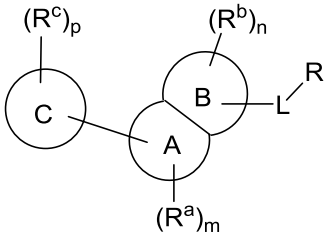
CLAIMS

1. A compound of formula (IA), a stereoisomer thereof, an isotopic derivative thereof, a prodrug thereof, an N-oxide thereof, a solvate thereof, or a pharmaceutically acceptable salt thereof;



(IA)

wherein:

ring A is 5- to 6-membered heteroaryl;

ring B is selected from the group consisting of 3- to 8-membered heterocyclyl, 3- to 8-membered monocyclic cycloalkyl, 3- to 8-membered monocyclic cycloalkenyl, 5- to 10-membered fused ring group, 5- to 10-membered spiro ring group, and 5- to 10-membered bridged ring group;

ring C is selected from the group consisting of phenyl, 5- to 6-membered heteroaryl, 7- to 14-membered fused aryl, 6- to 14-membered fused heterocyclyl, 6- to 14-membered fused heteroaryl, and 6- to 14-membered fused ring group;

L is selected from the group consisting of $-NR^{n1}-$, $-(CR^dR^e)_r-$, $-(CR^d=CR^e)_r-$, $-O-(CR^dR^e)_r-$, $-(CR^dR^e)_r-O-$, $-NR^{n1}-(CR^dR^e)_r-$, $-(CR^dR^e)r-NR^{n1}-$, $-(CR^dR^e)_r-C(O)-$, $-C(O)-(CR^dR^e)_r-$, $-O-C(O)-$, $-C(O)-O-$, $-O-C(O)-NR^{n1}-$, $-NR^{n1}-C(O)-O-$, $-NR^{n1}-C(O)-NR^{n1}-$, $-(CR^dR^e)_r-NR^{n1}-C(O)-$, $-C(O)-NR^{n1}-(CR^dR^e)_r-$, $-NR^{n1}-C(O)-(CR^dR^e)_r-$, $-NR^{n1}-S(O)_2-$, and $-S(O)_2-NR^{n1}-$;

R is selected from the group consisting of hydrogen atom, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, halogen, cyano, $-OR^o$, $-NR^{n2}R^{n3}$, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl, wherein the C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3-

to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl are each independently optionally substituted with one or more substituents selected from the group consisting of deuterium atom, halogen, oxo, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n4}OR^{o}$, hydroxy, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

or R^{n1} and R together with the atom to which they are attached form 3- to 8-membered heterocyclyl or 5- to 10-membered heteroaryl; wherein the 3- to 8-membered heterocyclyl or 5- to 10-membered heteroaryl is each independently optionally substituted with one or more substituents selected from the group consisting of deuterium atom, halogen, oxo, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n4}OR^{o}$, $-OR^{o}$, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

each R^{a}, R^{b}, and R^{c} is identical or different, and is independently selected from the group consisting of hydrogen atom, deuterium atom, C_{1-6} alkyl, $-OR^{o}$, $-NR^{n2}R^{n3}$, halogen, cyano, oxo, $-C(O)NR^{n2}R^{n3}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n1}OR^{o}$, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl, wherein the C_{1-6} alkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl are each independently optionally substituted with one or more substituents selected from the group consisting of deuterium atom, halogen, oxo, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n4}OR^{o}$, hydroxy, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

or two R^{b} together with the atom to which they are attached form 3- to

8-membered heterocyclyl or 3- to 8-membered cycloalkyl, wherein the 3- to 8-membered heterocyclyl and 3- to 8-membered cycloalkyl are each independently optionally substituted with one or more substituents selected from the group consisting of deuterium atom, halogen, oxo, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n4}OR^{o}$, $-OR^{o}$, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

or two R^{c} together with the atom to which they are attached form 3- to 8-membered heterocyclyl or 3- to 8-membered cycloalkyl, wherein the 3- to 8-membered heterocyclyl and 3- to 8-membered cycloalkyl are each independently optionally substituted with one or more substituents selected from the group consisting of deuterium atom, halogen, oxo, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n4}OR^{o}$, $-OR^{o}$, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

or R^{b} and R together with the atom to which they are attached form 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, or 5- to 10-membered heteroaryl; wherein the 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl are each independently optionally substituted with one or more substituents selected from the group consisting of deuterium atom, halogen, oxo, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n4}OR^{o}$, $-OR^{o}$, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

R^{d} and R^{e} are identical or different at each occurrence and are each independently selected from the group consisting of hydrogen atom, deuterium atom,

C_{1-6} alkyl, halogen, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} hydroxyalkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{2-6} haloalkenyl, C_{2-6} haloalkynyl, $-OR^o$, and C_{1-6} haloalkoxy;

R^o is identical or different at each occurrence and is each independently selected from the group consisting of hydrogen atom, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} hydroxyalkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl; wherein the C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl are each independently optionally substituted with one or more substituents selected from the group consisting of deuterium atom, halogen, oxo, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^o$, $-C(O)OR^o$, $-C(O)NR^{n4}OR^o$, $-OR^o$, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

R^{n1}, R^{n2}, R^{n3}, R^{n4}, and R^{n5} are identical or different at each occurrence and are each independently selected from the group consisting of hydrogen atom, C_{1-6} alkyl, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl; wherein the C_{1-6} alkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl are each independently optionally substituted with one or more substituents selected from the group consisting of deuterium atom, halogen, oxo, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^o$, $-C(O)OR^o$, $-C(O)NR^{n4}OR^o$, $-OR^o$, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

or R^{n2} and R^{n3}, R^{n4} and R^{n5}, together with the nitrogen atom to which they are attached, respectively, form 3- to 8-membered heterocyclyl; wherein the 3- to 8-membered heterocyclyl is optionally substituted with one or more substituents

selected from the group consisting of deuterium atom, halogen, oxo, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n4}OR^{o}$, $-OR^{o}$, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

n is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12;

m is 0, 1, 2, 3, 4, 5 or 6;

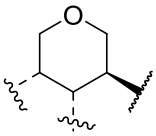
p is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12; and

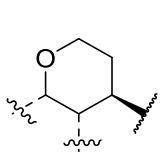
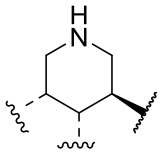
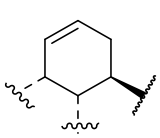
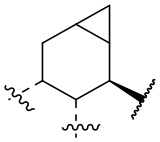
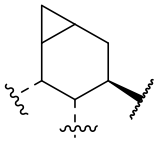
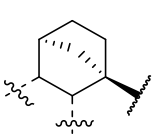
r is 0, 1, 2, 3 or 4.

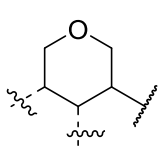
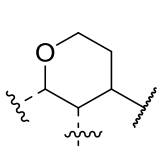
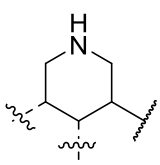
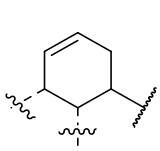
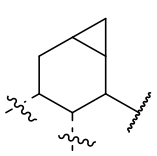
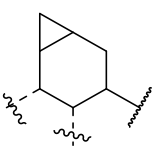
2. The compound according to claim 1, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, wherein ring A is 5- to 6-membered heteroaryl containing 1 to 3 nitrogen atoms;

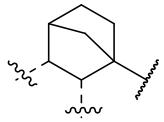
preferably, ring A is selected from the group consisting of pyridinyl, pyrimidinyl, pyridazinyl, and a 5-membered heteroaryl containing 1 to 3 nitrogen atoms; and/or

ring B is selected from the group consisting of 5- to 6-membered heterocyclyl, 5- to 6-membered cycloalkenyl, 6- to 10-membered fused ring group, and 6- to 10-membered bridged ring group;

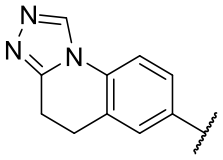
preferably, ring B is selected from the group consisting of ,

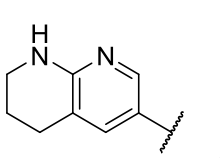
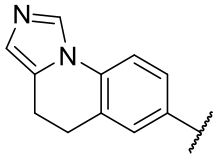
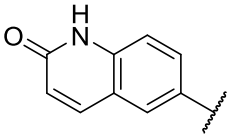
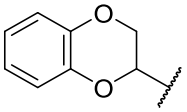
, , , , , ,

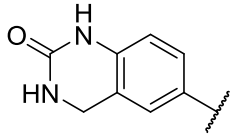
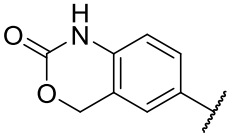
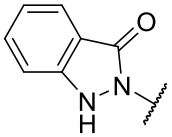
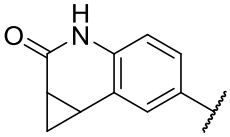
, , , , , ,

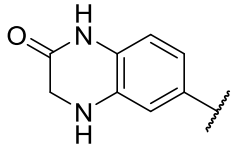
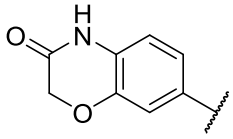
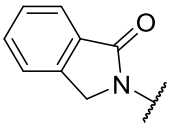
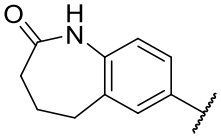
and  , wherein  and  are attached to L; and/or

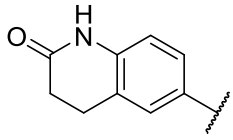
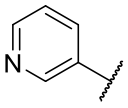
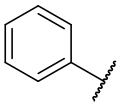
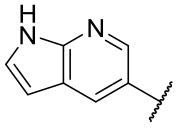
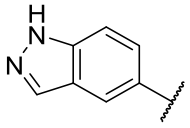
ring C is selected from the group consisting of phenyl, 5- to 6-membered heteroaryl, 5- to 8-membered monocyclic heterocyclyl-fused phenyl, 7- to 10-membered fused heterocyclyl-fused phenyl, 5- to 8-membered monocyclic heterocyclyl-fused 5- to 6-membered heteroaryl, 7- to 10-membered fused heterocyclyl-fused 5- to 6-membered heteroaryl, 5- to 6-membered heteroaryl-fused phenyl, and 5- to 6-membered heteroaryl-fused 5- to 6-membered heteroaryl;

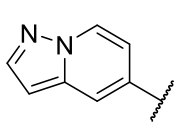
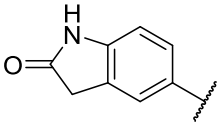
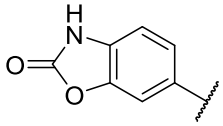
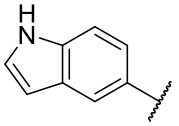
preferably, ring C is selected from the group consisting of  ,

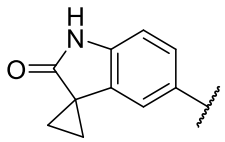
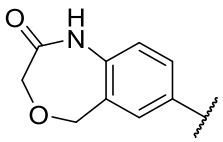
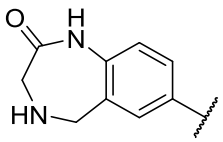
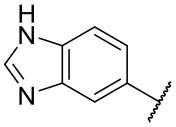
 ,  ,  ,  ,

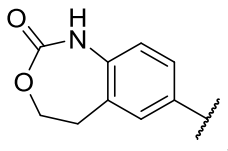
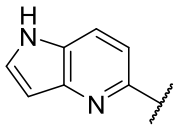
 ,  ,  ,  ,

 ,  ,  ,  ,

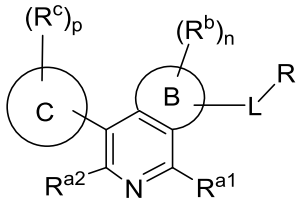
 ,  ,  ,  ,  ,

 ,  ,  ,  ,

 ,  ,  ,  ,


, and 
.

3. The compound according to claim 1 or 2, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, which is a compound of formula (I), a stereoisomer thereof, an isotopic derivative thereof, a prodrug thereof, an N-oxide thereof, a solvate thereof, or a pharmaceutically acceptable salt thereof;


(I)

wherein:

R^{a1} and R^{a2} are identical or different, and are each independently as defined for R^a in claim 1;

ring B is selected from the group consisting of 3- to 8-membered heterocyclyl, 5- to 6-membered cycloalkenyl, 7- to 8-membered monocyclic cycloalkyl, 5- to 10-membered fused ring group, 5- to 10-membered spiro ring group, and 5- to 10-membered bridged ring group;

ring C is selected from the group consisting of phenyl, 5- to 6-membered heteroaryl, 7- to 14-membered fused aryl, 6- to 14-membered fused heterocyclyl, 6- to 14-membered fused heteroaryl, and 6- to 14-membered fused ring group;

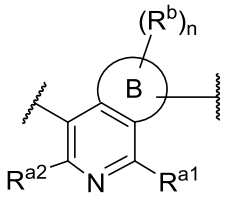
L is selected from the group consisting of $-NR^{n1}-$, $-NR^{n1}-C(O)-$, $-NR^{n1}-C(O)-NR^{n1}-$, and $-CR^d=CR^e-$; or R^{n1} and R together with the atom to which they are attached form 3- to 8-membered heterocyclyl or 5- to 10-membered heteroaryl; wherein the 3- to 8-membered heterocyclyl or 5- to 10-membered heteroaryl is each independently optionally substituted with one or more substituents selected from the group consisting of halogen, oxo, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6}

haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n4}OR^{o}$, $-OR^{o}$, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

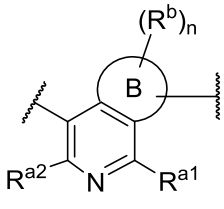
or R^{b} and R together with the atom to which they are attached form 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, or 5- to 10-membered heteroaryl; wherein the 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl are each independently optionally substituted with one or more substituents selected from the group consisting of halogen, oxo, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, $-NR^{n4}R^{n5}$, $-C(O)NR^{n4}R^{n5}$, $-C(O)R^{o}$, $-C(O)OR^{o}$, $-C(O)NR^{n4}OR^{o}$, $-OR^{o}$, C_{1-6} hydroxyalkyl, 3- to 8-membered heterocyclyl, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 6- to 10-membered aryl, and 5- to 10-membered heteroaryl;

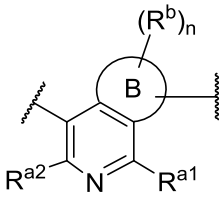
provided that the compound of formula (I) is not the compound with CAS number 1428652-88-3;

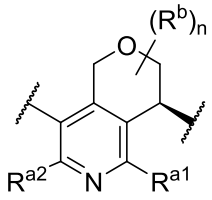
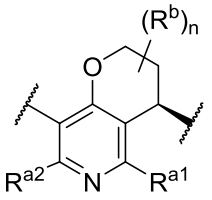
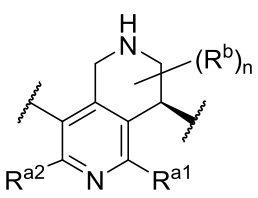
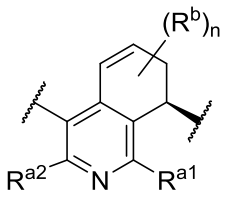
R, R^{a}, R^{b}, R^{c}, R^{n1}, R^{n4}, R^{n5}, R^{o}, R^{d}, R^{e}, n, and p are as defined in claim 1; preferably,

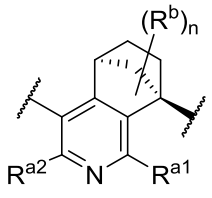
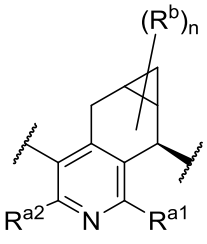
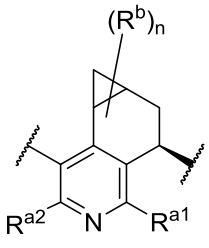
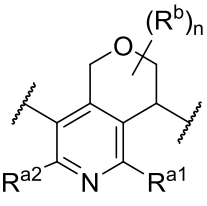
in the structural moiety 

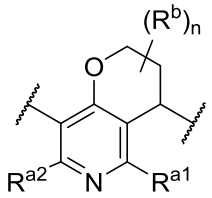
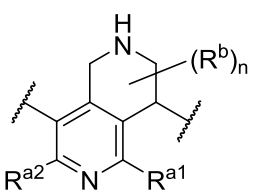
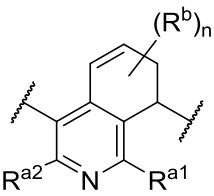
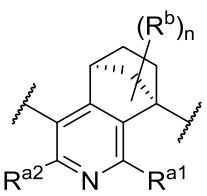
, ring B is selected from the group consisting of 5- to 6-membered heterocyclyl, 5- to 6-membered cycloalkenyl, 6- to 10-membered fused ring group, and 6- to 10-membered bridged ring group; R^{a1} and R^{a2} are identical or different, and are each independently as defined for R^{a} in claim 1; n and R^{b} are as defined in claim 1;

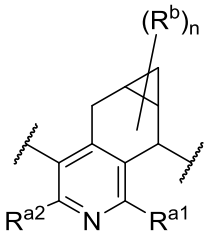
preferably, in the structural moiety , ring B is selected from the group consisting of 5- to 6-membered heterocyclyl, 5- to 6-membered cycloalkenyl, 6- to 10-membered fused ring group, and 6- to 10-membered bridged ring group; each R^b is identical or different, and is independently selected from the group consisting of halogen, hydroxy, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl)$_2$, C_{1-6} alkyl, and C_{1-6} alkoxy; n is 0, 1, 2, 3, or 4; R^{a1} and R^{a2} are identical or different, and are each independently selected from the group consisting of hydrogen atom, halogen, hydroxy, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl)$_2$, C_{1-6} alkyl, and C_{1-6} alkoxy;

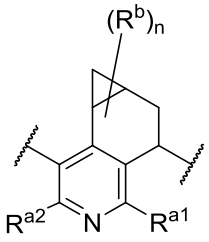
more preferably,  is selected from the group consisting of

, , , ,

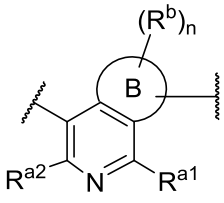
, , , ,

, , , ,

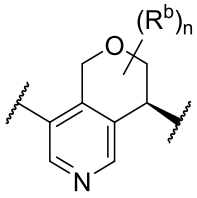


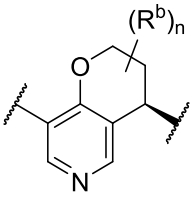
, and 

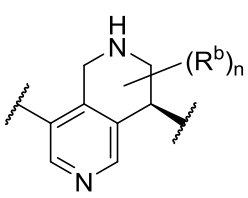
, wherein  and  are attached to L, each R^b is identical or different, and is independently selected from the group consisting of halogen, hydroxy, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl)$_2$, C_{1-6} alkyl, and C_{1-6} alkoxy; n is 0, 1, 2, 3, or 4; R^{a1} and R^{a2} are identical or different, and are each independently selected from the group consisting of hydrogen atom, halogen, hydroxy, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl)$_2$, C_{1-6} alkyl, and C_{1-6} alkoxy;

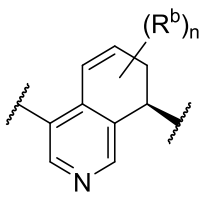
further preferably, 

is selected from the group consisting of

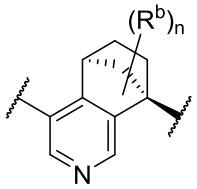


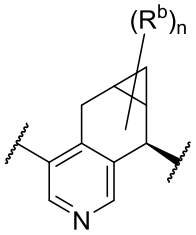
, 

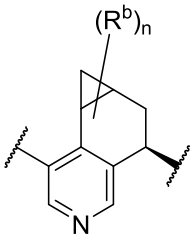
, 

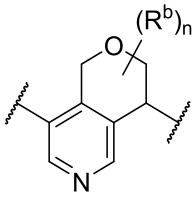
, 

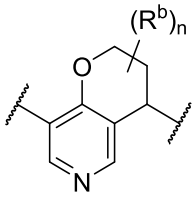
,



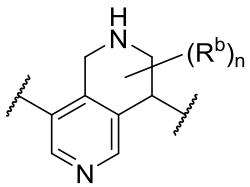
, 

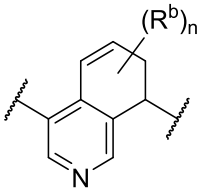
, 

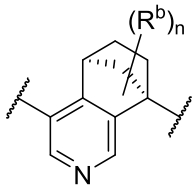
, 

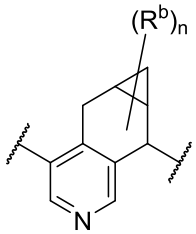
, 

,

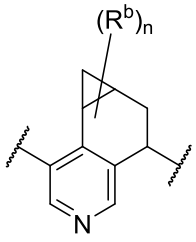


, 

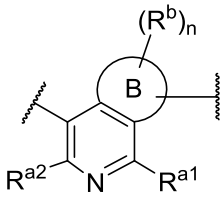
, 

, 

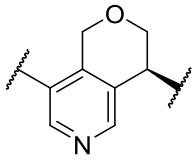
, and

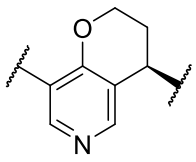


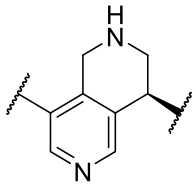
, wherein  and  are attached to L, each R^b is identical or different, and is independently selected from the group consisting of halogen, hydroxy, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl$)_2$, C_{1-6} alkyl, and C_{1-6} alkoxy; n is 0, 1, 2, 3, or 4;

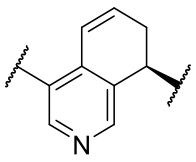
even more preferably, 

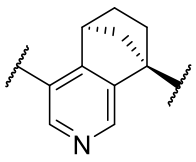
is selected from the group consisting of



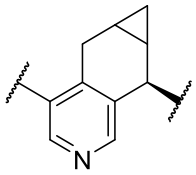
, 

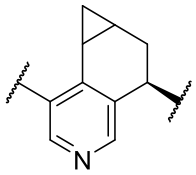
, 

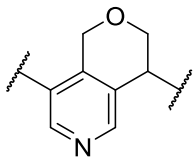
, 

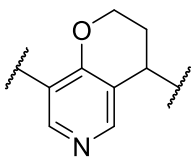
, 

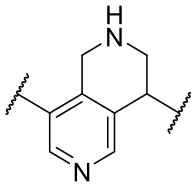
,



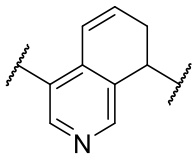
, 

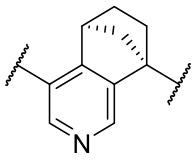
, 

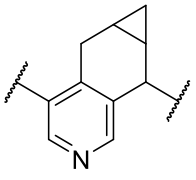
, 

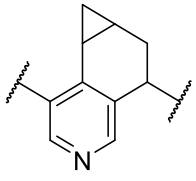
, 

,



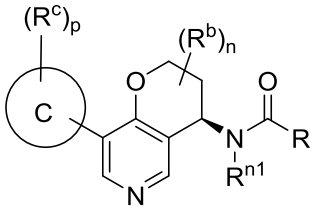
, 

, 

, and 

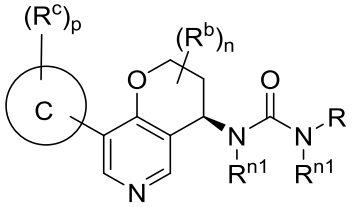
, wherein 
and  are attached to L.

4. The compound according to any one of claims 1 to 3, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, which is a compound of formula (I-1) or formula (I-2), a stereoisomer thereof, an isotopic derivative thereof, a prodrug thereof, an N-oxide thereof, a solvate thereof, or a pharmaceutically acceptable salt thereof;



(I-1)

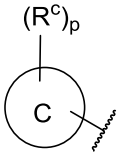
or

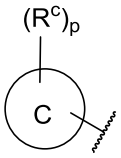


(I-2)

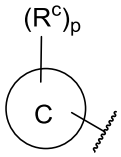
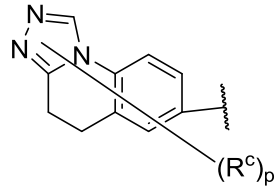
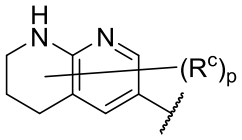
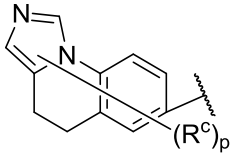
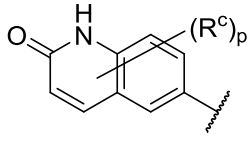
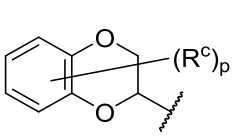
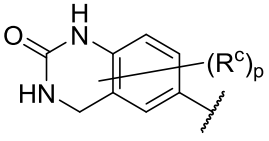
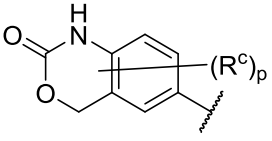
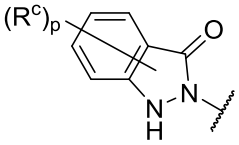
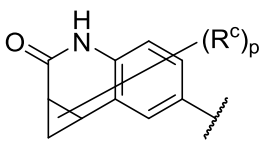
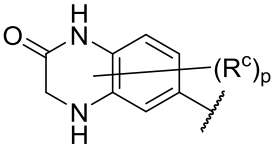
wherein:

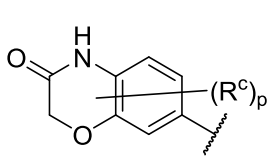
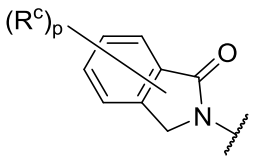
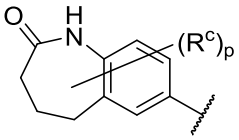
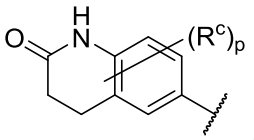
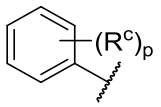
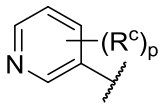
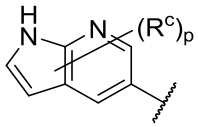
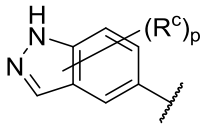
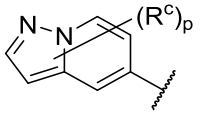
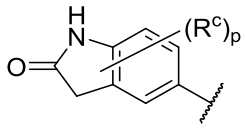
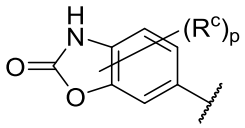
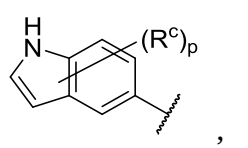
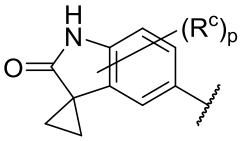
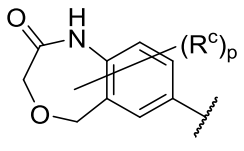
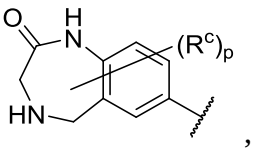
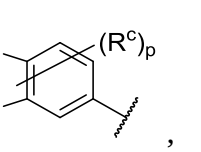
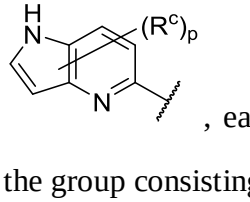
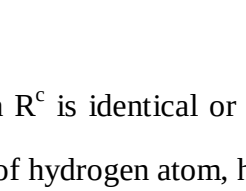
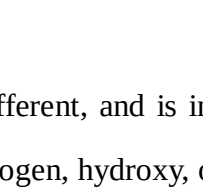
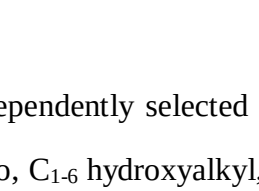
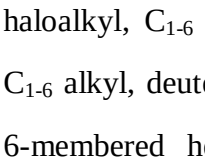
ring C, R, R^{n1}, R^b, R^c, n, and p are as defined in any one of claims 1 to 3.

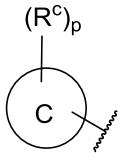
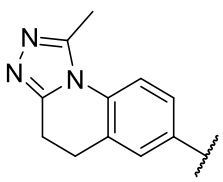
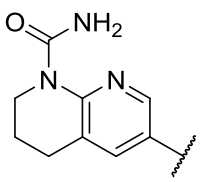
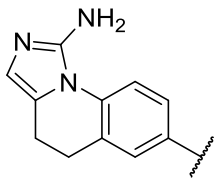
5. The compound according to any one of claims 1 to 4, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, wherein in the structural moiety , ring C is selected from the group consisting of phenyl, 5- to 6-membered heteroaryl, 7- to 14-membered fused aryl, 6- to 14-membered fused heterocyclyl, and 6- to 14-membered fused heteroaryl, each R^c is identical or different, and is independently selected from the group consisting of halogen, hydroxy, oxo, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl$)_2$, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} alkoxy, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 3- to 8-membered heterocyclyl, and 5- to 6-membered heteroaryl, wherein the 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 3- to 8-membered heterocyclyl, and 5- to 6-membered heteroaryl are optionally substituted with one or more substituents selected from the group consisting of halogen, hydroxy, oxo, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl$)_2$, C_{1-6} alkyl, and C_{1-6} alkoxy; p is 0, 1, 2, 3, or 4;

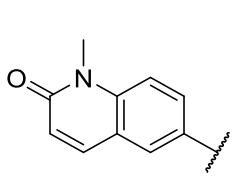
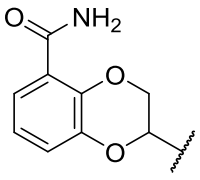
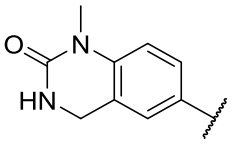
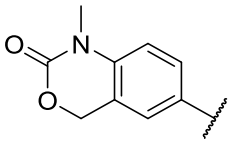
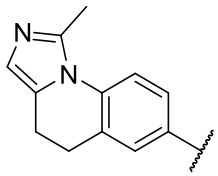
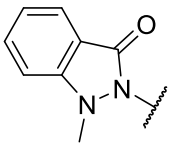
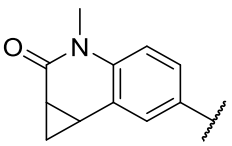
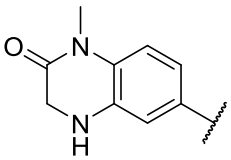
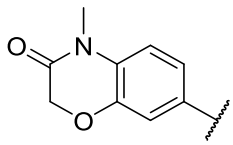
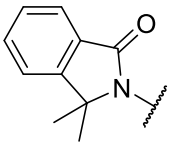
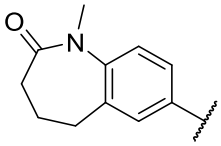
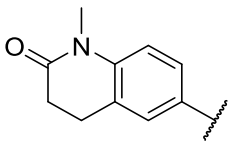
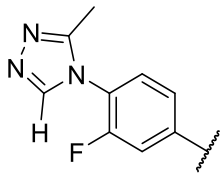
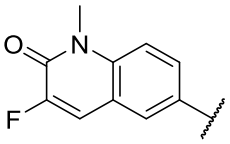
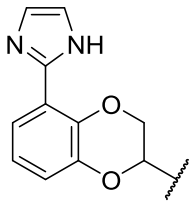
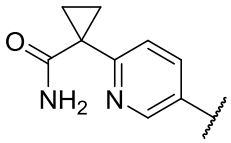
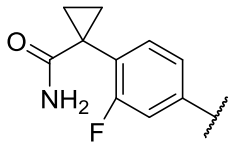
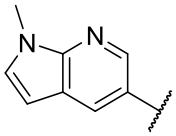
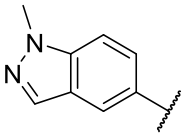
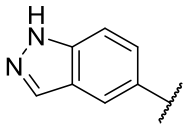
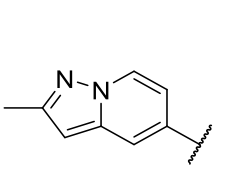
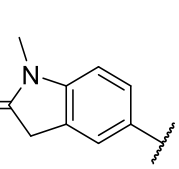
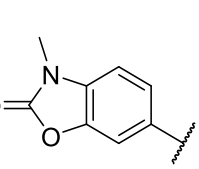
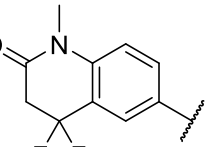
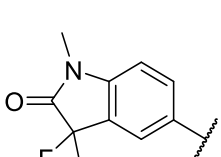
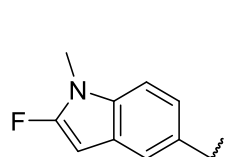
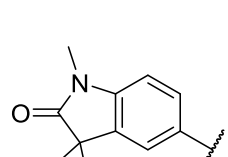
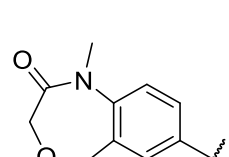
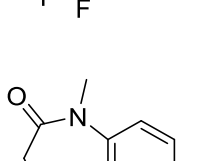
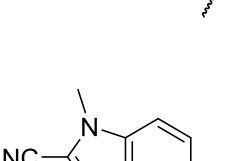
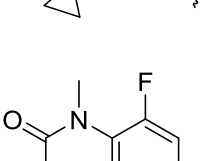
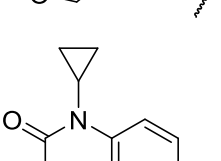
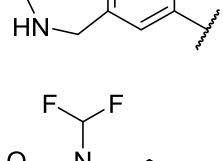
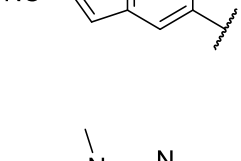
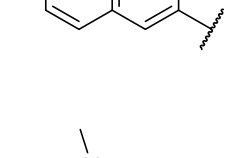
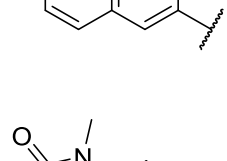
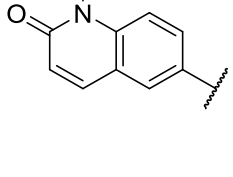
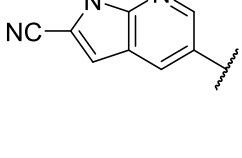
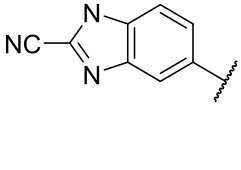
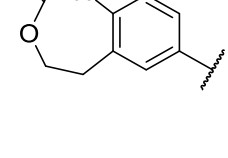
preferably, in the structural moiety , ring C is selected from the group

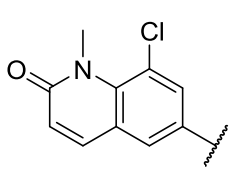
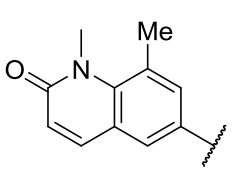
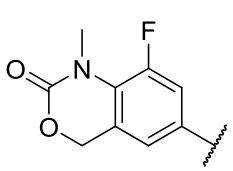
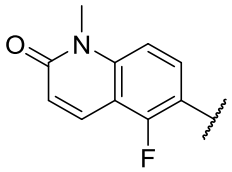
consisting of phenyl, 5- to 6-membered heteroaryl, 5- to 8-membered monocyclic heterocyclyl-fused phenyl, 7- to 10-membered fused heterocyclyl-fused phenyl, 7- to 10-membered spiro heterocyclyl-fused phenyl, 5- to 8-membered monocyclic heterocyclyl-fused 5- to 6-membered heteroaryl, 7- to 10-membered fused heterocyclyl-fused 5- to 6-membered heteroaryl, and 5- to 6-membered heteroaryl-fused phenyl; each R^c is identical or different, and is independently selected from the group consisting of halogen, hydroxy, oxo, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, NH(C_{1-6} alkyl), N(C_{1-6} alkyl)$_2$, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} alkoxy, 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 3- to 8-membered heterocyclyl, and 5- to 6-membered heteroaryl, wherein the 3- to 8-membered cycloalkyl, 3- to 8-membered cycloalkenyl, 3- to 8-membered heterocyclyl, and 5- to 6-membered heteroaryl are optionally substituted with one or more substituents selected from the group consisting of halogen, hydroxy, oxo, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, NH(C_{1-6} alkyl), N(C_{1-6} alkyl)$_2$, C_{1-6} alkyl, and C_{1-6} alkoxy; p is 0, 1, 2, 3, or 4;

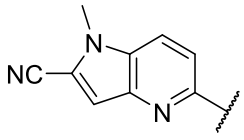
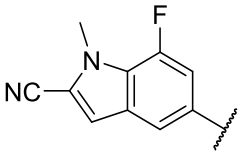
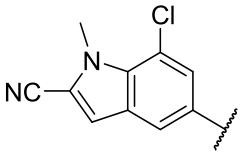
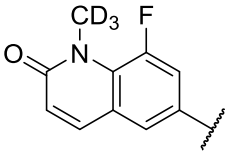
more preferably, the structural moiety  is selected from the group consisting of , , , , , , , , , ,

, , , , , , , , , , , , , , , , , , , , , and , each R^c is identical or different, and is independently selected from the group consisting of hydrogen atom, halogen, hydroxy, oxo, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl)$_2$, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} alkoxy, 3- to 6-membered cycloalkyl, and 5- to 6-membered heteroaryl, wherein the 3- to 6-membered cycloalkyl and 5- to 6-membered heteroaryl are optionally substituted with one or more substituents selected from the group consisting of halogen, hydroxy, oxo, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, -$CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl)$_2$, C_{1-6} alkyl, and C_{1-6} alkoxy; p is 0, 1, 2, 3, or 4;

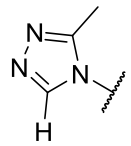
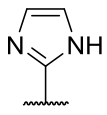
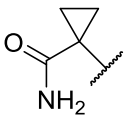
even more preferably, the structural moiety  is selected from the group consisting of , , ,


,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

, , , ,

, , , and .

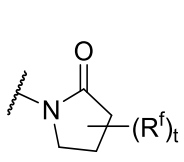
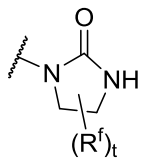
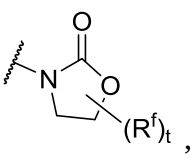
6. The compound according to any one of claims 1 to 5, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, wherein each R^c is identical or different, and is independently selected from the group consisting of hydrogen atom, halogen, oxo, C_{1-6} haloalkyl, cyano, -$CONH_2$, amino, C_{1-6} alkyl, deuterated C_{1-6} alkyl, an optionally -$CONH_2$ substituted 3- to 8-membered cycloalkyl, and an optionally C_{1-6} alkyl substituted 5- to 6-membered heteroaryl; or two R^c attached to the same carbon atom or to adjacent carbon atoms together with the carbon atom to which they are attached form 3- to 6-membered cycloalkyl;

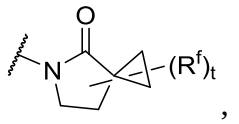
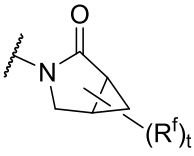
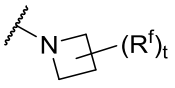
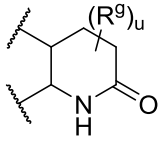
preferably, each R^c is identical or different, and is independently selected from the group consisting of hydrogen atom, F, methyl, amino, -$CONH_2$, , , , cyano, -CHF_2, cyclopropyl, -CD_3, and Cl; and/or

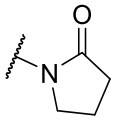
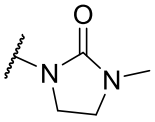
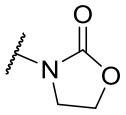
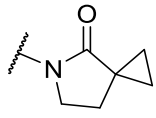
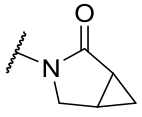
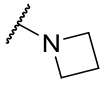
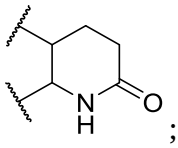
L is selected from the group consisting of -NR^{n1}-, -$NR^{n1}C(O)$-, -NR^{n1}-C(O)-NR^{n1}-, and -CR^d=CR^e-; R^{n1}, R^d, and R^e are as defined in claim 1; R is selected from the group consisting of C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} hydroxyalkyl, cyclopropyl, C_{1-6} haloalkyl, deuterated C_{1-6} alkyl, deuterated C_{1-6} alkoxy, and C_{1-6} alkoxy C_{1-6} alkyl; or R^{n1} and R together with the atom to which they are attached form 3- to 8-membered heterocyclyl or 5- to 10-membered heteroaryl; or R^b and R together with the atom to which they are attached form 3- to 6-membered heterocyclyl;

wherein the 3- to 8-membered heterocyclyl, 3- to 6-membered heterocyclyl, and 5- to 10-membered heteroaryl are each independently optionally substituted with one or more substituents selected from the group consisting of halogen, hydroxy, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, $-CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl$)_2$, C_{1-6} alkyl, and C_{1-6} alkoxy;

preferably, L is selected from the group consisting of $-NR^{n1}C(O)-$, $-NR^{n1}-C(O)-NR^{n1}-$, and $-CR^d=CR^e-$; R^{n1} is selected from the group consisting of hydrogen atom, C_{1-6} alkyl, and deuterated C_{1-6} alkyl; R^d and R^e are identical or different, and are each independently selected from the group consisting of hydrogen atom, C_{1-6} alkyl, and halogen; R is selected from the group consisting of C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} hydroxyalkyl, cyclopropyl, C_{1-6} haloalkyl, deuterated C_{1-6} alkyl, deuterated C_{1-6} alkoxy, and C_{1-6} alkoxy C_{1-6} alkyl; or R^{n1} and R together with the atom to which they are attached form 5- to 8-membered heterocyclyl; or R^b and R together with the atom to which they are attached form 5- to 6-membered heterocyclyl; wherein the 5- to 8-membered heterocyclyl, and 5- to 6-membered heterocyclyl are each independently optionally substituted with one or more substituents selected from the group consisting of halogen, hydroxy, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, $-CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl$_{)2}$, C_{1-6} alkyl, and C_{1-6} alkoxy;

more preferably, L is selected from the group consisting of $-NR^{n1}C(O)-$, $-NR^{n1}-C(O)-NR^{n1}-$, and $-CR^d=CR^e-$; R^{n1} is selected from the group consisting of hydrogen atom, C_{1-6} alkyl, and deuterated C_{1-6} alkyl; R^d and R^e are identical or different, and are each independently selected from the group consisting of hydrogen atom, C_{1-6} alkyl, and halogen; R is selected from the group consisting of C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} hydroxyalkyl, cyclopropyl, C_{1-6} haloalkyl, deuterated C_{1-6} alkyl, deuterated C_{1-6} alkoxy, and C_{1-6} alkoxy C_{1-6} alkyl; or R^{n1} and R together with the atom to which they are attached form , , ,

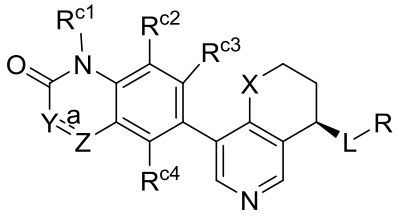
, , and ; or R^b and R together with the atom to which they are attached form , each R^f and R^g is identical or different, and is independently selected from the group consisting of hydrogen atom, halogen, hydroxy, C_{1-6} hydroxyalkyl, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, cyano, amino, $-CONH_2$, $NH(C_{1-6}$ alkyl), $N(C_{1-6}$ alkyl)$_2$, C_{1-6} alkyl, and C_{1-6} alkoxy; t is 0, 1, 2, 3, or 4; u is 0, 1, 2, 3, 4, or 5;

more preferably, L is selected from the group consisting of -NHC(O)-, -NH-C(O)-NH-, -NH-C(O)-N(CH_3)-, -NH-C(O)-N(CD_3)-, and -CH=CF-; R is selected from the group consisting of C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, deuterated C_{1-6} alkyl, deuterated C_{1-6} alkoxy, and C_{1-6} alkoxy C_{1-6} alkyl; or R^{n1} and R together with the atom to which they are attached form , , , , , and ; or R^b and R together with the atom to which they are attached form ; or

L is selected from the group consisting of $-NR^{n1}C(O)-$, $-NR^{n1}-C(O)-NR^{n1}-$, and $-CR^d=CR^e-$; R^{n1} is selected from the group consisting of hydrogen atom, C_{1-6} alkyl, and deuterated C_{1-6} alkyl; R^d and R^e are identical or different, and are each independently selected from the group consisting of hydrogen atom, C_{1-6} alkyl, and halogen.

7. The compound according to any one of claims 1 to 6, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate

thereof, or the pharmaceutically acceptable salt thereof, which is a compound of formula (I-a), a stereoisomer thereof, an isotopic derivative thereof, a prodrug thereof, an N-oxide thereof, a solvate thereof, or a pharmaceutically acceptable salt thereof;



(I-a)

wherein:

X is selected from the group consisting of -CH_2-, -O-, -NH-, and -S-, preferably X is selected from the group consisting of -CH_2- and -O-;

L is selected from the group consisting of -$NR^{n1}C(O)$- and -NR^{n1}-C(O)-NR^{n1}-;

bond a is a single bond or a double bond;

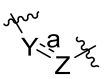
when bond a is a single bond, Y and Z are identical or different, and are each independently selected from the group consisting of -O-, -NH-, and -$CR^{c5}R^{c6}$-;

when bond a is a double bond, Y and Z are identical and are both selected from CH;

R^{c1} is selected from the group consisting of hydrogen atom, C_{1-6} alkyl, deuterated C_{1-6} alkyl, C_{1-6} haloalkyl, 3- to 6-membered heterocyclyl, and 3- to 6-membered cycloalkyl;

R^{c2}, R^{c3}, R^{c4}, R^{c5}, R^{c6} are identical or different, and are each independently selected from the group consisting of hydrogen atom, halogen, C_{1-6} alkyl, and C_{1-6} haloalkyl;

R^{n1} and R are as defined in formula (IA);

provided that: when X is -CH_2-,  is not -CH_2-CH_2- at the same time, and -L-R is not -NHC(O)-CH_2CH_3 at the same time.

8. The compound according to any one of claims 1 to 7, the stereoisomer thereof,

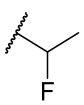
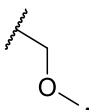
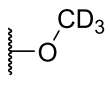
the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, wherein when bond a is a single bond, one of Y and Z is -O- and the other is -$CR^{c5}R^{c6}$-; R^{c5} and R^{c6} are as defined in claim 7.

9. The compound according to any one of claims 1 to 8, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, wherein R^{c2}, R^{c3}, R^{c4}, R^{c5}, R^{c6} are identical or different, and are each independently selected from the group consisting of hydrogen atom, F, Cl, -CHF_2, and methyl; and/or

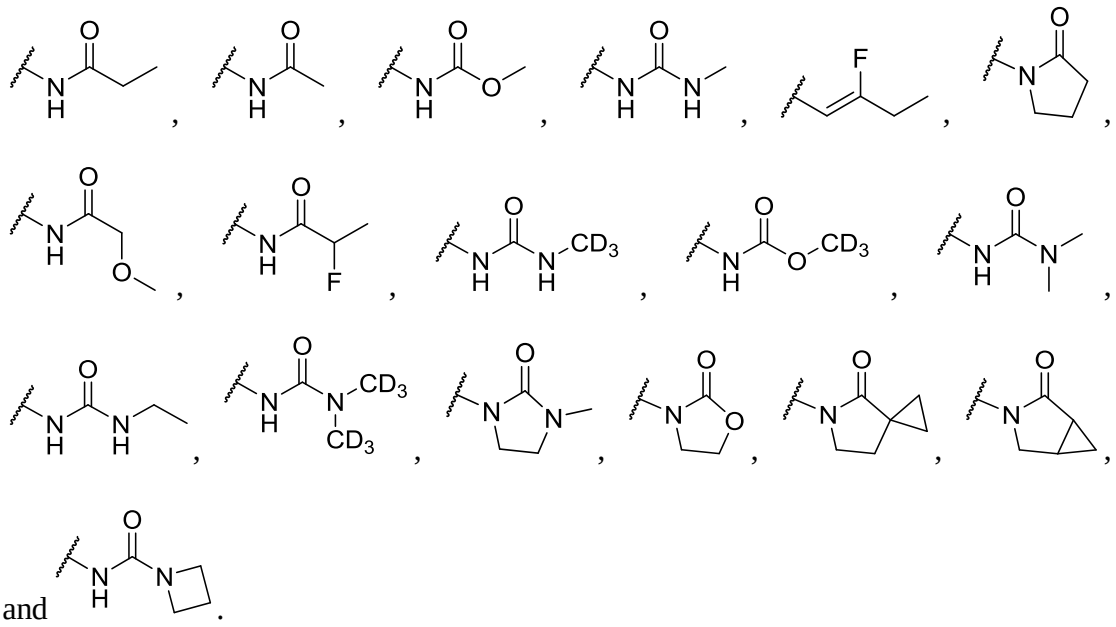
R^{c1} is selected from the group consisting of hydrogen atom, cyclopropyl, methyl, and deuterated methyl; preferably, R^{c1} is selected from the group consisting of methyl and deuterated methyl; more preferably, R^{c1} is selected from the group consisting of methyl and -CD_3.

10. The compound according to any one of claims 1 to 9, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, wherein L is selected from the group consisting of -NHC(O)-, -NH-C(O)-NH-, -NH-C(O)-N(CH_3)-, -NH-C(O)-N(CD_3)-, and -CH=CF-; preferably, L is selected from the group consisting of -NHC(O)- and -NH-C(O)-NH-; and/or

R is selected from the group consisting of C_{1-6} haloalkyl, deuterated C_{1-6} alkyl, C_{1-6} alkoxy C_{1-6} alkyl, C_{1-6} alkyl, C_{1-6} alkoxy, and deuterated C_{1-6} alkoxy; and/or R^{n1} is selected from the group consisting of hydrogen atom, C_{1-6} alkyl, and deuterated C_{1-6} alkyl;

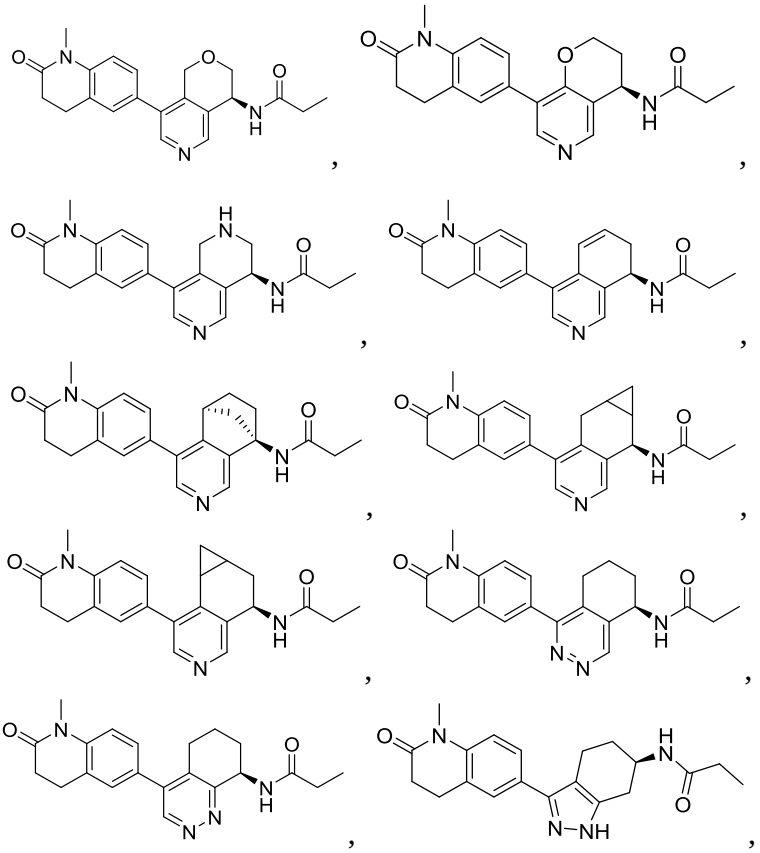
preferably, R is selected from the group consisting of , , , ethyl, methyl, methoxy, and ; or

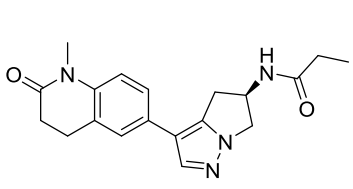
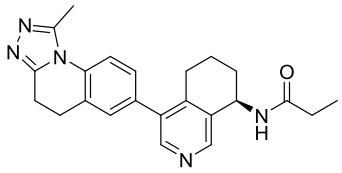
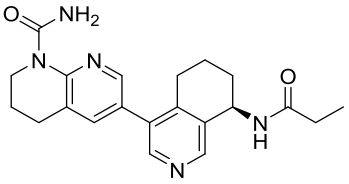
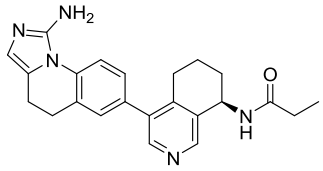
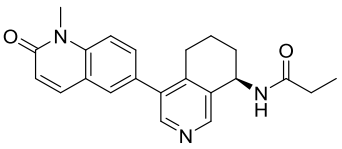
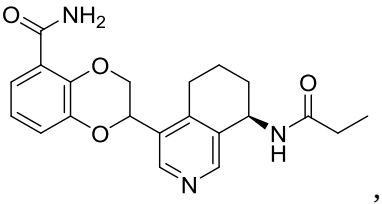
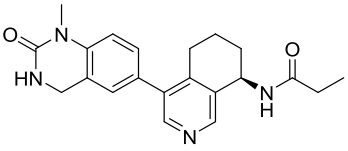
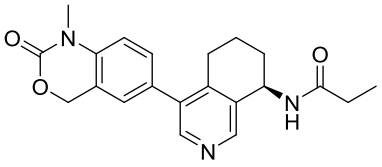
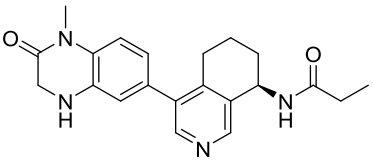
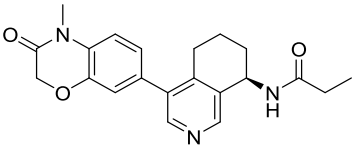
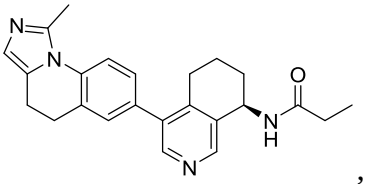
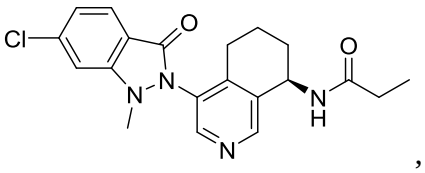
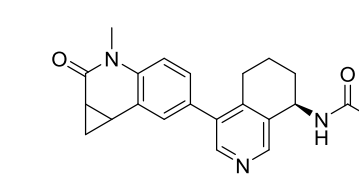
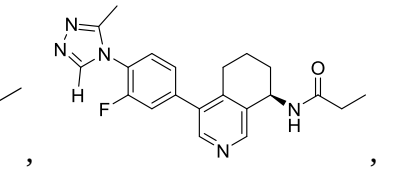
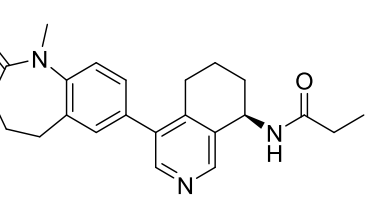
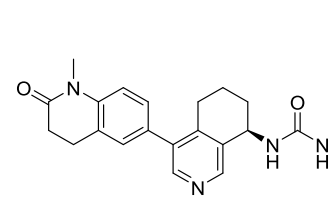
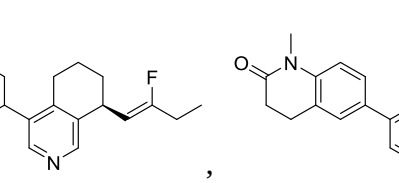
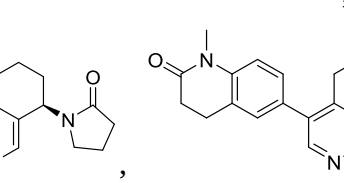
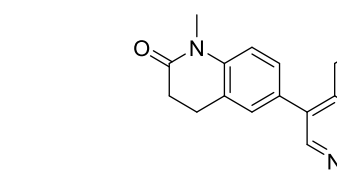
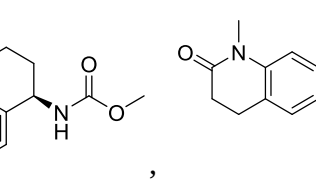
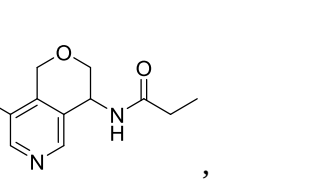
the structural moiety  is selected from the group consisting of



and .

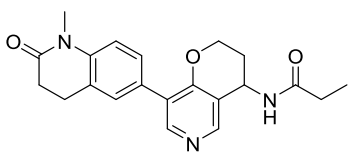
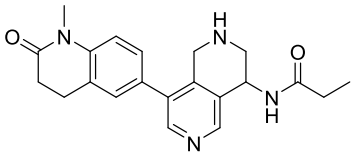
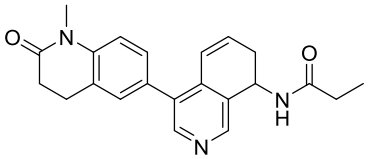
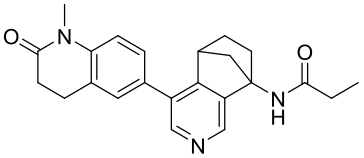
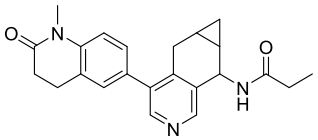
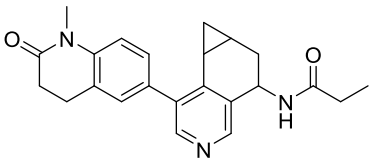
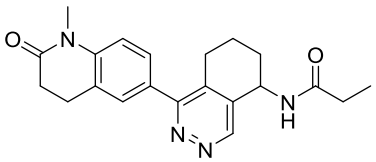
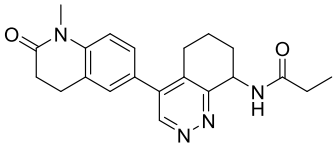
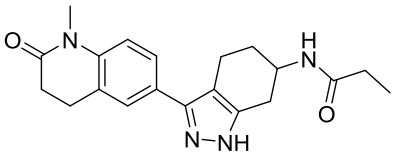
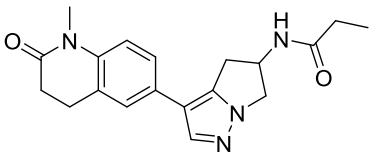
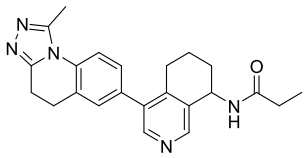
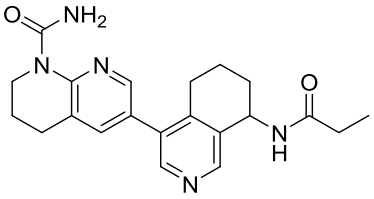
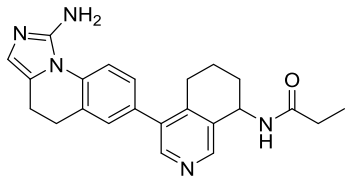
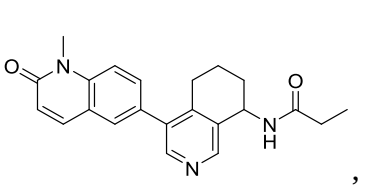
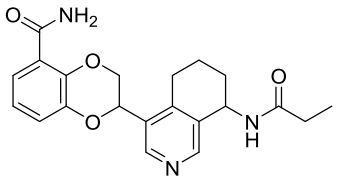
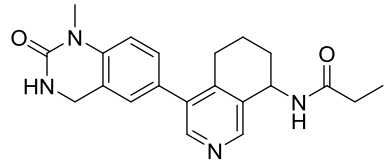
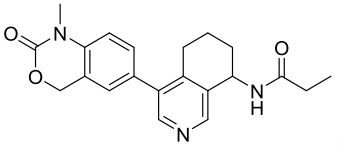
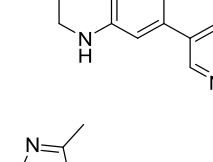
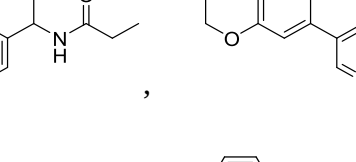
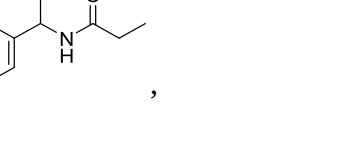
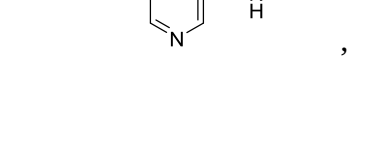
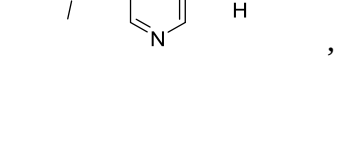
11. The compound according to any one of claims 1 to 10, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, wherein the compound is selected from the group consisting of:



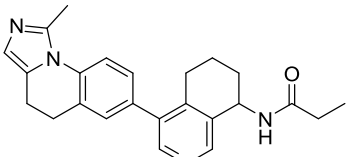
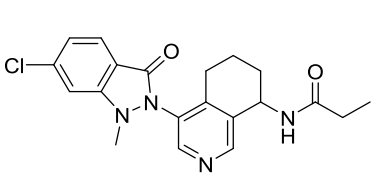

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

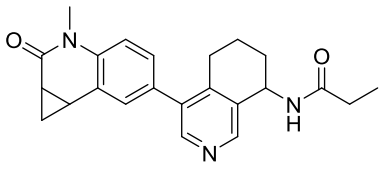
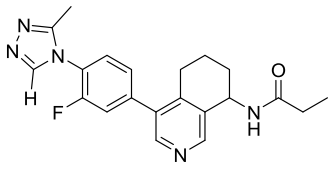
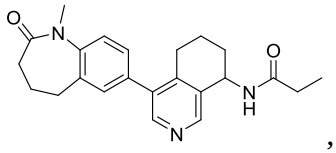
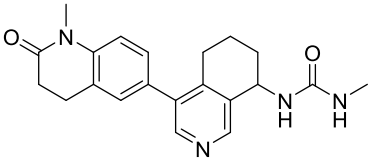
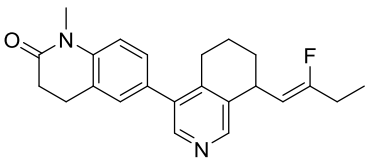
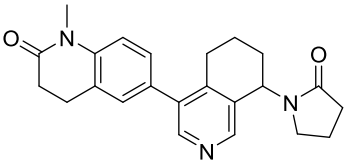
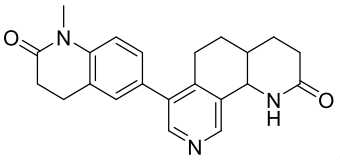
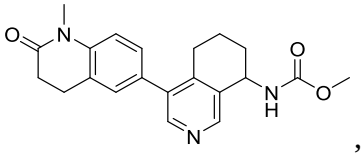
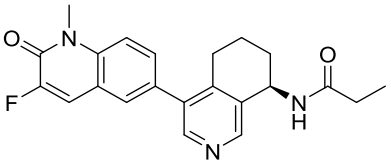
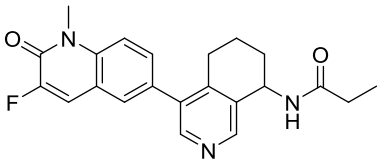
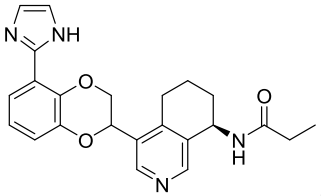
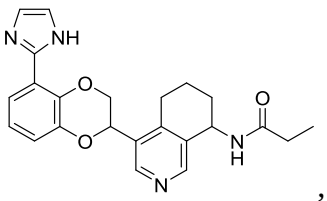
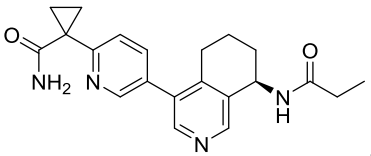
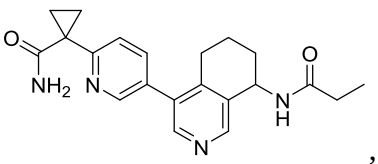
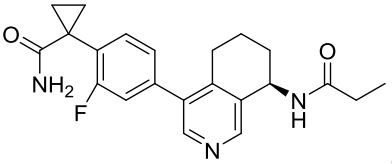
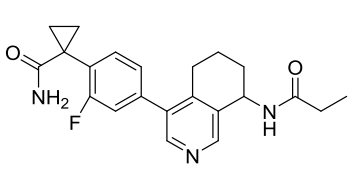
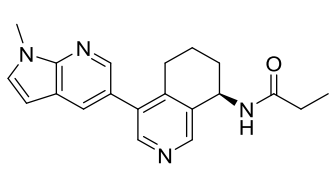
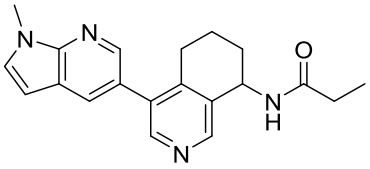
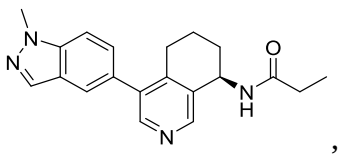
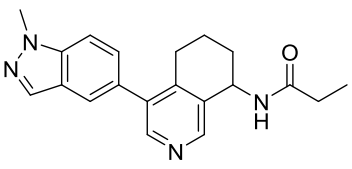
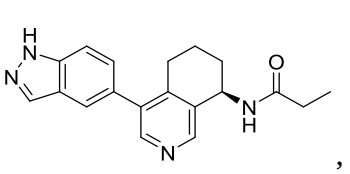
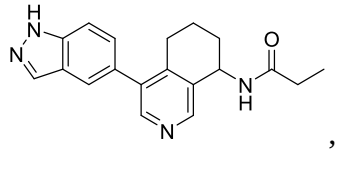
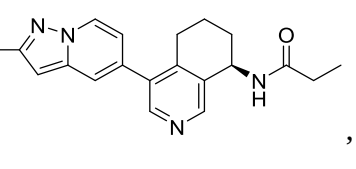
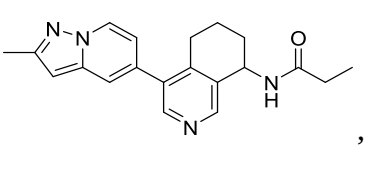

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

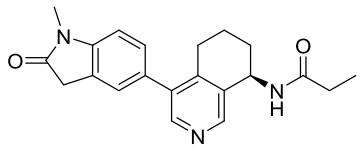
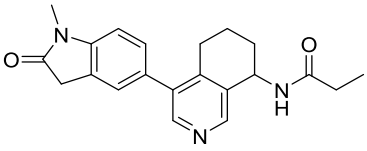
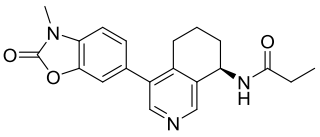
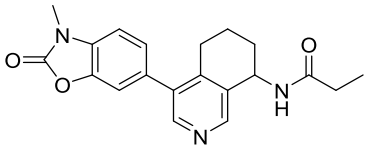
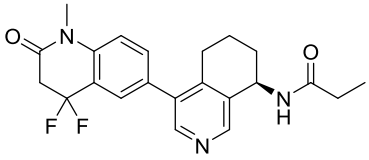
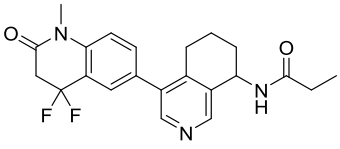
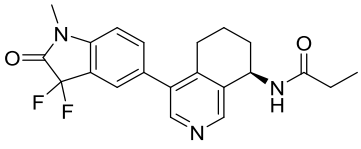
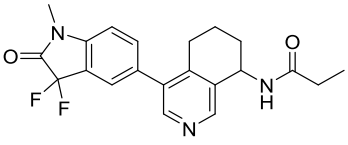
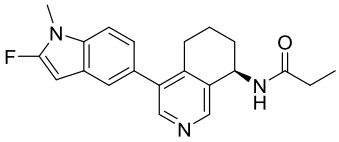
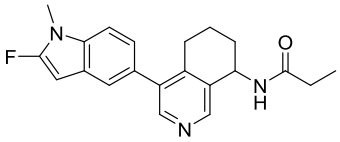
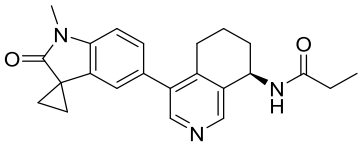
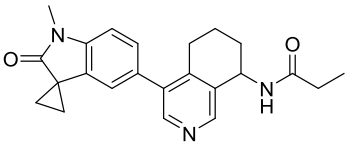
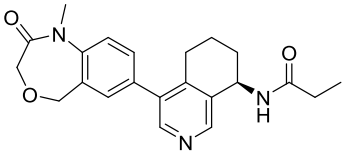
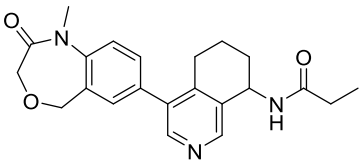
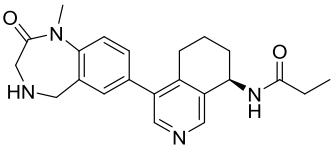
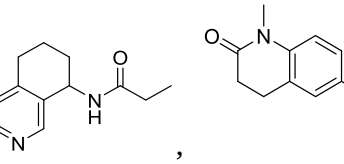
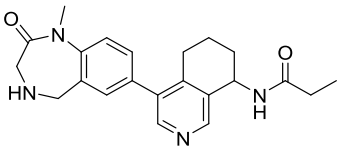
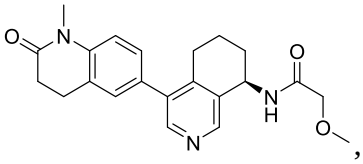
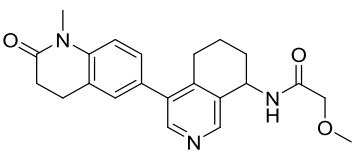
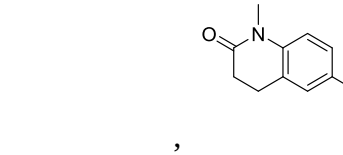
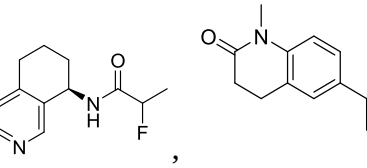
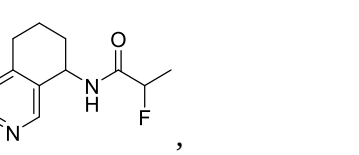
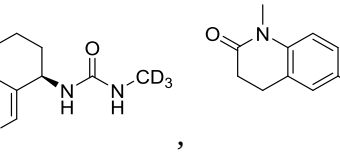
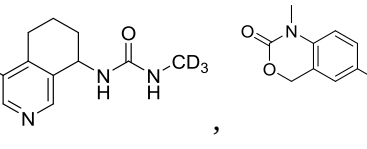
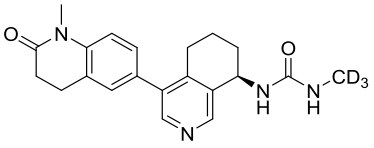
,

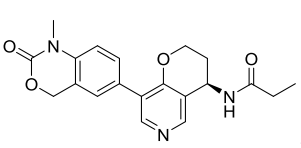
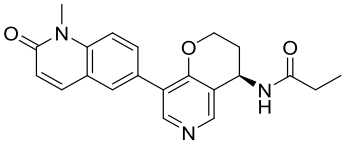
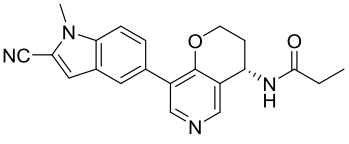

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

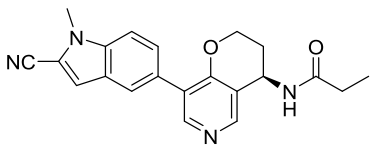
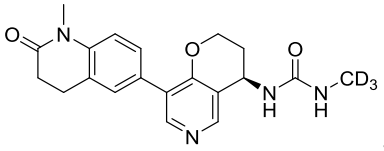
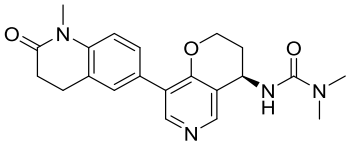
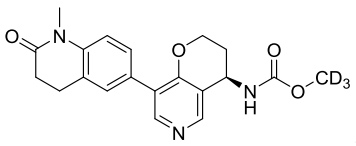
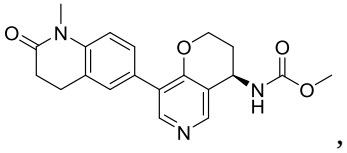
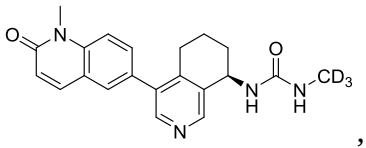
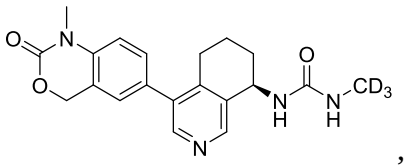
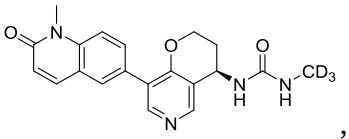
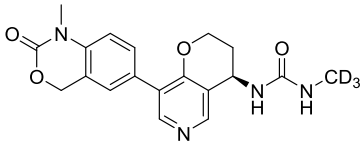
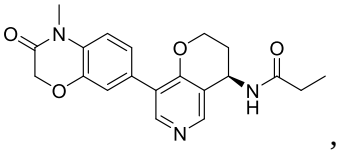
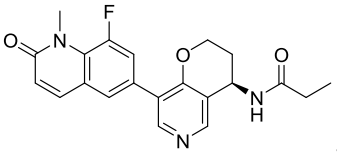
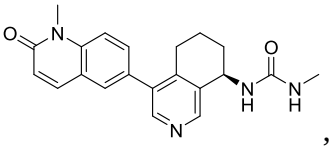
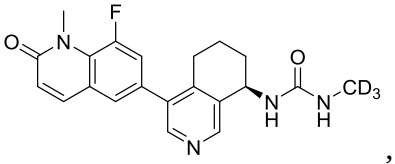
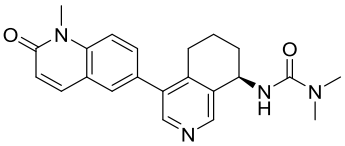
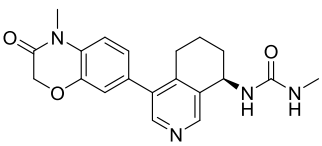
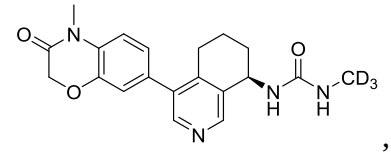
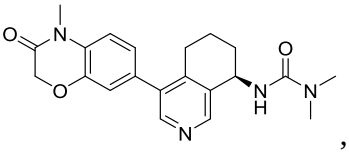
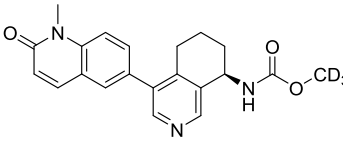
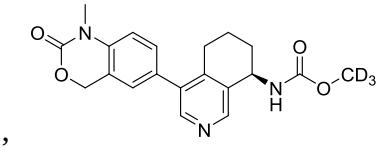
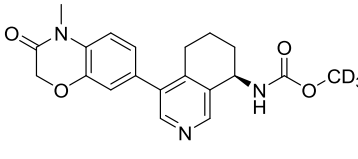
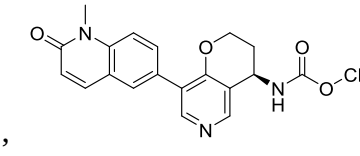
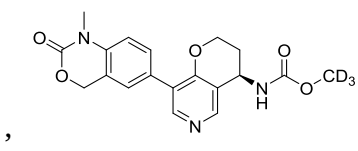
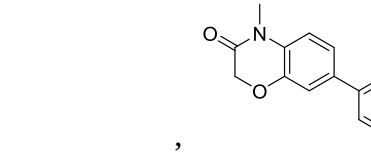
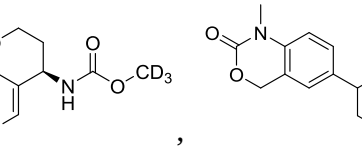
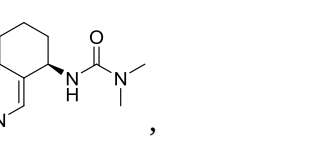
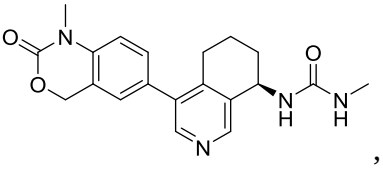
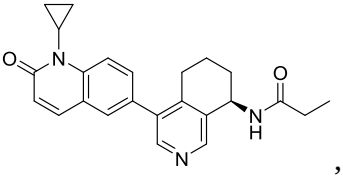
,

,

,

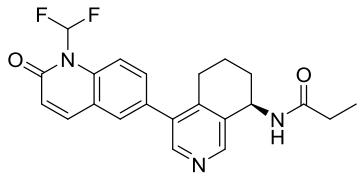
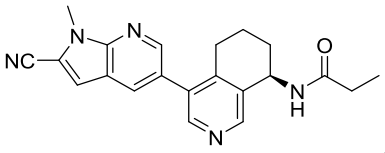
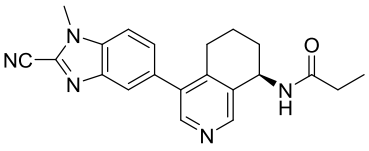
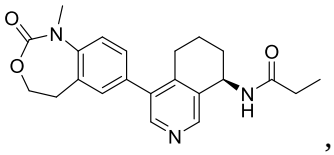
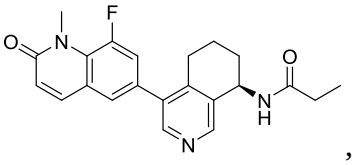
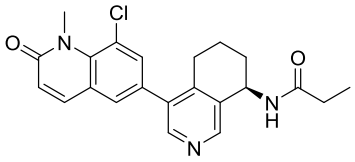
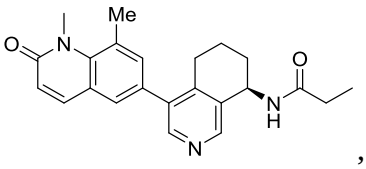
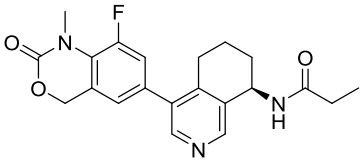
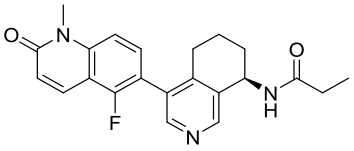
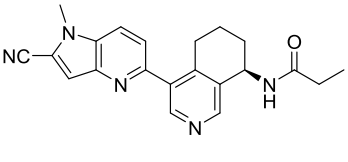
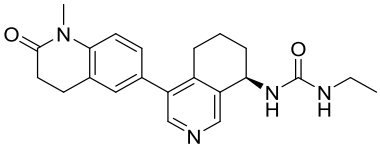
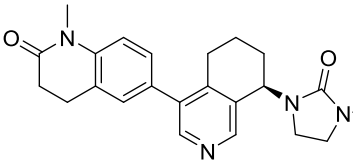

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

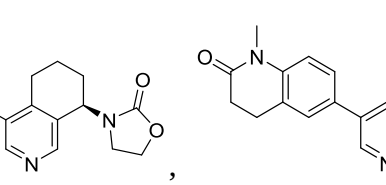
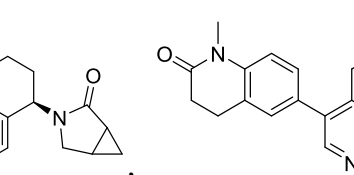
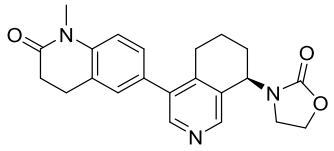
,

,

,

,


,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

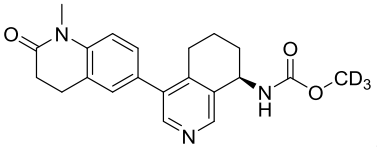
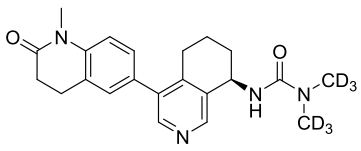
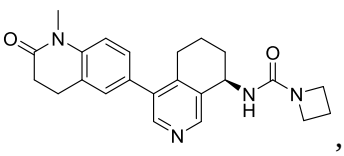
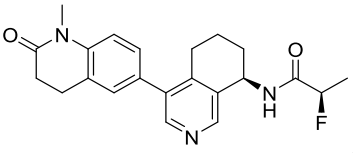
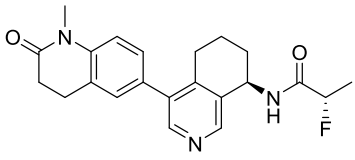
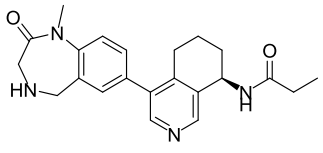
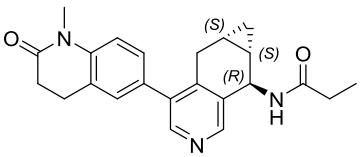
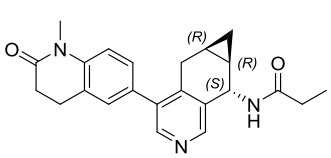
,

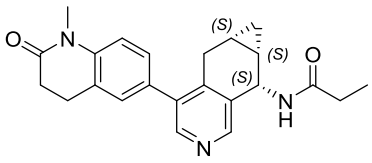
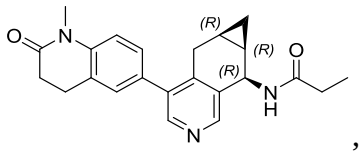
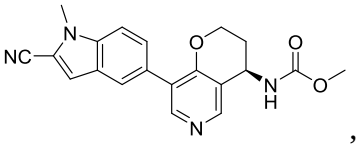
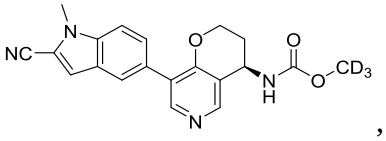
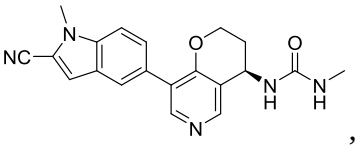
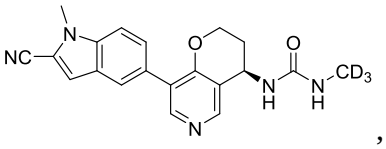
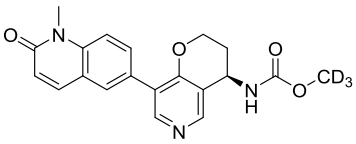
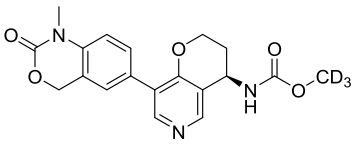
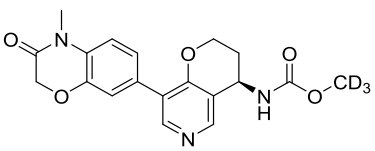
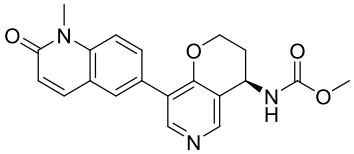
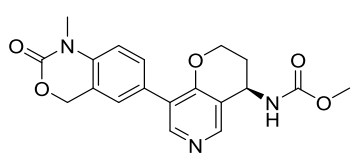
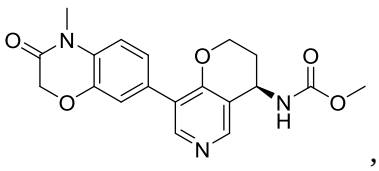
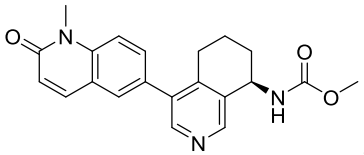
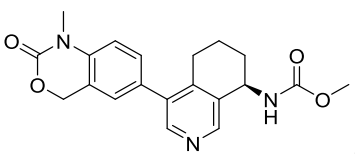
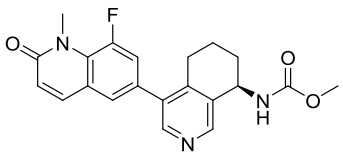
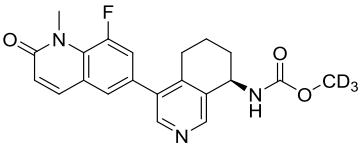
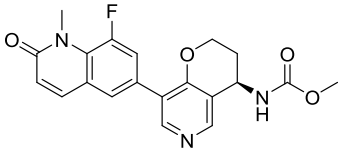
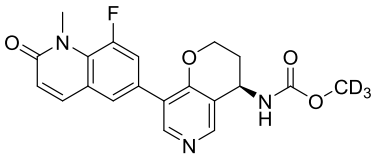
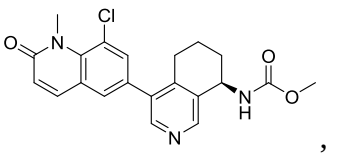
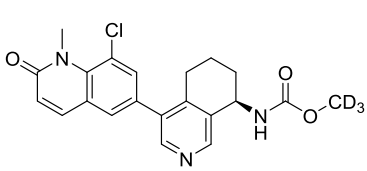
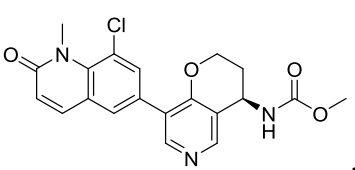
,

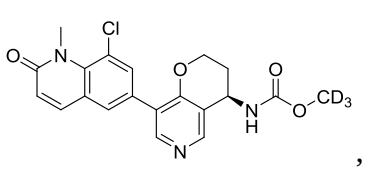
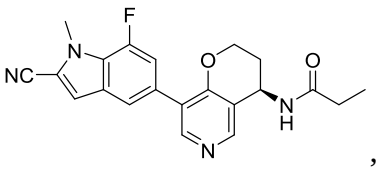
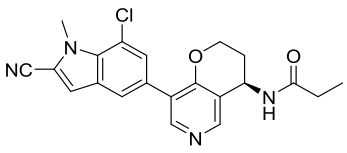
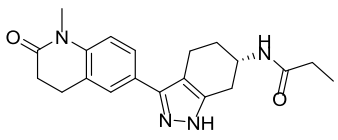
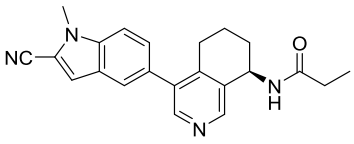
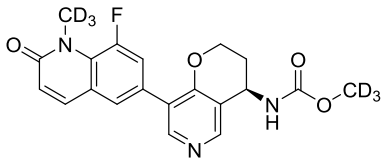
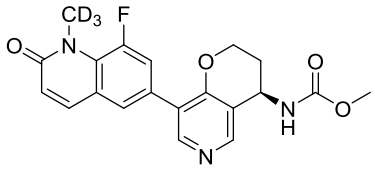

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

HCOOH
,

,

,


,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,

,


,

,

,

,

,

,

.

12. A pharmaceutical composition comprising the compound according to any one of claims 1 to 11, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, and one or more pharmaceutically acceptable carriers.

13. The compound according to any one of claims 1 to 11, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, or the pharmaceutical composition according to claim 12, for use as a medicament for inhibiting CYP11B2, preferably, for use as a medicament for selectively inhibiting CYP11B2.

14. The compound according to any one of claims 1 to 11, the stereoisomer thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, or the pharmaceutical composition according to claim 12, for use in treating and/or preventing a CYP11B2-mediated disease;

preferably, the disease is selected from the group consisting of hypertension, chronic kidney disease, diabetic nephropathy, primary aldosteronism, chronic kidney disease, and diabetic nephropathy; the hypertension is preferably selected from the group consisting of resistant hypertension, uncontrolled hypertension, low-renin hypertension, and primary hypertension.

15. The compound according to any one of claims 1 to 11, the stereoisomer

thereof, the isotopic derivative thereof, the prodrug thereof, the N-oxide thereof, the solvate thereof, or the pharmaceutically acceptable salt thereof, or the pharmaceutical composition according to claim 12, for use as a medicament for reducing aldosterone levels in a subject.