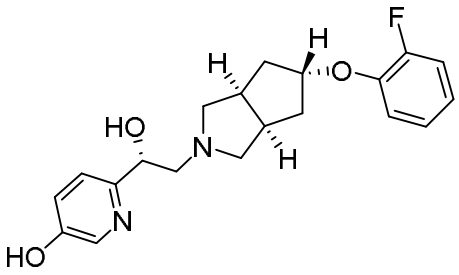
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22. A compound of the following structure:



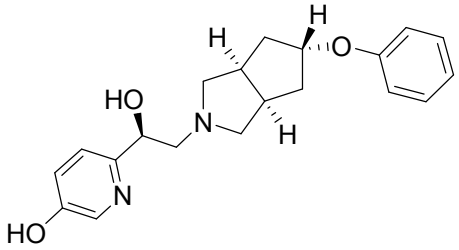
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23. A compound of the following structure:



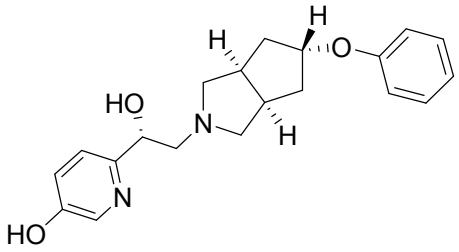
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24. A compound of the following structure:



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25. A compound of the following structure:



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