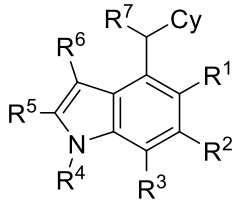
CLAIMS

1. A compound represented by the following formula (I) or a racemate, a stereoisomer, a tautomer, an isotopically labeled compound, a solvate, a polymorph, or a pharmaceutically acceptable salt thereof:



I

wherein $R^1$ is selected from $C_{1-6}$ alkyl, $C_{3-8}$ cycloalkyl and $C_{1-6}$ alkyloxy;

$R^2$ is selected from H, halogen and $C_{1-6}$ alkyl;

$R^3$ is selected from CN and the following groups unsubstituted or optionally substituted with 1, 2 or more halogen: $C_{1-6}$ alkyl and $C_{3-8}$ cycloalkyl;

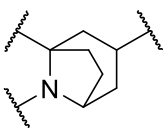
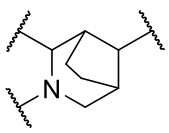
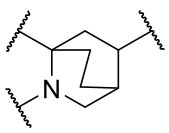
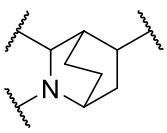
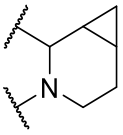
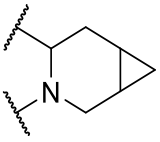
$R^4$ is selected from H and $C_{1-6}$ alkyl;

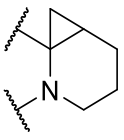
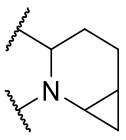
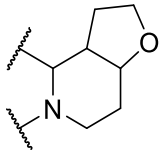
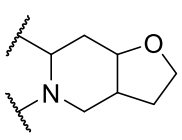
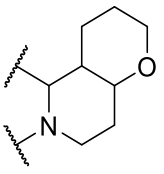
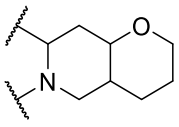
$R^5$ is selected from H and halogen;

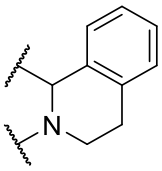
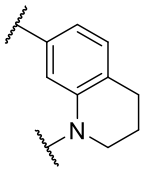
$R^6$ is selected from H and halogen;

$R^7$ is H;

Cy is selected from the following groups substituted with $R^8$, $R^9$, $R^{10}$ and $R^{11}$:

, , , , , ,

, , , , , ,

 and , wherein the N atom of Cy is bonded to the C atom shared by the groups Cy and $R^7$ of formula (I);

$R^8$ is selected from the following groups unsubstituted or substituted with 1, 2 or more $R^j$: $C_{6-10}$ aryl, 5- to 10-membered heteroaryl, and 3- to 20-membered heterocyclyl;

$R^9$ is selected from H and $C_{1-6}$ alkyl;

$R^{10}$ is selected from H, halogen, OH, CN, $NO_2$, and the following groups unsubstituted or optionally substituted with 1, 2 or more $R^k$: $C_{1-6}$ alkyl, $C_{3-8}$ cycloalkyl, 3- to 6-membered heterocyclyl, $C_{1-6}$ alkyloxy, $C_{3-6}$ cycloalkyloxy, 3- to 6-membered heterocyclyloxy, and $NH_2$;

$R^{11}$ is selected from H, halogen and $C_{1-6}$ alkyl;

each $R^j$ is identical or different, and is independently selected from halogen, OH, CN, $C_{1-6}$ alkyl, 5-membered heteroaryl, $C_{1-6}$ alkyloxy and $-C(O)OR^{13}$;

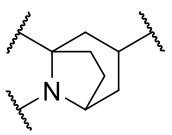
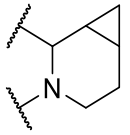
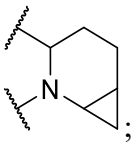
each $R^k$ is identical or different, and is independently selected from halogen, OH, CN, and the following groups unsubstituted or optionally substituted with 1, 2 or more $R^p$: $C_{1-6}$ alkyl, $C_{3-8}$ cycloalkyl, 3- to 6-membered heterocyclyl, $C_{1-6}$ alkyloxy, $C_{3-6}$ cycloalkyloxy, 3- to 6-membered heterocyclyloxy and $NH_2$;

each $R^p$ is identical or different, and is independently selected from halogen and $C_{1-6}$ alkyl;

$R^{13}$ is selected from H, $C_{1-6}$ alkyl and $NH_2$.

2. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to claim 1, wherein

Cy is selected from the following groups substituted with $R^8$, $R^9$, $R^{10}$ and $R^{11}$:


, 
and 
;

$R^8$, $R^9$, $R^{10}$ and $R^{11}$ are independently as defined in claim 1.

3. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein

$R^1$ is $C_{1-6}$ alkyloxy;

$R^2$ is H;

$R^3$ is $C_{1-6}$ alkyl;

$R^4$ is H;

$R^5$ is H;

$R^6$ is H.

4. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof

according to any one of claims 1 to 3, wherein

$R^8$ is selected from the following groups optionally substituted with 1, 2 or more $R^j$: phenyl, pyridinyl, pyrazinyl, furanyl, pyranyl, benzocyclohexyl, benzocyclopentyl, benzofuranyl, and benzotetrahydrofuranyl;

each $R^j$ is as defined in claim 1.

5. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 4, wherein

$R^8$ is phenyl optionally substituted with 1, 2 or more $R^j$;

each $R^j$ is identical or different, and is independently selected from halogen, 5-membered heteroaryl, and $-C(O)OR^{13}$;

$R^{13}$ is H.

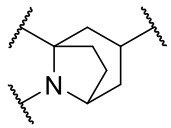
6. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 5, wherein

$R^{11}$ is selected from H and $C_{1-6}$ alkyl;

$R^{10}$ is selected from H, and $C_{1-6}$ alkyloxy unsubstituted or optionally substituted with 1, 2 or more halogen.

7. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 6, wherein

Cy is the following group independently substituted with $R^8$ and $R^{10}$:



;

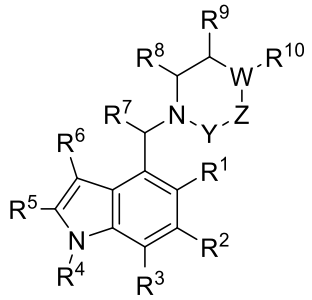
$R^8$ is phenyl optionally substituted with one $R^j$;

$R^{10}$ is $C_{1-6}$ alkyloxy;

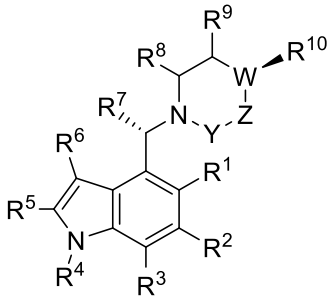
$R^j$ is $-C(O)OH$.

8. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof

according to claim 1, wherein the compound is selected from a compound of formula (I-1) or formula (I-2):



I-1



I-2

wherein W is CH;

Y and Z are $CHR^{11}$;

$R^{11}$ is H;

$R^{10}$ is $C_{1-6}$ alkyloxy substituted with 1, 2 or more $R^k$; or $R^{10}$ is selected from the following groups unsubstituted or optionally substituted with 1, 2 or more halogen and $C_{1-6}$ alkyl: $C_{3-6}$ cycloalkyloxy and 3- to 6-membered heterocyclyloxy;

each $R^k$ is identical or different, and is independently selected from the following groups unsubstituted or optionally substituted with 1, 2 or more $R^p$: $C_{3-8}$ cycloalkyl, and 3- to 6-membered heterocyclyl;

each $R^p$ is identical or different, and is independently selected from halogen and $C_{1-6}$ alkyl;

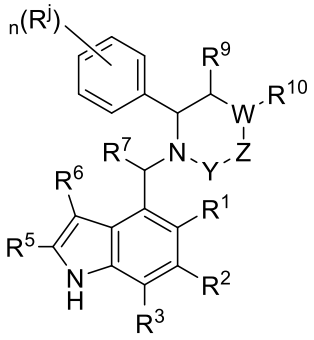
$R^1$, $R^2$, $R^3$, $R^4$, $R^5$, $R^6$, $R^7$, $R^8$, and $R^9$ are independently as defined in claim 1.

9. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to claim 8, wherein

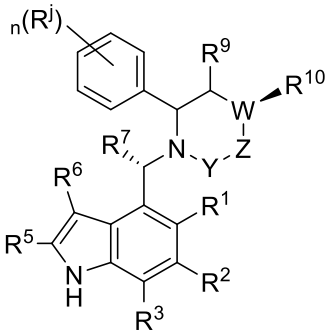
$R^8$ is selected from the following groups optionally substituted with 1, 2 or more $R^j$: phenyl, pyridinyl, pyrazinyl, furanyl, pyranyl, benzocyclohexyl, benzocyclopentyl, benzofuranyl, and benzotetrahydrofuranyl;

each $R^j$ is as defined in claim 1.

10. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to claim 8, wherein the compound has a structure of formula (I-3) or formula (I-4):



I-3



I-4

wherein W, Y, Z, $R^1$, $R^2$, $R^3$, $R^5$, $R^6$, $R^7$, $R^9$, and $R^{10}$ are independently as defined in claim 8;

n is selected from 1, 2 and 3;

each $R^j$ is identical or different, and is independently selected from halogen, 5-membered heteroaryl, and -C(O)O$R^{13}$;

$R^{13}$ is H;

each $R^j$ is a substituent at the 2-, 3-, 4- or 5-position of phenyl.

11. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 8 to 10, wherein

$R^9$ is H;

n is 1;

$R^j$ is -C(O)OH at the 4-position of phenyl.

12. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 8 to 11, wherein

$R^1$ is $C_{1-6}$ alkyloxy;

$R^2$ is H;

$R^3$ is $C_{1-6}$ alkyl;

$R^4$ is H;

$R^5$ is H;

$R^6$ is H.

13. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically

labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 8 to 12, wherein

$R^{10}$ is $C_{1-6}$ alkyloxy substituted with 1, 2 or more $R^k$;

each $R^k$ is identical or different, and is independently selected from $C_{3-8}$ cycloalkyl unsubstituted or optionally substituted with 1, 2 or more $R^p$;

$R^p$ is as defined in claim 8.

14. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 8 to 13, wherein

$R^{10}$ is $C_{1-6}$ alkyloxy substituted with one $R^k$;

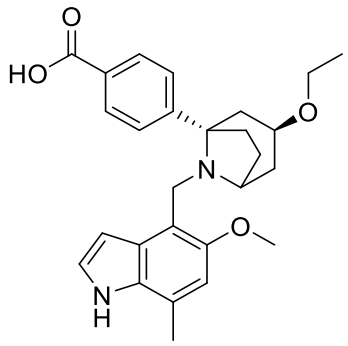
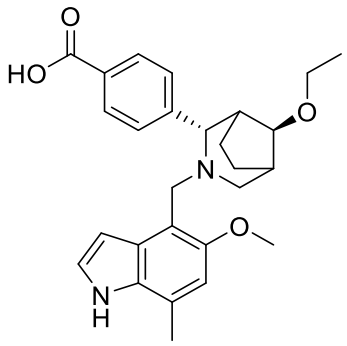
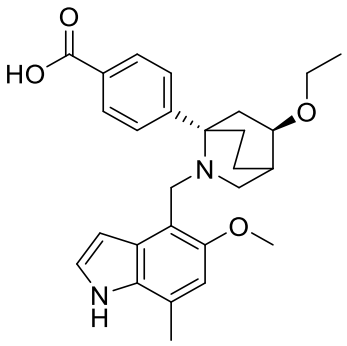
$R^k$ is selected from the following groups unsubstituted or optionally substituted with 1, 2 or more $R^p$: cyclopropyl, cyclobutyl, cyclopentyl and cyclohexyl;

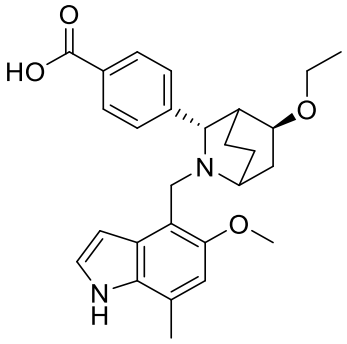
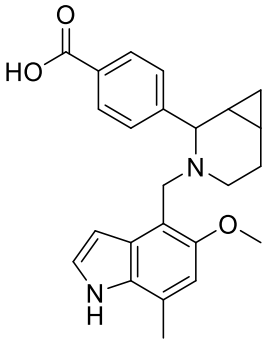
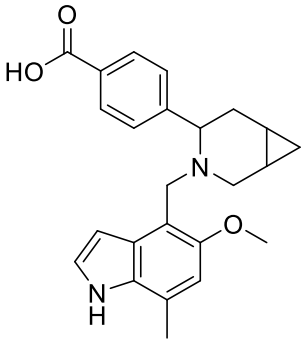
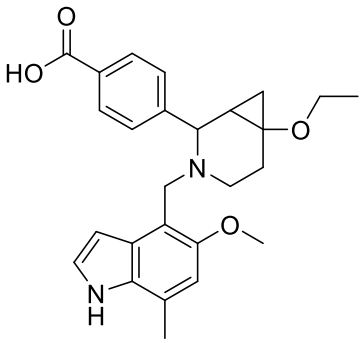
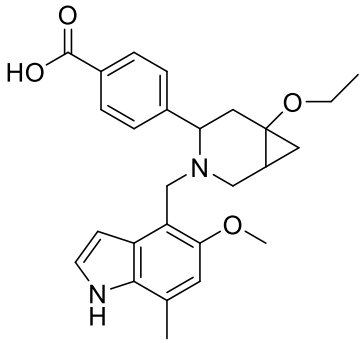
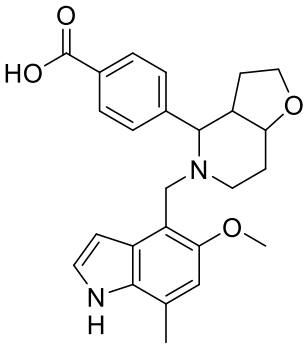
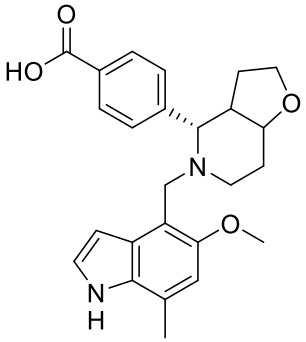
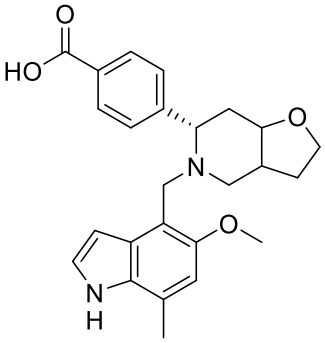
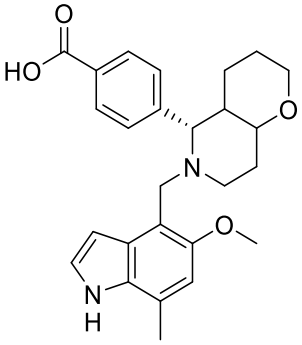
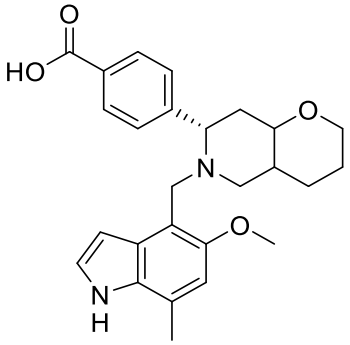
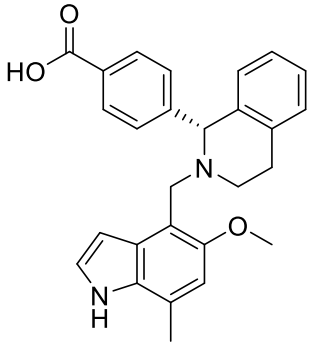
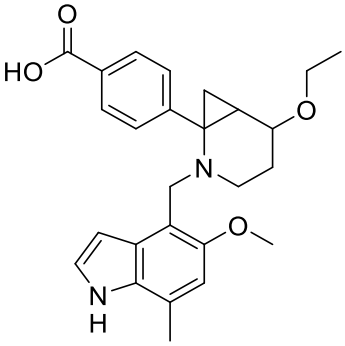
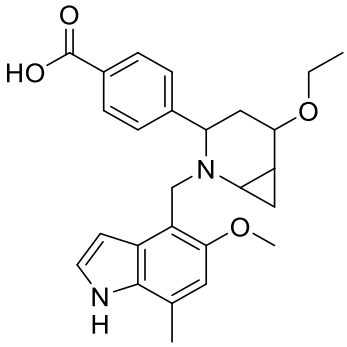
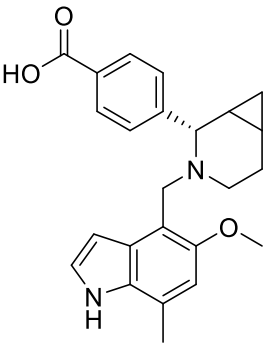
$R^p$ is as defined in claim 8.

15. The compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 8 to 14, wherein

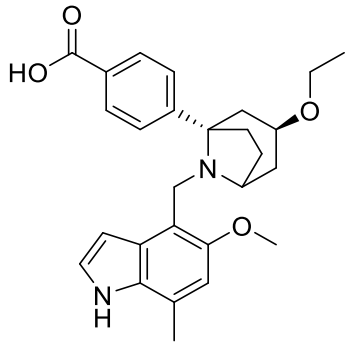
1, 2, 3 or more H atoms in the compound and a substituent thereof are optionally replaced with its isotope D to form groups $CD_3$ and $C_2D_5$.

16. The compound or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to claim 1, wherein the compound is selected from the following compounds:

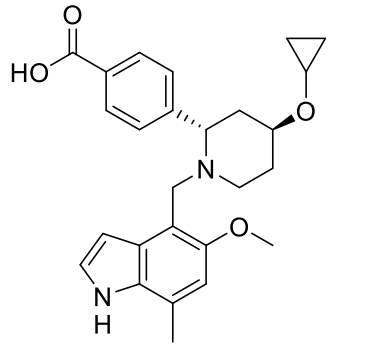














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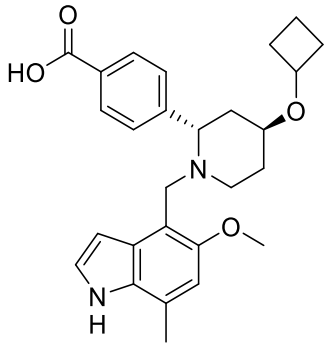
17. The compound or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to claim 1, wherein the compound is:

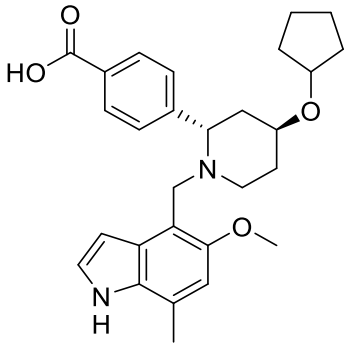


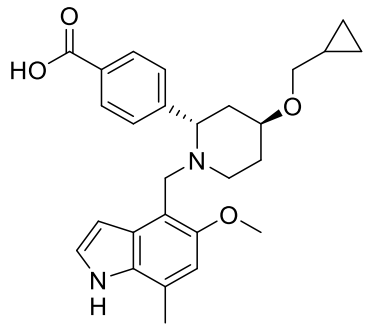
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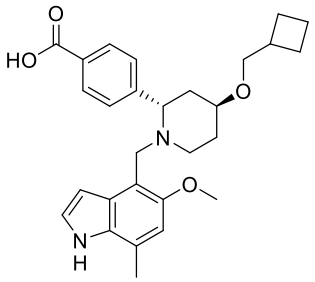
18. The compound or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to claim 8, wherein the compound is selected from the following compounds:

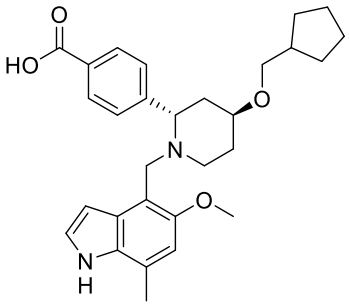


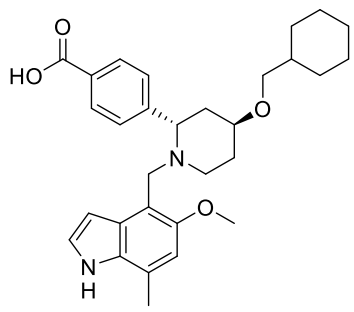


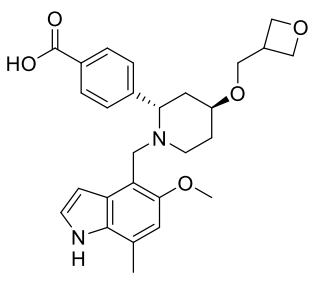


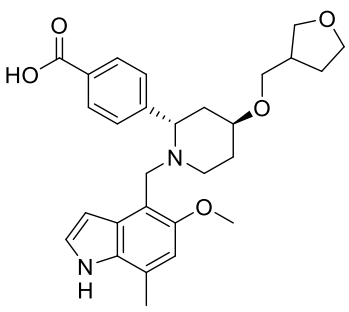


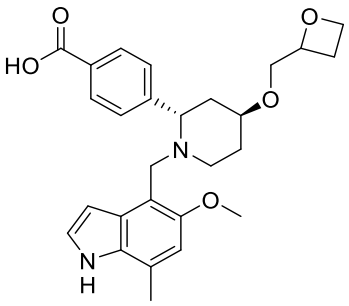
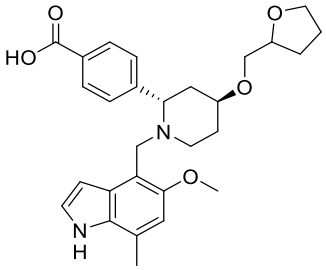
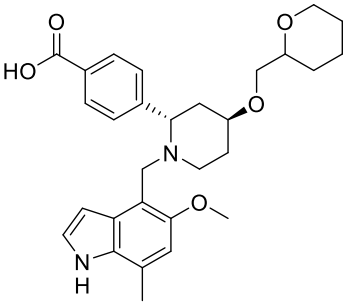
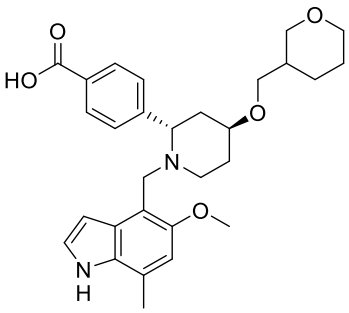
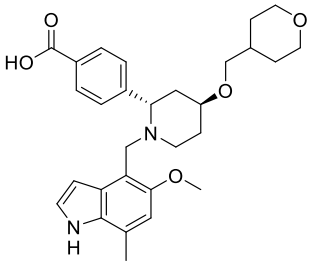
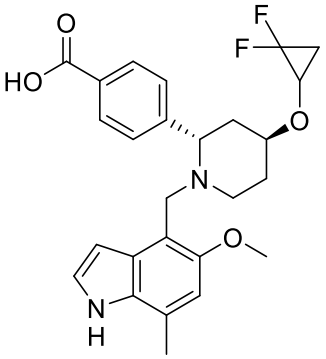
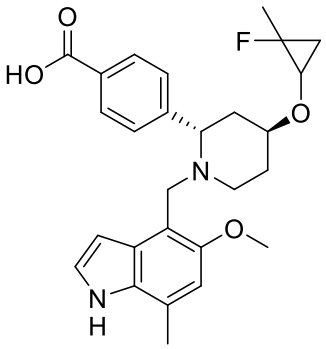
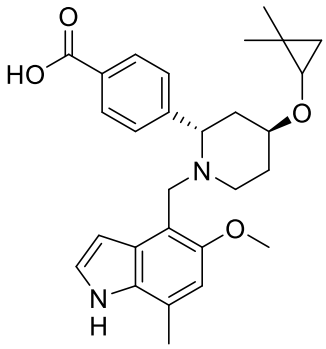
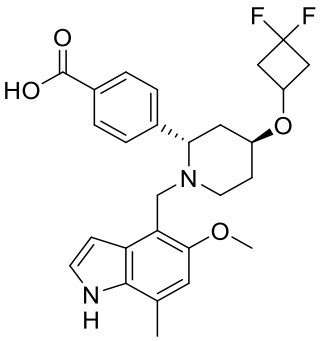
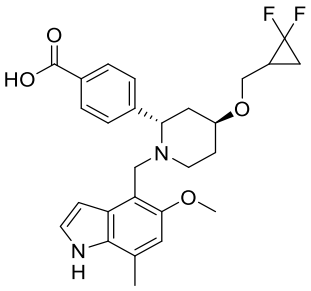
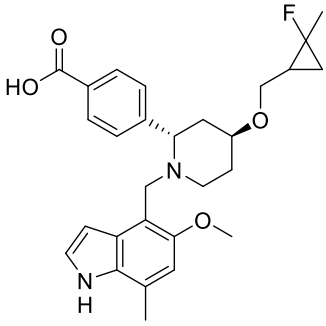
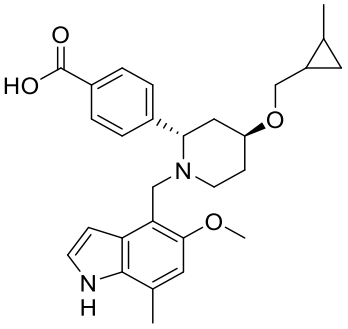
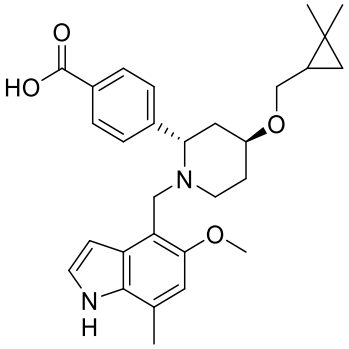
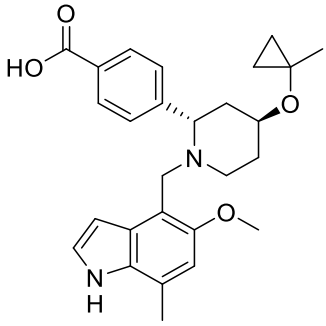
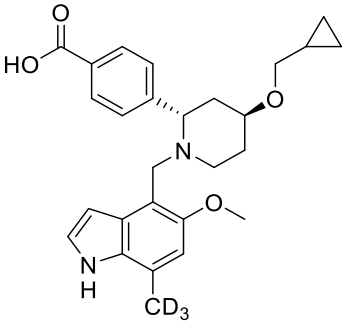


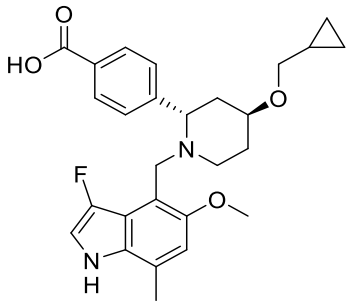
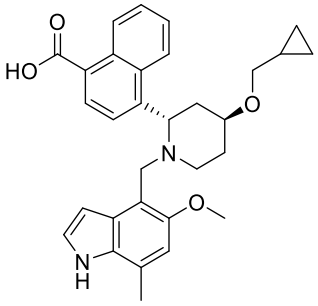
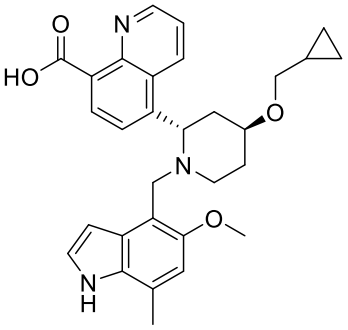
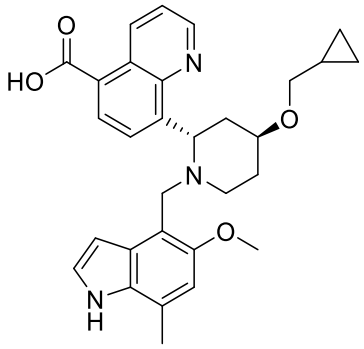
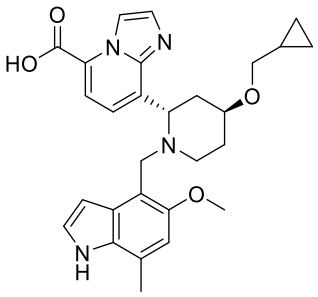
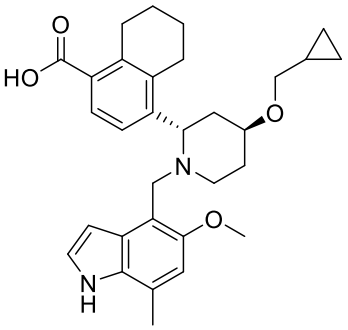
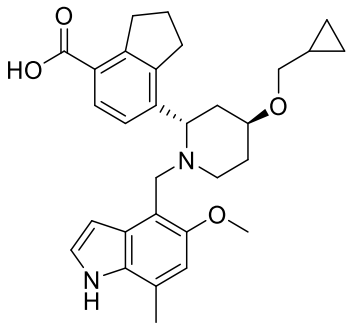
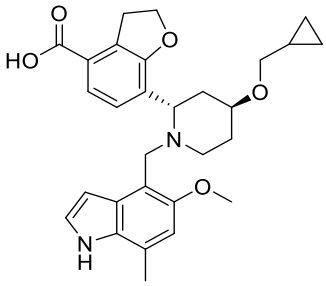
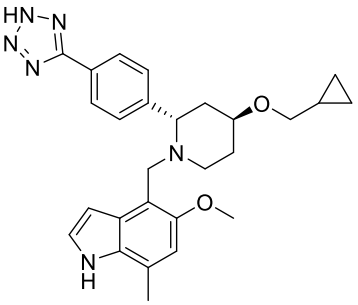
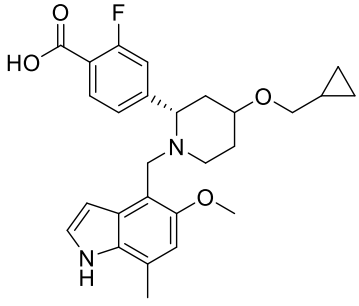






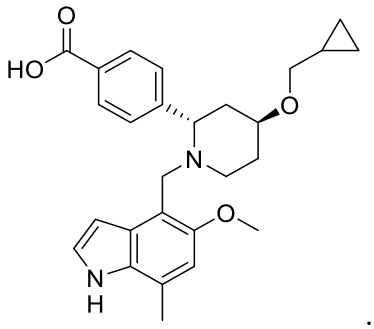


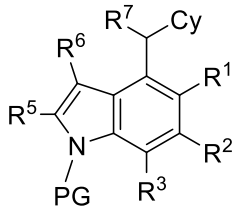











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19. The compound or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to claim 8, wherein the compound is:



20. A compound represented by the following formula (IV):

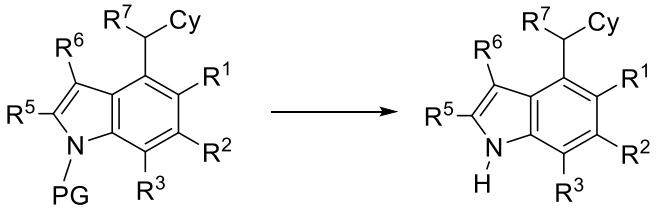


IV

wherein PG is an amino protective group selected from *tert*-butyl, isopropyl, benzyl, *tert*-butoxycarbonyl, 2-biphenyl-2-propoxycarbonyl, benzyloxycarbonyl, fluorenylmethoxycarbonyl and trifluoroacetyl;

$R^1$, $R^2$, $R^3$, $R^5$, $R^6$, $R^7$ and Cy are independently as defined in any one of claims 1-19.

21. A preparation method for the compound or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 1-19, comprising reacting a compound of the following formula (IV) as a starting material to give a compound of the following formula (Ia), i.e. the compound represented by formula (I) in which $R^4$ is H:



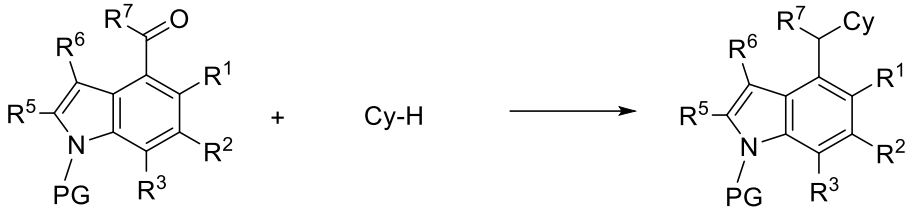
IV Ia

and optionally, further reacting the compound of formula (Ia) with $R^4$-$L^1$ to give a compound of formula (I) in which $R^4$ is a group according to any one of claims 1-19 other than H; $L^1$ is a leaving group selected from OH, F, Cl, Br, I, and halogenated $C_{1-6}$ alkyl;

wherein PG is as defined in claim 20;

$R^1$, $R^2$, $R^3$, $R^5$, $R^6$, $R^7$ and Cy are independently as defined in any one of claims 1-19.

22. The preparation method according to claim 21, comprising reacting a compound of formula (II) with a compound of formula (III) to give the compound of formula (IV):




II III IV

wherein PG, $R^1$, $R^2$, $R^3$, $R^5$, $R^6$, $R^7$ and Cy are independently as defined in claim 21.

23. The preparation method according to claim 22, which is carried out in the presence of a reducing agent; wherein the reducing agent is used for reducing a carbon-nitrogen double bond, and is selected from sodium borohydride, potassium borohydride, lithium borohydride, sodium borohydride acetate, sodium cyanoborohydride, silatrane and lithium aluminum hydride.

24. A pharmaceutical composition comprising a therapeutically effective amount of at least one selected from the compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 1-19.

25. The pharmaceutical composition according to claim 24, which further comprises one or more pharmaceutically acceptable auxiliary materials and/or one or more additional therapeutic agents.

26. Use of the compound, or the racemate, the stereoisomer, the tautomer, the isotopically labeled compound, the solvate, the polymorph, or the pharmaceutically acceptable salt thereof according to any one of claims 1-19, or the pharmaceutical composition according to claim 24 or 25 in the manufacture of a medicament for preventing or treating a disease or disorder selected from the group consisting of paroxysmal nocturnal hemoglobinuria (PNH), primary glomerulonephritis (IgAN), membranous nephropathy (MN), C3 glomerulonephritis (C3G), age-related macular degeneration (AMD), geographic atrophy (GA), atypical hemolytic uremic

syndrome (aHUS), hemolytic uremic syndrome (HUS), diabetic retinopathy (DR), hemodialysis complications, hemolytic anemia or hemodialysis, neuromyelitis optica (NMO), arthritis, rheumatoid arthritis, liver-related inflammations, dermatomyositis and amyotrophic lateral sclerosis, myasthenia gravis (MG), respiratory diseases and cardiovascular diseases.